

Chapter - IX

SOCIOECONOMIC IMPORTANCE OF THE WETLANDS

9.1. Introduction

Men's dependence and association with the wetlands has started since the beginning of civilization [95]. In Assam, wetland ecosystems are integral parts of the valley supporting the major portion of life-forms. It is important to note that the rural lives in Assam are intrinsically linked mainly with the subsistence mode of farming, livestock rearing and traditional fishing closely connected with the wetlands [94].

The Lower Subansiri Basin of Northeast India is endowed with numerous lakes, swamps, marshes etc. reflecting the richness of aquatic resources. The people are benefitted by the wetlands either in direct or indirect terms. The wetlands seem to have played a crucial role in the lives of the local population. Since time immemorial, people have been so attached and dependent on the wetlands that they can find out variety of ways and options to generate resources from them. The direct benefits that the wetlands offer are mainly for food, fodder, livestock collection, thatch grasses etc. There are permanent source of income from the beels like fishing, which will prevail as long as the beels sustain. Most of the local people derive their economic benefits from the fish resources. There are also report of trapping the indigenous and migratory birds and either killed and eaten or sold in the market at very high price. The floodplains are also used for paddy cultivation and vegetable farming; moreover they also supply water from the beels in their agricultural fields. In fact, the people try to stimulate benefits from the beels in numerous ways. However, the constant human interference has been degrading the wetlands and has posed serious problem which threatens the sustainability of the

biodiversity of the wetlands. Hence, the wetlands seek close attention and a survey depicting the intensity of dependence on the wetlands is required.

9.2. Methodology

It has been found that most of the local dwellers of the study area are from economically poor section and the communities are mainly Mising (tribe), Scheduled Caste, General Caste and a small portion of Bihari community. A major portion of these communities belong to fisherman and cultivator families and their main occupations are fishing, agriculture and cattle rearing. A questionnaire was prepared and distributed to at least 60% of local inhabitants around the wetlands. Detail format of the questionnaire is presented in *Appendix II*. The questionnaire was prepared in such a manner that it almost tries to reach the intensity of usage of the wetlands and to ascertain the extent of wetlands degradation. However, a beel can get deteriorated due to unsustainable way of fishing and usage. This information can be a good database to introduce a management plan that aid in the sustainable uses of the wetlands. It was recorded that male is the main earner in all the villages and everyone is dependent on the wetlands directly or indirectly.

The respondents of the villages of Bordoï Napam, Beelmukh and Kathalguri were considered to access the socioeconomic importance of the Bordoibam Beelmukh wetland, while three villages namely Borgoiya, Motokpur and Kharkati gaon were the respondents of Bukrong wetland. The respondents of Tarioni, Bekeli and Dirpai villages were contemplated for the Borbeel wetland which belongs to Tarioni revenue village. The Kilakili wetland is not surrounded by the villages and hence villagers from the nearest three villages namely Sampora, Ghahigaon and Batsora gaon were interviewed.

9.3. Results and Discussion

These wetlands are the heart and soul of the indigenous people and situated close to the villages. The local dwellers feel a kind of ownership towards the wetlands and are dependent on them in direct or indirect way. About 3.2 sq. km of the Bordoibam Beelmukh wetland area is a bird sanctuary, yet initiative taken by the government to restore the bird sanctuary was reported to be minimal. The villagers are so attached with the place that about significant percentage of them wish their children to remain in the village and follow the lifestyle of their ancestors. The scenario bit differed in the nearby villages of Kilakili and Borbeel wetlands as they want their children to leave the place and look for better livelihood. This may be due to the higher percentage of literacy and modern mentality of the people of that area.

The wetland water is also used for drinking as per some of the respondents of the nearby villages of Bordoibam Beelmukh wetlands, however stated to be using sand filters before consumption. Unhygienic practices like open defecation and household lavatories have been observed very close to the wetlands. The wetlands are perennial and apart from engaging themselves in selling the fishes they also claim to use the wetland in accessing nutrition. Although initiative has been very minimal from the fishery department, still they are willing to assist a plan to rehabilitate the wetland. It was further observed from the data generated that they are not so concerned with the aesthetic view of the wetland. The activity of the respondents in utilizing the wetlands in direct or indirect way is discussed as below.

