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The Adverse Impact of Ecosystem Degradation and Poor Governance on Marginalized People

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There are no conflicts to declare.

ABSTRACT

Bangladesh has been achieving remarkable success in economic growth in the last two decades. Does this economic success bring a sustainable and positive result for marginalized people? This study aims to investigate whether the local economic activity positively changes their socioeconomic position. The study reveals that cropland lost on an average of 0.2636 *Bigha* per household and disappeared 2.59 local fish species in local water bodies. Moreover, more than three-fourth respondents perceived that their access to local ecosystem services is decreasing and the services are degraded. However, more than half of the respondents paid $6.82 each time as a bribe in accessing to local ecosystem services. Combine of these issues is negatively influencing their income, employment opportunity, and household expenditure so that the marginal community becomes more marginalized and wealthier become wealthier. This study may help to find out a new trajectory of sustainable economic activity in the coastal areas with reducing ecosystem services degradation and vulnerability of marginalized people.

Keywords: DISAPPEARANCE OF LOCAL FISH; LOSS OF CROPLAND, MARGINALIZED PEOPLE; REDUCE INCOME; INCREASE EXPENDITURE; POOR GOVERNANCE

1. Introduction

Bangladesh has shown remarkable success in economic growth in the last two decades but is this growth sustainable for the country? The hidden reality is that sometimes the overall gain from the economic developmental activities[1] is negative because ecosystems are degraded as tradeoffs (Dawson et al. 2018). However, few people are well off within a short period and mass people are deprived in different ways. Firstly, the lack of mobilization of mass people in the economic development initiatives. Secondly, to gain the developments there are tradeoffs (e.g. environmental degradation). This trade-off affects poor and

[1] Economic activity or growth indicates that economic development or other development initiatives takes place through damaging local ecosystems.

marginalized people severely as they largely rely on the ecosystem for their livelihoods. To make it sustainable, it needs to remove the barriers of ecosystem services degradation and mobilize the benefit among mass people.

Ecosystem services (e.g., wild fish, honey, water, land, timber) are inherently linked to social, economic, and environmental development. An economic development, food, and social security rely on sustainable use of ecosystem services. The ecosystem services are important safety nets for the poorest households (Dearing and Hossain, 2018) in coastal Bangladesh. A rich ecosystem can supply safe water and allows communities to cook, drink, and grow crops. For example, by using sustainable use of water, communities can strengthen local agriculture that reinforces the regional economies and ensure food security.

The ecosystems are one of the most heavily exploited and endangered natural systems due to human settlement, deforestation, agricultural land conversion, and aquaculture development (Alam et al. 2014, Halpern et al. 2008; Lotz et al. 2006; Worm et al. 2006). The degradation of ecosystems is more intense over the globe that includes 30% of coral reefs, 29% of seagrasses, 50% of salt marshes, 35% of mangrove either lost or in danger (FAO, 2007; Orth et al. 2006; UNEP, 2006; Waycott et al. 2009). In Bangladesh, the country lost 9734 hectares of mangrove forest during the period between 1975 and 1999 (Shahid and Islam, 2003) due to shrimp farming, embankments, salt bed preparation, and other development activities. Moreover, on average 4.27% of mangrove forests lost every year from 2000 to 2010 in Bangladesh (Hasan et al. 2013).

In coastal Bangladesh, aquaculture development is responsible for salinity intrusion, water pollution, waterlogging, and deforestation. The high intensity and frequency of saltwater intrusion from shrimp farming lessen crop production and generates more jobless particularly for landless farmers (Swapan and Gavin, 2011). This salinity also intensifies by the polderisation and flood control projects since the 1960s (Islam, 2006; Mirza, 1998; Mirza and Erickson, 1996; Swapan and Gavin, 2011).

To reduce the impact of ecosystem degradation on marginalized people it needs to find out the link between ecosystem services, economic advancement, marginalized people, and sustainable development because ecosystem services comprise the benefit of mass people (Troy and Wilson 2006). In this context, this paper focuses on how unplanned and unsustainable economic activities and poor governance are creating survival challenges for marginalized people? Moreover, it is difficult to quantify the impact of ecosystem degradation on marginalized people. This paper focuses on quantifying it and find out how they are affected. Besides, this paper tries to inform the policymaker that it needs to change investment decisions regarding poverty reduction. They need to invest in protecting the ecosystem that will contribute to reduce poverty as well as compensate those who are affected indirectly and indirectly. This paper shows that development initiatives or economic activities can not contribute to the socioeconomic development of moralized people when the initiative conflicts with ecosystem protection.

The paper is organized as section 2 introduces the theoretical background, and the following section elaborates the data collection and analyses methods, and analytical framework of this study. Section 4 expands the connection between ecosystem services degradation and poor governance and its adverse impact on marginalized people. Section five concludes the paper.

