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Patterns of Co-operation in Community Based Fishery Management: A Sociological Study on the People of Hail Haor

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Abstract

To maintain the ecological balance of wetland and to ensure food security government of Bangladesh has taken community based resources or fishery management approach. Co-operation is one of the major components of it. This paper measures the patterns of co-operation in community based fishery management system and its impact on people's life. Descriptive design has been followed in this study. Sample has been selected through simple random sampling technique as well as social survey technique has been applied to collect data. Patterns of co-operations and the indicators of the impacts are measured through the Likert Scale and Semantic Differential Scale. It's found that the negative co-operation is existed in the study area and most of the respondent's attitudes are also negative about the effect of community based management system.

Keywords: co-operation, community based fishery, hail hoar, resource management organization, resource user group

1. Background of the Study

Bangladesh is a revering country which rises in the largest delta in the world (Fakrul and Tulshi 2006:3; Ghani and Ahmed 2006:8; Mokmmal et al. 2004:2; Nishikatan2005:29). It has vast amount of lowland basin which is one of the largest wetland of the world**.** Wetlands are transitional lands between terrestrial and aquatic ecosystems where water table is usually at or near the surface and land is covered by shallow water (Talukder et al. 2009:82). These wetlands are the most productive ecosystem. High concentration of fish's amphibians, reptiles, birds, mammals and invertebrate species are supported by them (MACH 2006:2; Thompson et al. 2003:307; Thompson et al. 1999: 1; Sultana et al. 2006: 10; Ghani and Ahmed 2008:3). There are about four million hectares of inland water bodies and flood plain wetland in Bangladesh (Sultana and Thompson 2006:318; Abudullah 2010:922; Muzaffar et al. 2007: 82; Byomkesh et al. 2009:83). These wetlands are considered to be world's richest and complex fisheries (Thomson et al. 2003: 308; Sultana and Thompson 2006: 318; Mokammel et al. 2004:2; Fakrul and Tulshi 2006:10; Sultana and Thompson 2007:527; MACH 2006; Abdullah 2010:927) and it is the important sources of livelihood for rural poor people (Rahman 1989:101; Byomkesh et al.2009:83; Sultana and Thompson 2006: 310). About 260 fish species are available in Bangladesh's wetlands (Sultana and Thomson 2006:310; Fakrul and Tulshi 2006:10; Thompson et al. 1998:310; Sultana et al. 2006:315). But nowadays, wet lands ecological balance is threatened by men made and natural forces. As a result, people of wetland can not manage their livelihood and daily necessity in sufficient way. In that context, government has taken Community Based Resources Management (CBRM) approach. CBFM is that type of management approach.

CBFM is expected to result in greater security of access and co-operative leading to enhance sustainability of resources, more equitable distribution of benefits, resolution of conflict among fishermen and other and enhancement of fishers status, those are come to help ensure the livelihood and food securities in haor people (Fakrul and Tulshi et al. 2006:3; Mokmmal et al. 2004:2; Pomeroy 1995:145; Mckenzie et al. 2004:5; Rahman and Begum 2010:87; Thompson et al. 206: 301; Richardson 2010: 3521).

One of the most important components of CBFM system is co-operation. Co-operation is a form of interaction with a common effort of two or more persons to perform a task or to achieve a common goal (Fakrul and Tulshi 2007:36). It is the most pervasive and continuous form of social interaction. In this study, cooperation is

analyzed through the joint activities of beneficiary management vs. beneficiaries (fishermen); beneficiary management vs. others; and beneficiaries (fishermen) vs. administration. A community based co-management system exists in Hail Haor but the lacking of integration or co-operation between beneficiaries, administration and others constructing social disintegration.

1.1 Rationality of the Study

Bangladesh is a country of rivers which is considered to be a vast network of wetlands. As a result, there is enough scope for fisheries in this particular area. Fisheries have significant roles in nutritional status, employment opportunities, foreign exchange earnings and other areas of the economy of Bangladesh (MACH 2006; Fakrul and Tulshi 2006:23). Moreover, in Bangladesh, wetlands are the major sources of rice in dry season as well as fish in monsoon (Talukder 2009:81; Mckenzie et al. 2004:15). A out 50 million people in southeast areas of Bangladesh depend, directly or indirectly, on these wetlands (Abdullah 2010:923). These wetlands are part of everyday life sharing for local people. To explore the latent truth, a new research work is needed on haor areas.