(a) Demographic Information

The questionnaire was distributed to the nearest three villages in the age group between 16 to 60 years. Majority of the total interviewers live in joint family with the

total number of household members to be more than five (05). The average annual income of a handful of the population is less than 1 lakh and most of them are fisherman and cultivators. The distribution of the respondents as per family income, size and extent of education are presented in **Table 9.1, 9.2 and 9.3**. The result of the average monthly income indicated that a larger fraction of the population falls in the poor and lower middle class society. However, the villages of the Borbeel and Kilakili wetlands were observed to be having a better society based on their income and literacy as presented in the **Table 9.1 and 9.3**. Major percentage of the total respondents was recorded to be living in joint family with the total number of household members to be more than 5. It was further noticed that small percentage of the respondents of the Borbeel and Kilakili wetlands stay in joint family of >10 as compared to the respondents of Bordoibam Beelmukh and Bukrong wetlands. Moreover, majority of the respondents of the Borbeel wetland was observed to be living in nuclear family of less than 5 household members where the literacy and average monthly income is also high. Education was recorded to be very low in the villages and most of them were observed to have studied below 10 standard. A significant percentage of illiterate and education below 4th standard were also observed among the respondents. The local dwellers were amalgam of illiterate and literate population where they are dependent on the wetlands in a primary or secondary way.

Table 9.1: Distribution of respondents according to average monthly income in percentage (%)

Family Income	Respondents on wetlands			
	Bordoibam Beelmukh (Riverine) Wetland (%)	Bukrong (Oxbow) Wetland (%)	Borbeel (Lake/Pond) Wetland (%)	Kilakili (Waterlogged) Wetland (%)
Up to 5000	17	32	13	16
5000 - 10000	47	44	24	23
10000 - 15000	18	13	39	43
>15000	18	11	24	18

Table 9.2: Distribution of respondents as per family type

Family Size (in numbers)	Respondents on wetlands			
	Bordoibam Beelmukh (Riverine) Wetland (%)	Bukrong (Oxbow) Wetland (%)	Borbeel (Lake/Pond) Wetland (%)	Kilakili (Waterlogged) Wetland (%)
0 - 5	33	27	53	39
5-9	42	43	36	48
>10	25	30	11	13

Table 9.3: Extent of education among the respondents

Educational Standard	Respondents on wetlands			
	Bordoibam Beelmukh (Riverine) Wetland (%)	Bukrong (Oxbow) Wetland (%)	Borbeel (Lake/Pond) Wetland (%)	Kilakili (Waterlogged) Wetland (%)
0 – class 4	27	31	22	21
class 5 - class 9	48	53	44	47
class 10 and above	25	16	34	32

(b) Occupation

It was observed that cultivation and fishing were their main occupation in the study area. The graphical distribution of the occupation of the respondents is presented in *Table 9.4*. Cultivation was observed to be their main occupation, although people were noticed to be holding jobs, yet some of them were still found to be engaged in their primary occupation as cultivators. However, higher percentage of the villagers of Borbeel and Kilakili wetlands were observed to be engaged in jobs. A significant percentage of them were also recorded to be engaged in cultivation and fishing. Fishing for domestic demand and also for commercial purpose was recorded during the survey. The Bordoibam Beelmukh wetland is taken on lease annually and the Bukrong and Kilakili wetlands for six months every year. Daily labourers and other income source like shopkeepers, carpenters etc. were also recorded during the study though in smaller percentage. These people were not believed to be the indigenous locals of the villages.