2. Theoretical background

The ecosystem provides different kinds of direct and indirect products and services (e.g., provisioning services, regulating, habitat, and cultural services) for the welfare, human, and health (Costanza et al. 1997) that form the base of human society (Bolund and Hunhamma 1999). The quantity and quality of provisioning services produced by ecosystems are largely relying on the process, function, and structure of the surrounding natural ecosystem (De Groot et al. 2002). Population growth, changing distribution of these populations over different ecological regions, economic development, pressure on habitats for settlement or agriculture, and pressure on the ecosystem for productive use have placed enormous pressure on the ecosystem that leads to ecosystem degradation (Adger and Fortnam, 2018; Zhang et al. 2015). Development interventions with demographic and environmental change may influence the ecosystem service use and wellbeing (Adger and Fortnam, 2018), particularly of marginalized people.

The concept of 'ecosystem service' has provided important common ground for different disciplines to discuss interdependent environmental and developmental goals (Pascual and Howe, 2018). Rees (2003: 30) argued that "global ecological decline is the inevitable consequence of fundamental incompatibilities between the dominant growth-oriented cultural paradigm and biophysical reality". Throughout the late twentieth century, the green revolution and agricultural reform policies have played a crucial role in alleviating poverty, ensure food security, and rising standard of living all over the developing countries (Hartmann and Boyce 1983; Hayami and Kichuchi 2000). These policies have placed enormous pressure on ecosystem resources (Adams et al. 2018), particularly in coastal settings. This pressure degraded ecosystem services[2] as tradeoffs that make the marginalized community vulnerable because they are mostly dependent on these services for their livelihood and wellbeing.

The ecosystem service has trade-offs regarding which services, at whose cost or benefit, at what scale, from global to local, and which social groups (e.g., marginalized and poor people, rich people) (McDermott et al. 2013). Poor and vulnerable people are disproportionately relying on access to ecosystem services (Daw et al. 2011) for their livelihoods. The clarification of the nature of tradeoffs between economic development, ecosystem services, benefit, and discrimination of slow processes which support resilience (Carpenter and Turner, 2001) has improved (Hossain et al. 2016). Meanwhile, biophysical tipping points are reached due to human actions (Wang et al. 2012) and shows the sign of growing instability over regional social-ecological

[2] wild fish, crab, wild food, fodder, forest, land, freshwater sources

systems (Zhang et al. 2015). However, there is a rich body of theory regarding the relationship between poor, natural resource-reliant people, and their environments (Adams et al. 2018) such as governmentality (Agrawal, 2005), political ecology (Robins, 2011), and social vulnerability (Adger, 1999).

The concept of 'adaptive management of ecosystems' needs to entrance the composite and dynamic social-ecological systems (Liu et al. 2007) that have gained attention for study over the last few decades. Folke et al. (2005) suggested that society needs more understanding of the interaction between external drivers and social conditions, and ecosystems so that it can respond to environmental feedback and change. For this purpose, Ostrom (2007) established a nested and multitier framework known as SES (Social-Ecological System) framework. Biggs et al. (2012) promoted the understanding of SES as a complex adaptive system that represents one of the key principles for managing ecosystem services. The socio-economic development achieved through the economic activity without sustainable management of ecosystem services is not sustainable.

Therefore, although economic progress has become the principal tool for poverty alleviation and achieves sustainable development goals, it involves social-ecological tradeoffs (Dawson et al. 2018) which raises questions for development. For instance, Deb (1998) stated that although shrimp cultivation is crucial for the national economy of Bangladesh environmental degradation due to shrimp farming could facilitate marginalization within coastal communities due to marginalized people's deprivation from traditional coastal resources. The ecosystem services are changing due to local economic growth initiatives. Marginalized people are adversely affected by the change in ecosystem services and do not have access to the benefit arising from this change because of several institutional and structural barriers (Dawson et al. 2016; Dawson et al. 2017; Dearing et al. 2014; Hossain et al. 2016; Islam et al. 2015).

3. Methodology

3.1 Study Location and Socioeconomic Status: The study conducted in the Bagerhat district of Bangladesh and primary data collected from 150 households. Ecosystem services are an integral part of their life and their livelihood largely relies on those services. Their socioeconomic position (e.g., gender, profession, monthly income, and land ownership) presents in Figures 2, 3, and table 2. Figure 2 demonstrates that 97 respondents are male, and the remaining are female in this study. Figure 3 reports that they involve in different types of professions (mutually inclusive) such as fisher (67), day laborer (45), farmer (31), housewife (29), and fish trader (9). From these professions, their monthly mean income is US$ 87.58 with a standard deviation of 101.50. They owned 0.40 (cropland) and 0.26 (house) *bigha* with a standard deviation of 0.9850 and 0.2081 per household respectively. Monthly income, land ownership, and profession indicate that the respondents are an impoverished group of people in the study area.