Haors are the most productive ecosystem and it has vast number of environmental, economical and social value (Abdullah 2010: 928). But, now a days, these wetlands are always being threatened by man made causes and natural disasters (Jon Barnett 2010:235). So the people dependent on hoar areas cannot maintain their livelihood demands in normal ways. In this perspective, research work is needed in aspect of hoar conservation and sustainable development.

In order to balance human needs and Haor conservation, government takes Community Based Fishery Management (CBFM) system. CBFM is expected to promote greater security of access and co-operation leading to enhance sustainability of resources (Fakrul and Tulshi et al. 2006:3; Ghani and Ahmed 2008:8; Pomeroy 1995:145; Mckenzie et al. 2004:5; Rahman and Begum 2010:87; Biswasroy et al.2010:7 Adhikari 2001:9). The CBFM project works for the development of fishery as well as fishermen and the people related to it. If this project becomes successful, it can be an ideal model for haor areas people. Hence, this type of research is significant for haor management and development.

The findings of this study may help the CBFM project to be developed further. This study might be value worthy for the future policy makers and other concerned to take proper steps for project implementation regarding food security and livelihood maintenance conditions.

2. Objectives of the Study

The broad and general objective of this study is ‘to measure the pattern of co-operation in community based fishery management system and its impact on people’ life’. This broad objective has been split into several specific objectives. These are-

1) To know the patterns of integration among the members of community based fishery management practitioner;

2) To find out the level of co-operation between administration and community based resources management practitioner;

3) To be familiar with the integration between community management practitioner and others;

4) To determine the impact and significant of community based fishery management system.

3. Review of Some Pertinent Literature

3.1 Fisheries Policies and Access in Bangladesh

Fisheries in pre colonial Bangladesh were traditionally managed as common property through complex system of tenure evolved in and enforced by local communities (Rab 2010:137; Mokmmal et al. 2004: 2; Talukder et al. 2009:28; Nishikanta 2005: 28). During the colonial period laws passed by the British government to provide with full proprietary right to state *zamindars* (feudal lords) for management and exclusion over water bodies within their estates. The *zamindars* collected a nominal amount of tax in exchange of using rights to the fisheries which served in effect to regulate entry and harvest within certain limits (Nishikanta 2005: 28; Mokmmal et al. 2004:2). When the East Bengal State Acquisition and Tenancy Act of 1950 abolished the *zamidari* system, the majority of the open water bodies of the country reverted to the state. The Ministry of Lands (MOL), one of the most powerful government agencies, deserve the authority and proprietary rights over these state owned water bodies (Capistrano et al. 1997:7; Sultana 2006:30; Mokmmel et al. 2004: 2; Nishikata 2005:28).

The basic mechanism of the fishery resources management in inland open waters of Bangladesh was allocation

of fishing rights through periodic leasing (Fakrul and Tulshi 2006:3; Mokmmel et al. 2004: 2; Nishikata 2005:28). Traditionally, the ministry of land lease out water bodies for one or three years term depending on the type of water body through the office of the Deputy Commissioner in each District (Fakrul and Tulshi 2006:3; Ghani and Ahmed 2006:8; Mokmmal et al. 2004:2; Nishikatan2005:29; CBFM 2001). In this system, the water bodies are leased out for a specific period of time to the highest bidder and, naturally, it is not possible for the poor fishers to get the fisheries or water bodies (Thompson et al. 206: 301; Mokmmal et al. 2004:2). Some water bodies are leased out to fisher's cooperative in name, but actual benefit goes to the influential fishers or some rich moneylenders (Ghani and Ahmed 2006:10). The poor fishers are obliged to work for the lease holder under inequitable conditions (Mokmmel et al. 2004: 2; Nishikata 2005:28). Moreover, since lessening attitude is to get the maximum financial benefit from the fishery during the specific lease period, they do not think about conservation of fish (Ghani and Ahmed 2006:10; Thompson et al. 2003:313).