Table 9.4: Occupation of the respondents

Occupation	Bordoibam Beelmukh (Riverine) (%)	Bukrong (Oxbow) (%)	Borbeel (Lake/Pond) (%)	Kilakili (Waterlogged) (%)
Cultivation	36	47	22	20
Fishing	26	24	18	14
Daily Wages	18	18	10	15
Service	15	8	42	46
Others	5	3	8	5

(c) Wetland Dependence and Utilization

The extent of utilization of the wetlands by the local folks was investigated and the results are presented in *Table 9.5*. It was observed that activities like bathing, washing, fishing, livestock collection are the common practices retrieved from the

wetlands. Maximum percentage of the respondents were observed to be using the wetlands for domestic demand like bathing, washing etc. except the Kilakili wetland where majority of the villagers use the wetland for fishing both for domestic and commercial purpose. Supplying water from the wetlands to the agricultural field and crops for cultivation was also recorded during the study, however irrigation practice was not observed in the Kilakili wetlands as per the respondents. Resource collection like livestock collection, vegetables, medicinal plants were also retrieved from the wetlands, however majority of them extract resources for the livestock. The wetland water is also used for drinking by some of the villagers of the Bordoibam Beelmukh wetland, however use conventional sand filter before usage.

Table 9.5: The distribution of usage of the wetlands among the respondents

Activity	Bordoibam Beelmukh (Riverine) (%)	Bukrong (Oxbow) (%)	Borbeel (Lake/Pond) (%)	Kilakili (Waterlogged) (%)
Domestic (Bathing, Washing)	36	42	52	28
Irrigation	19	22	8	0
Drinking	3	0	0	0
Fishing	30	26	32	68
Resource Collection	12	10	8	4

The fishing activity among the people is divided into three groups, viz. - domestic user, local fishermen and lease leaders. The activity of the respondents in percentage and their monthly income generation from the activity are presented in **Table 9.6**. The fishermen community also informed about their income being affected due to

the ownership of the leasees. The wetlands were observed to be very active in fishing among the respondents. The wetlands are taken on lease excluding the Borbeel wetland where fishing is done basically for fulfilling their domestic demand, though a minimal percentage is used for selling in the market. The local fishermen group was observed to be availing average income in the range of Rs.3500/- to Rs.9000/- per person per month from the wetlands. However, the leasees were found to be availing the maximum benefit in the range of Rs.20000/- to Rs.65000/- per person per month. The level of income from fishing indicated the wetlands to be rich in different variety of fish though reported to be decreasing in the recent years.

Table 9.6: The Fishing activity among the different groups of respondents

Group	Bordoibam Beelmukh (Riverine)		Bukrong (Oxbow)		Borbeel (Lake/Pond)		Kilakili (Waterlogged)	
	Percent age (%)	Income/ Month/ Person (Rs.)	Percent age (%)	Income/ Month/ Person (Rs.)	Percent age (%)	Income/ Month (Rs.)	Percent age (%)	Income/ Month/ Person (Rs.)
Domestic Demand	42	N/A	48	N/A	62	N/A	43	N/A
Local Fishermen	58	6000 - 9000	52	3500 - 5000	38	3500 - 4500	57	5000 - 7000
Lease Leaders	N/A	30000 - 60000	N/A	20000 - 40000	N/A	N/A	N/A	30000 - 65000

(d) Spiritual Value

Surface water bodies are generally used for different spiritual and religious practices. Idol immersion is one of the common practices performed in the wetlands. Moreover, fetching water from water body during marriage ceremony is a traditional

rituals practiced in Assam. However, none of these practices and rituals was performed in the wetlands as per the respondents.

(e) Status of Wetland

The wetlands are perennial and situated almost in the centre of the villages except the Kilakili wetland which is 1-2 km away from the nearest village. The wetlands are reported to be shrinking in the recent years, however has not affected their day to day lifestyle. The wetlands are taken on lease annually and half yearly, except the Borbeel wetland. Moreover, most of the people believed to have observed the change in the quality and size of the fishes, and also claimed about the extinction of some of the fish species. The local folks also alleged about the decreasing number of residential and migratory birds in the Bordoibam Bird Sanctuary in recent years. The graphical presentation of the respondent's opinion in some of the activities is presented in *Fig 9.1* and *Fig 9.2*.