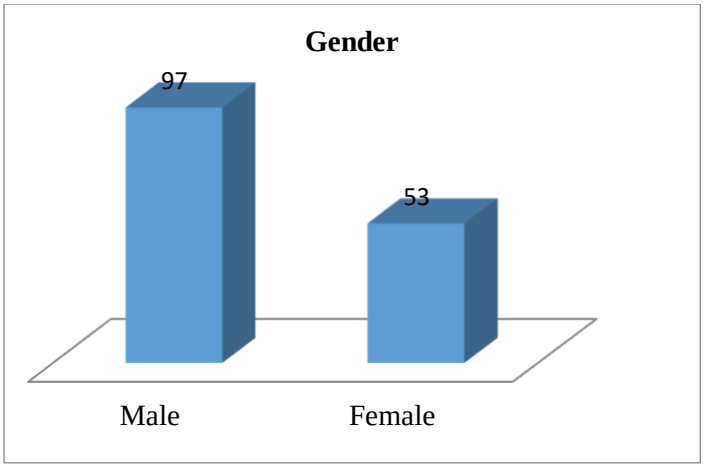

Figure 2: Gender

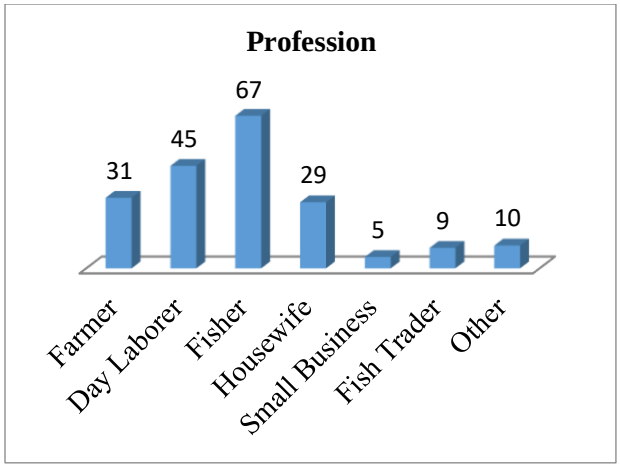

Figure 3: Profession

Monthly Income (US$[3])		Land Ownership (Bigha[4])			
		House		Cropland	
Mean	87.5897562	Mean	0.264333333	Mean	0.408
Standard Error	8.26071831	Standard Error	0.01699491	Standard Error	0.0804262
Median	58.8373735	Median	0.24	Median	0.3
Mode	35.3024241	Mode	0	Mode	0
Standard Deviation	101.5094061	Standard Deviation	0.2081443	Standard Deviation	0.9850159
Sample Variance	10304.15952	Sample Variance	0.0433240	Sample Variance	0.9702563
Kurtosis	55.76891439	Kurtosis	1.3152477	Kurtosis	67.160840
Skewness	6.154211616	Skewness	0.89998212	Skewness	7.58172417
Range	1059.072723	Range	1.12	Range	10
Minimum	0	Minimum	0	Minimum	0
Maximum	1059.072723	Maximum	1.12	Maximum	10
Sum	13226.05319	Sum	39.65	Sum	61.2
Count	150	Count	150	Count	150

Table 1: Descriptive Statistics of respondents on monthly income and land ownership

3.2 Data Collection and Analyses

The primary data collected through a household survey, participants' observation, focus group discussion (FGD), and key informant interview (KII) in 2018 (December) and 2019 (August). Data were collected by male and female research assistants and the researcher himself. In addition to primary data, relevant secondary data also used in this study. However, the study followed a mixed-methods approach to analyze the data.

3.3 Analytical Framework

In ecological economics and environmental science, it is an important phenomenon to understand the relationship between economic advancement and environmental degradation (Arrow et al. 1995; Stern et al. 1996). This issue has been gaining attention in political processes, policymakers, and academics as it is related to global and local sustainability (Rees, 2003). Rees (2003:30) pointed out that "while there has, indeed, been

[3] One US$ equals to 84.98 BDT (Bangladeshi Taka)
[4] One *Bigha* equals to 33 decimal. One Decimal equals to 435.6 square feet

a great increase in high-sounding rhetoric and even a flurry of environmental legislation in various countries around the world, economic growth remains the focal item on the political agenda". In this circumstance, the relationship between economic progress, marginalized community, and governance has been rarely examined. This study adopts a framework based on the idea that ecosystem services are derived from the local ecosystems (Fisher et al. 2008) and these services have an impact on marginalized people. Figure 4 presents the analytical framework of this study.