To overcome these problems, the Government of Bangladesh introduced a New Fisheries Management Policy (NFMP) in 1986 with a view of diverting the maximum benefit to the genuine fishers ensuring the sustainability of the fish stock through implementation of the Fish Conservation Act of 1950; and limiting exploitation to the maximum sustainable yield level (Hossain et al. 2010:369; Sultana et al. 2006:301; Thompson et al. 2003: 301; Sultana et al. 2007: 527; Mokammal 2004:3; Fokrul and Tulshi 2006:7; Abdullah 2007:12). The main idea in the NFMP was the gradual abolition of leasing by open auction and replacement of traditional leasing system.

Accordingly, the new policy was introduced in 10 selected water bodies covering rivers, haors, and *baors* (a bowl shape wetland) in different areas in Bangladesh and the management responsibility was given to the Department of Fisheries (DOF) under Ministry of Fisheries and Livestock (MOFL) and this policy was then extended to 264 water bodies (Sultana and Thompson 2006:302; Mokammal 2004: 3; CBFM: 5).

This new system, however, specific licenses for a particular fishery were issued to "genuine fishers" (full time fishers). The *Thana* (Sub-district) Fishery officer responsible for collecting revenue and was accountable to deposit it to the government treasure (Mokammal et al. 2004:3; Rab 2010:137). The success of NFMP was indicated significant gains in sites, where new management system was implemented, total returns from fishing going to fishers had increased from 25% to 50% (CBFM:2005). In a few fisheries under the Improved Management of Open Water Fisheries (IMOWF) project, NGOs and fishery officers were jointly involved with the programme to organize the fishers and to provide technical assistance to them (Fakrul and Tulshi 2006:10; Rab 2010:137). But, in 1995 the Ministry of Land abolished leasing the flowing rivers and licensing in all the sites which were previously under NFMP. Subsequently, rives became free access resources with neither revenue requirements nor fishing restrictions, while most *beels* are leased out (CBFM 2001; Thompson et al.2007:26).

In the face of these confusing policies under which all forms of fishery property rights now coexist, the Community Based Fishery management and development (CBFMD) project aims to guide formation of consistent policies through local grass root initiatives (Mokamel et al.2004:2). The aim is grater efficiency, equity and sustainability in inland open water fisheries (Sultana 2006:301; Mokamel et al.2004:2; Thompson et al. 2003: 301; Fakrul and Tulshi 2006:50).The CBFMD project is devising and testing models for enabling stronger organization of fishers, by representing all the different interests in a fishery, will be able to establish and ensure compliance with community agreed fishing access rules.

3.2 Community Based Fishery Project

From the early 1990, several projects in Bangladesh introduced the aspects of community or group management of fisheries and mostly based on group stocking of carp in closed *beels* and *baors*, stocking by government in open waters and local inactive restore fish habitats (Sultana and Thompson 2007:528; Mokmmal 2004:25; Thompson et al.2003:308; Talukder et al.2009:82). The experience of IMOF project that was implemented to support the NFMP provided insights about the importance of collaboration between NGOs and DOF. But only the NGOs has capacity to organize effective participatory institutions of fishers for collective management (Rab 2010:136; Sultana and Thompson 2007:528; Mokmmal 2004:25; Thompson et al.2003:308; Talukder et al.2009;82). This led to a more flexible community-based approach which strengthened NGOs' involvement through the CBFM projects phase I and II (Rab 2010:137; Mokmmal 2004:25). The CBFM aimed to develop a framework for community based fisheries management and ensure more sustainable utilization of open water fish resources for future generation in doing this it would promote an equitable distribution of fisheries benefits within communities (Sultana and Thompson 2007:528; Thompson et al.2003:308; MACH 2005; Hossain 2008:23; Abdullah 2010:923). It also develop additional source of income to compensate poor people for reducing fishing effort (Thompson et al.2003:308).