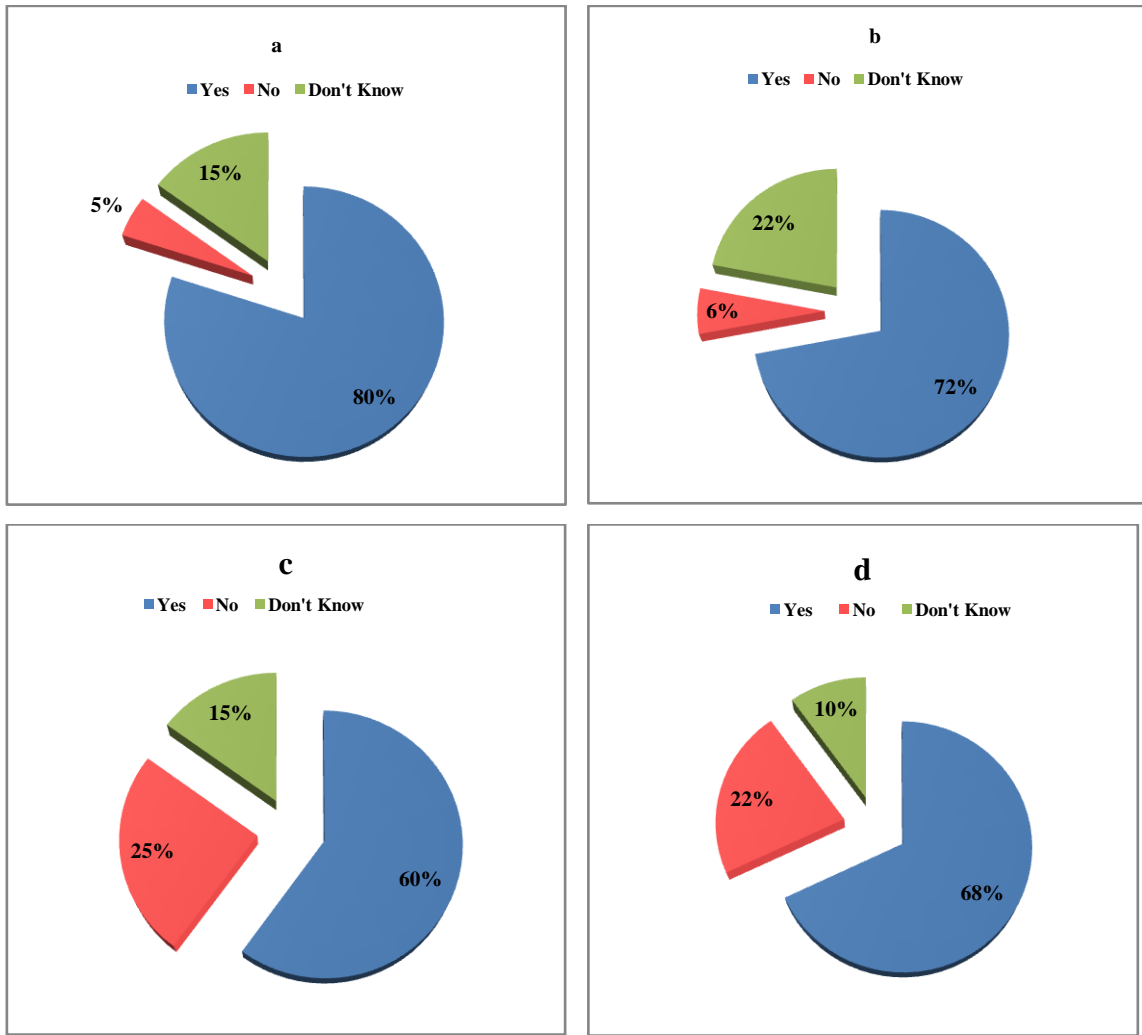


Fig 9.1: Opinion of the respondents on noticeable change in number/size/type of fishes in (a) Bordoibam Beelmukh (Riverine), (b) Bukrong (Oxbow), (c) Borbeel (Lake/Pond) and (d) Kilakili (Waterlogged)