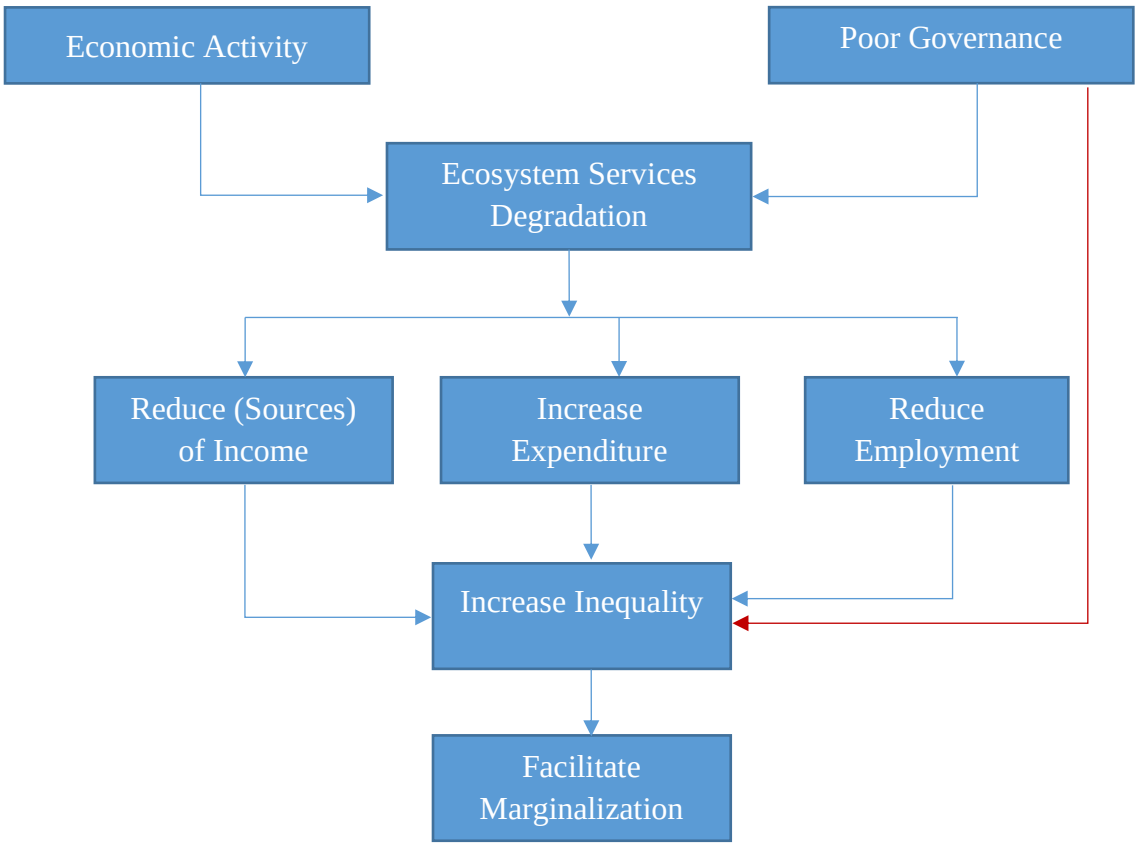

Figure 4: Analytical framework

The ecosystem services have become important social, economic, and political issues in recent years since these can change the trajectory of socio-economic development. The services are one of the most valuable on the planet because of provisioning ecosystem services (Barbier et al. 2011, UNEP, 2006,) but it has been rapidly degraded by human actions (Lotz et al. 2006; Mora et al. 2011; Perry et al. 2011) such as industrialized overfishing (Wolf 1992), climate change and pollution (Hughes et al. 2003), coastal land reclamation for agricultural and urbanization (Wolf 1992), fish farming, deforestation, and reduction the volume of natural water bodies. These degradations undermine the income, employment, and household expenditure of marginalized people as they are predominately relying on ecosystem services. For example, mangrove forest has been reducing significantly due to economic and other development initiatives (e.g., shrimp farming and other fish farming, road and highway, dike, business enterprises) surrounding the Sundarbans in Bangladesh part but the mangrove forest is an important source of products and services.

Turner (1977) found that the loss of every hectare of mangrove forests reduces the collection of wild fish and shrimp by 767 kg[5]. Moreover, in Vietnam, when there was no mangrove forest, they could collect 10 ton of fish and no shrimp from Can Gio district in 1977 but the collection grew up to 3172 ton of fish and 150 ton of shrimp in 1980 when the mangrove forest was young in 1980 while mangrove forest was matured in 1989 collection increased to 15870 ton of fish and 2430 ton of shrimp (Deb, 1998). Along with this ecosystem degradation, poor governance mechanisms (e.g., bribe, lack of accountability and transparency, the role of local government administration) deteriorates the livelihood and wellbeing of marginalized people.

4. Findings

Bangladesh is well known for natural disasters, climate vulnerability as well as rich in terms of water, land, climate, and other ecosystem services. The coastal areas of the country possess a diverse range of marine and coastal ecosystems with wetland, creeks, mangroves, and coral reefs which supporting the wide biodiversity (Deb, 1998) of the country. However, it is also an impoverished country regarding efficient and sustainable use of those resources and calls up mass people for sustainable development. This mismatch is reflected in the coastal ecosystem as loss of cropland security, unemployment, reduce income, and increase the expenditure of marginalized people.

4.1The Adverse Impact of Economic Activity on Marginalized People

4.1.1Loss of Land Security

Initially (during 1970-1980) shrimp and other fish farming were operated for a short period particularly during the autumn[6] season. During that period, it was good for mass people because the croplands could use for shrimp farming as well as for producing crops (e.g., rice, wheat, and vegetable) during other seasons (e.g., monsoon, summer). It was their supplementary income that could contribute to their socio-economic development without adverse impact on the ecosystem. But it was not last long as rich people[7] realize that it is a profitable business and started to run this business for the whole year. They take the lease of the land from the peasants for cultivating shrimp and other fish. For this reason, marginalized people lost their cropland security to rich and influential people through either lease or forced sale. Table 2 shows the loss of cropland security of marginalized people.

Loss of Cropland Security (*Bigha)*	
Mean	0.2636
Standard Error	0.0225421
Median	0.3
Mode	0

[5] Kilogram

[6] Mid-August to Mid-October.

[7] They are politically and financially strong

Standard Deviation	0.2760831
Sample Variance	0.0762219
Kurtosis	0.7710535
Skewness	0.8486544
Range	1.42
Minimum	0
Maximum	1.42
Sum	39.54
Count	150

Table 2: Descriptive statistics for loss of cropland security of marginalized people

Table 2 reports the descriptive statistics for loss of cropland security of marginalized people in bigha. The mean loss is 0.2636 (standard deviation 9.0723) bigha per household within the group of respondents. It indicates that even though marginalized people do not have a large volume of cropland for their livelihood, but different development initiatives force to leave their little cropland to other particularly rich people's hand.

4.1.2 Unemployment

Several studies found that local development projects have generated a lot of employment, but they did not consider unemployment arise from these actions. If it makes a balance between the generation of employment and unemployment it will be negative. According to the FGD, there was a vast area of agricultural land which was used as the production of crops during summer and sources of wild fish, wild plants, fuel and other ecosystem services during monsoon as well as some part of summer ten years ago. All of the respondents (150) had access to this landscape for catching fish, crab, collecting wild plants and fuel, and other services. All of the fishers largely rely on this land for their livelihood during monsoon. Moreover, the entire respondents rely on this land directly for their income for the whole year. Since this land converted into a shrimp and fish farm, they do not have access to this land so that their employment options and income sources largely affected but it creates employment for around 20 to 25 people. The respondents were asked about the employment options due to this change. Figure 5 presents their answer which reflects on employment.

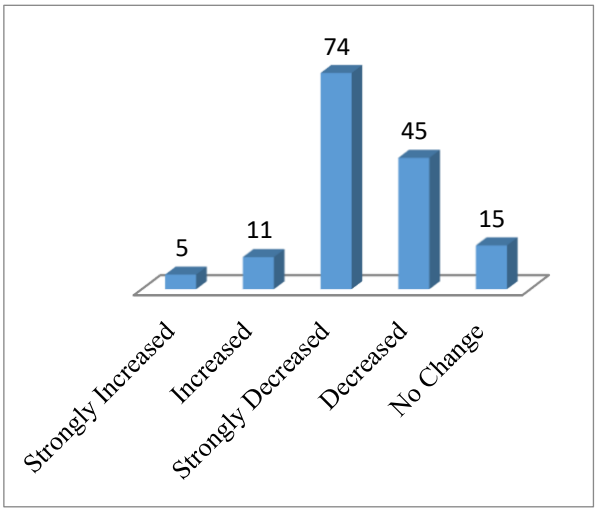

Figure 5: Employment Opportunities

Figure 5 exposes whether permanent employment opportunity increases due to different economic and other development initiatives. As per their response, 74 and 45 respondents informed that their employment options strongly decreased and just decreased respectively. Here we can conclude from the household survey and FGD that their unemployment is strongly increasing due to different development initiatives that damage local ecosystems.

4.1.3 Reduce Income

Marginalized people are the frontline sufferer of natural calamity and ecosystem degradation because their livelihoods are largely relying on ecosystems that are susceptible to climate change and unsustainable economic initiatives. Figures 6, 7, 8, and table 3 presents the position of ecosystem services compared to the past, access to those services for marginalized people, disappearance of local fish, and the reasons for disappearance respectively.

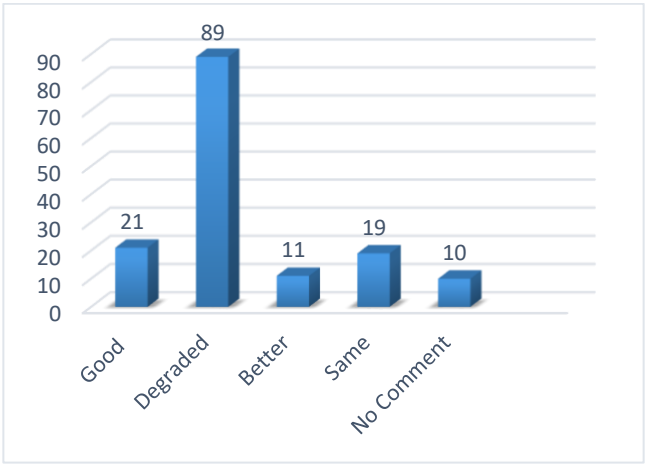

Figure 6: Present position of ecosystems services.