The figures indicated that a whopping percentage of the respondents noticed and felt that the number of fishes or birds have been declining in the recent years. However, few of the respondents gave positive and neutral response in this regard. Moreover, larger fraction of the respondents gave neutral response when asked about the changes in the quality of water in the wetlands, though significant percentage of them has reported the wetland water quality to be deteriorating. However, minimal percentage of the respondents did not feel a change in the quality of water. Hence a mixed response

was felt among the respondents regarding the changes in the number and sizes of birds or fishes and the quality of wetland water.

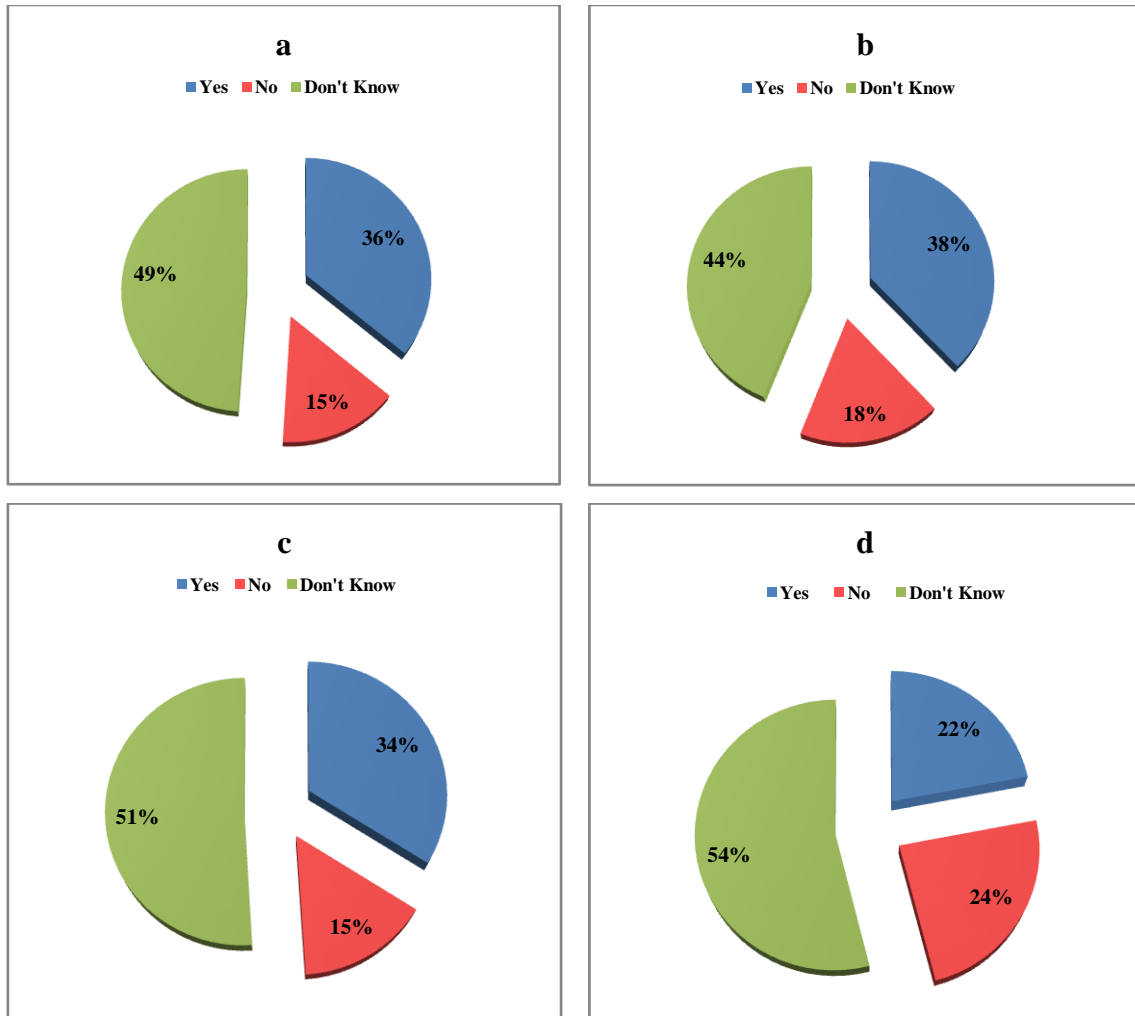


Fig 9.2: Opinion of the respondents on noticeable change in water quality of (a) Bordoibam Beelmukh (Riverine), (b) Bukrong (Oxbow), (c) Borbeel (Lake/Pond) and (d) Kilakili (Waterlogged)

(f) Cultivation in the Floodplains of Wetlands

The study recorded lower percentage of paddy and vegetable farming in and around the wetlands which is presented at *Table 9.7*. Paddy cultivation was observed in the floodplains of Bordoibam Beelmukh and Bukrong wetlands which are practiced annually. Seasonal vegetable farming was also noticed in the floodplains of Bordoibam

Beelmukh wetland. The respondents further stated that the deposition of sediment due to the monsoon flood in the floodplains makes the soil fertile. This makes the floodplains suitable for growing vegetables. Moreover, different tea gardens were noticed about 4 - 5 km away from the Borbeel wetland, where the impact was not observed.

Table 9.7: Distribution of respondents as per type of cultivation in the floodplains of the wetlands

Cultivation	Period	Bordoibam Beelmukh (Riverine) (%)	Bukrong (Oxbow) (%)	Borbeel (Lake/Pond) (%)	Kilakili (Waterlogged) (%)
Paddy	Annual	14	27	0	0
Vegetable Farming	Seasonal	9	0	0	0

(g) Commercial Uses