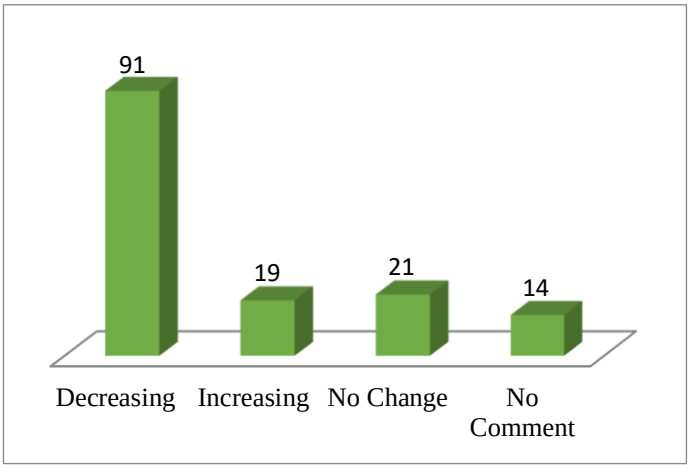

Figure 7: Access to ecosystem services

Figure 6 demonstrates that the present position of ecosystem services compared to the past. This figure includes the position of ecosystem services as good, degraded, better, same, and no comment. It points out that 89 respondents out of 150 informed that the services are degraded. According to the FGD, it was easy to catch 1 to 2 kg fish per hour ten years ago but now it is impossible to get 1 kg fish in two or three hours. However, figure 7 exposes 91 out of 150 participants that their access to those services is decreasing.

Disappearance of Local Fish	
Mean	2.5866667
Standard Error	0.1490272
Median	2
Mode	1
Standard Deviation	1.8252026
Sample Variance	3.3313647
Kurtosis	-0.576037
Skewness	0.4565324
Range	7
Minimum	0
Maximum	7
Sum	388
Count	150

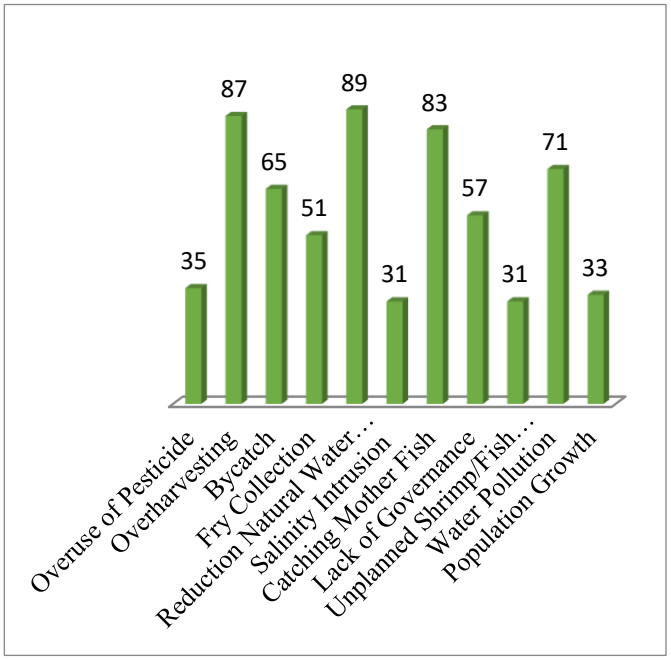

Table 3: Descriptive Statistics for disappearance of local fish species. Figure 8: Reasons for Disappearance of Local Fish (Mutually Inclusive)

Marginalized people rely on ecosystems for their livelihoods. Once there were a lot of wild fishes available in the *beel*[8], canal, and river which are becoming scarce. Ponds, dikes, and canal constructions for shrimp and fish farming reduce the volume and area of *beel* that change local hydrological attributes. According to the household survey, table 3 shows that around 2.58 local fish species (with a standard deviation of 1.82) disappeared from the local water bodies due to water pollution arise from overuse of pesticide and chemical fertilizer in shrimp and other fish farms, governance problem, overharvesting, bycatch, and reduction areas of natural water bodies (figure 8). This loss adversely affects the income of marginalized people since they largely rely on wild fish in different water bodies as a source of income. Moreover, table 2 shows that marginalized people lose 0.2636 *bigha* (mean) cropland which negatively impacts their income. As they lost their cropland security which was used as a source of their income and fulfilling their household demand so that their household expenditure rises.

4.1.4 Increase Expenditure

Figure 6 shows that ecosystem services are degraded and its access for marginalized people is decreasing. As the services degraded and access shrinking so that their expenditure increases. They need to spend extra money to gain access to those services to fulfill family demands. According to the FGD, as their house near to the shrimp farm so that they can't use their homestead lands for the production of vegetables such as long beans,

[8] *Beels* are open water bodies and lowest part of the cropland field access resources used by local communities for catching wild fish, grazing livestock, collection of the wild plant.

tomato, pumpkin, radish, bottle gourd, sweet potato, kidney beans, ash gourd, cucumber, brinjal, potato, spinach (*pui shak)* that lead to increase their overall expenditure. However, fish is the main source of protein and marginalized people could gain this protein by catching fish in the *beel* in the past. As they do not have access to the local water bodies particularly *beel* their protein intake markedly declines over time. Now, they need to spend money on their protein intake.

According to the KII *Johora Begum*, she could collect around 80 kg paddies along with straw from the *beel* during the rice harvesting season. The collected rice straw was used as cooking fuel and could fulfill the demand for fuel for three to four months. Her husband could earn money through fishing in the *beel* during the monsoon as well as fulfill the protein demand of the family. Now, neither of them has access as it converted into a private shrimp and fish farm. As they do not have access, they do not get any benefit from it which makes their life more difficult. Moreover, livestock is another main source of their income, but they cannot rear livestock (e.g., cattle, goat, and sheep) as the grazing ground (*beel*) has converted into a shrimp farm. In these circumstances, they have been facing surviving challenges. In this context, their overall household expenditure increases significantly.

4.2 Governance

The absence of adequate policy and regulatory framework due to weak governance structure can facilitate a negative impact on ecosystem services (Szabo et al. 2016) that may facilitate the adverse effect on marginalized people.

4.2.1 Bribe

At the study site, people need to get *pass*[9] from local forest officials to enter into the forest (*Sundarbans)* for catching fish and crab, collecting honey and fuel. Sometimes forest officials cancel the pass. To get back the pass people need to pay money to the officials. This payment makes in two ways. Firstly, they can give directly to the officials. Secondly, local political leaders negotiate between local communities and officials. They collect money from people and settle the issue with the officials. During the study visit in 2019, the author directly observed that some local political leaders were collecting money for getting back the *pass* from the officials. If they do not pay money, they will not get the *pass*. Table 4 shows the amount of payment as a bribe to the officials directly and through local political leaders. Figure 8 shows that 84 out of 150 respondents paid a bribe for getting pass and access to local ecosystem services in 2018-19.

[9] It is an approval to enter into the forest (Mangrove Forest that known as the Sundarbans) to catch fish and crab, collect honey, and fuel.

Payment of Bribe (US$)	
Mean	6.8209821
Standard Error	1.22378765
Median	3.53024241
Mode	3.53024241
Standard Deviation	11.28276465
Sample Variance	127.3007781
Kurtosis	11.759633666
Skewness	3.472159372
Range	57.66062603
Minimum	1.17674747
Maximum	58.8373735
Sum	579.7834785
Count	84

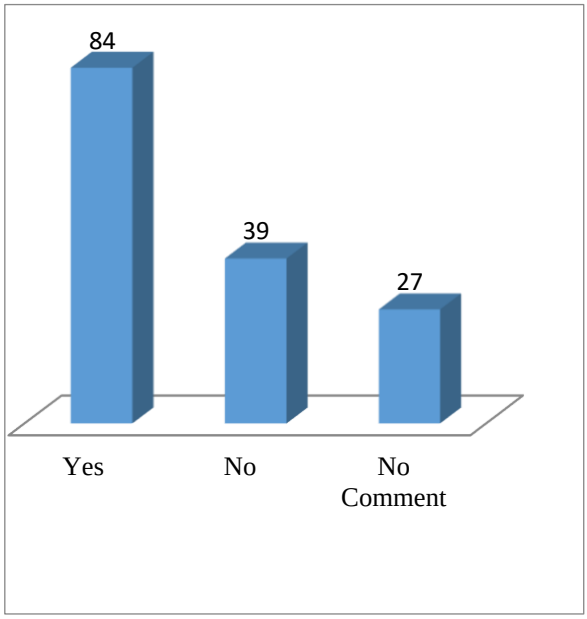

Table 4: Descriptive statistics for payment of bribe each time Figure 8: Payment of bribe

Table 4 shows that on average US$ 6.82 was paid (with a standard deviation of 11.282) as a bribe each time to the local government administration (e.g., forest officials, coastguards, etc.) and maximum payment within the group of respondents at one time is US$57.66. The local officials force the local community to pay money for avoiding arrest during fishing in local water bodies and the Sundarbans. According to the FGD and KII *Khorshed Alam*, the government officials demanded money from minority communities during their activities (e.g., fishing, collecting fuel and honey, catching crab) in the water bodies and the Sundarbans otherwise they would beat and arrest with false accusations like this is the protected areas. It is forbidden for fishing or any kind of activities and they entered without permission. It has been taking place in daylight. Local impoverished people do not complain to the higher authority or local public representative because they are also indirectly involved in these illegal and unethical activities.

4.2.2 Role of Local Government Representative

Local government administration is responsible for creating awareness about the adverse impact of unsustainable economic development initiatives and protects the ecosystems, but they do not play their role properly because they either directly or indirectly involved in the degradation process. Figure 9 shows the role of local government in protecting marginalized people.