Small scale industries were not observed close to the study area. Rice mills were observed in some of the households. Generally, rice mills do not require water during functioning period; however minimal amount of water is required for washing which is periodical. The local people reported that the water from wetland seldom used for washing as it was not quite accessible. The detail tabular information of rice mill activity is put up in *Table 9.8*.

Table 9.8: Usage of wetland water on the Rice Mill Activities

Activity	Rice mill	Water Usage/ Week/Rice Mill	Income/Month/Person (Rs)
Bordoibam Beelmukh (Riverine)	11	80- 100 L	5000 - 6000
Bukrong (Oxbow)	5	60 - 80 L	4200 - 5000
Borbeel (Lake/Pond)	16	N/A	4800 - 5500
Kilakili (Waterlogged)	17	N/A	4800 - 5500

9.4. Conclusion

The wetland ecology provides a number of valuable functions to the human society and the prolonged intervention of humans without proper guidance and techniques to use the wetlands have deteriorated the quality of the wetlands. Hence the above data generated from the questionnaire based field survey could identify a number of reasons. The high illiteracy rate and low average income observed among the respondents which pressurized them to use the wetlands as one of the source of living in these days of global economic changes. The wetlands taken on lease also deprived the local folks to fulfill their domestic demand for fish. Most of the respondents willing their children to leave the place for the sake of finding a better livelihood reflected their least attachment towards the area inspite of residing there for the past 30 to 50 years. However, their support and intensified cooperation in responding the questionnaire during the study reflected their desire to restore the wetlands. The Bordoibam Beelmukh wetland is a bird sanctuary and presently the wetland is controlled by the Revenue Department [194-195]. Hence, it is also one of the major duty of the local folks to conserve and manage this bird sanctuary as it itself develop as a tourist spot for the nature lovers. The data manifested that they feel a kind of ownership for the wetlands and hence willing to assist a plan in rehabilitation of the wetlands.