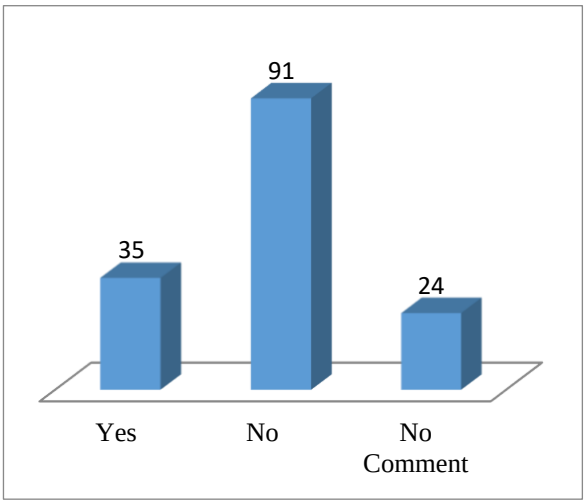

Figure 9: Support of local government representative in protecting marginalized people

Figure 9 demonstrates the support of the local government representative to develop the socioeconomic position of marginalized people. According to the household survey, the participants (91 out of 150) informed that the local government representative does not support them to develop their socioeconomic position. Moreover, according to the FGD they stated that the local member[10] and chairman have taken money as bribe from them for providing rainwater harvesting materials, but they did not keep their promise. Local people do not argue with them as they are economically and politically powerful and will not get justice even there is a high possibility of harassment. Moreover, the local government representative has a water trading business and has built rainwater harvesting infrastructure in different educational institutions. The rainwater has been collecting through this infrastructure during the monsoon and sale it during the dry season. If the freshwater crisis solves then his water business will not flourish.

4.2.3 Accountability

One influential group recruits people to catch fish in the Sundarbans through poisoning. Catching fish through poisoning is illegal because it destroys whole ecological systems. Marginalized people are directly engaged with this action. They are affected in two different ways by this action. Firstly, they will get punishment for this illegal activity if they get caught red-handed. However, the recruiter will not face difficulty as they are economically and politically powerful and do not engage directly. He/she will not acknowledge that he/she would order them to fish with poison. Secondly, their sources of income are reducing day by day as they are damaging their income sources themselves. Due to fishing with poisoning, the forest officials cancel the pass to enter into the Sundarbans to catch fish and crab and collect honey. But the economically and politically powerful people use money and political influence to operate their function, but marginalized people cannot. This group also uses political power and money to protect the main responsible person for fishing with poison. Moreover, the marginalized people cannot enter into the Sundarbans so that it is easy for rich fishers to fish

[10] Lower government representative in the rural areas

in the forest and get a lot of fish and crab. It is a trap for marginalized people due to the lack of accountability of forest officials and local government representatives.

4.3 Increase Inequality

As the economic activities and poor governance mechanism creates more opportunity for increasing wealth of rich people and reduces the income opportunity for marginalized people as well as increasing household expenditure so that it widens the gap between rich and poor. This gap facilitates marginalization.

5. Conclusion

Economic development initiatives are important for socio-economic development. If the initiatives conflict with environmental conservation or ecosystem protection, then it does not bring the expected outcome. Moreover, marginalized people are the most affected one in this context. Sometimes, the initiatives convert cropland and forest land (mangrove forest) into shrimp and other fish farming, salt bed preparation, embankments for flood protection, and infrastructural development. Although the initiatives have been taken to develop the socioeconomic position of marginalized people it does not bring the expected outcome due to conflict with environmental conservation.

The socio-economic development of marginalized people is not possible without preserving the ecosystems as their life largely integrated with them. As the ecosystem services degraded (disappearance of local fish 2.58, insecurity of cropland, reduce natural water bodies, unplanned shrimp farming, water pollution, overharvesting) in the surrounding environment their income reduces, expenditure increases, and employment opportunity declined significantly. The level of access to ecosystem services determines their level of income and household expenditure. Since the access to ecosystem services declined significantly so that it is inevitable that their socioeconomic position deteriorates. However, access to the remaining ecosystem services they need to pay a bribe to the local government official and political leader. Moreover, the local government representative is not supportive of the marginalized people and they are held accountable for this in rare cases. The combined effect (ecosystem degradation and poor governance) put more stress on marginalized people to survive. On the contrary, rich people are taking full advantage out of it.

Rich people do not face difficulty with the economic development initiatives that degrade the ecosystems even they are the main beneficiaries of the positive output of this action. They can solve the problem arise of ecosystem degradation with political power and money. For example, they can solve the freshwater crisis with different alternatives (e.g., buy mineral water from the market, build up large rainwater harvesting infrastructure with filter, establish pond sand filter). This investigation can enrich the existing body of knowledge to the connection between economic advancement or development initiative, ecosystems degradation, governance, and marginalized people.

This study tries to quantify the loss of marginalized people due to ecosystem degradation. Besides, their

perception regarding the ecosystem services in their surrounding environment and how it influences their life. The investment decision or economic development initiative is not effective in improving the lives of marginalized people until it protects the ecosystem. This research finding can make a path for further research to inquire into the relationship between ecosystems, governance, (un) sustainable economic development initiative, and marginalized people.

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