To increase income during the lean season they enhance fishers' human capital through training and adult

literacy activities on local institution, traditional practices and ecological knowledge to regulate access to, and patterns of utilization of the fisheries (Thompson et al.2003:308).The key features of this management included capacity building and empowerment for fishing communities through:

1) Involvement of both government agencies and NGOs as partners with facilitation by world fish center;

2) An attempt led by DOF to secure access rights for fishing communities to wetland;

3) Provision of training and credit for the fishing communities by NGOs;

4) Establishment of local fishery management bodies which prepared plans and undertook actions to manage their fisheries; and

5) Monitoring and research by DOF and world fish center to document and access the impacts of the changes (Fakrul and Tulshi 2006:20; Thompson et al. 2003:308; Sultana and Thompson 2007:528; Mokammel.et al. 2004:4).

4. Materials and Method

4.1 Research Area and Location

The research design of this study is descriptive and the study was carried out in Hail Haor, *Sreemongal, Moulvibazar*, Bangladesh. Hail Haor is in the north-east part of Bangladesh. This haor is in the *Sylhet* basin and located between the *Balishara* and *Barshijura* hills in the east and the *Satgaoan* hills on the west (MACH 2007). It is extended in five unions of *Sreemongal Upazila* and covers up two unions of *Sadar Upazila of Moulvibazaar* District. The watershed of Hail Haor covers about 600 km^2 (375 square miles) and among this 15% is flowing into India. The average area of Hail Haor in wet season is about maximum 13,000 ha, but in the dry season the total area comes down to just over 3,000 ha. Approximately 172,000 people live in this haor side covering 61 villages all around (MACH 2007; IPAC 2009)

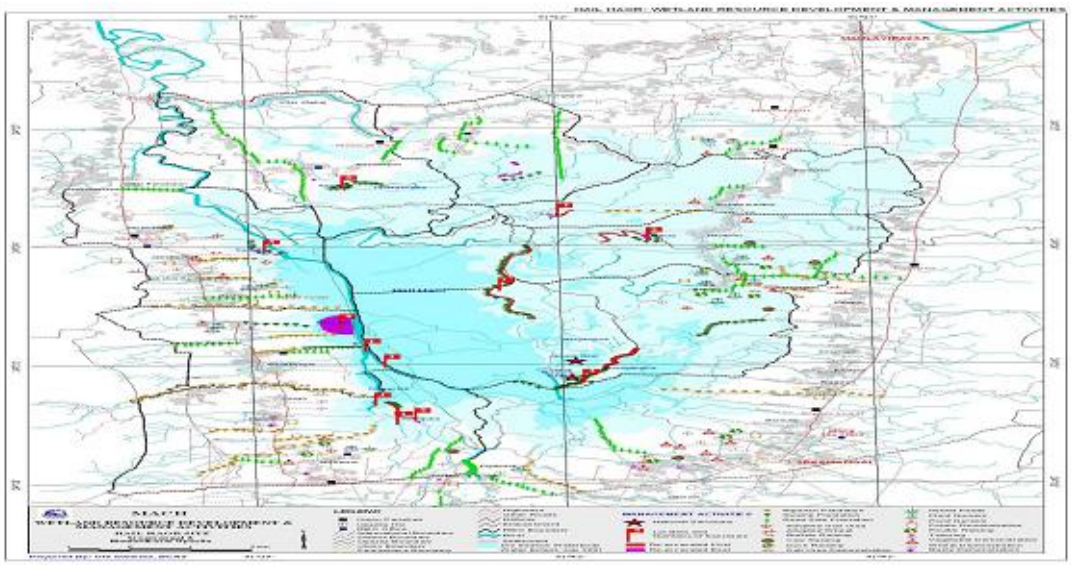

Figure 1.

(Source MARCH 2007)

4.2 Population and Sampling of the Study

There are two groups involved in community based fishery system at Hail haor. The first one is the local community, who are fully dependent on haor resources. This group is called Federations of Resource User Group (FRUG). Other group is Resource Maintain Group, which is called Resource Management Organization (RMO).There are five FRUGs and eight RMOs in this Hail haor. Among them two FRUGs (named *Mirzapur-Vhunobir* Federation and *Kalapur* Frderation of Resource User Group) and two RMOs (named *Ramedia* and *Baragangina*) have been selected purposively for data collection. So these aforementioned groups are the population of this study. Thus the total population of this study is 855.

4.3 Sampling Design and Sample Size

In these study probability sampling has been used. Data was have been collected by simple random sampling

method. There are two types of member group involved in this study area. Following equation is used to determine the sample size of the study area:

$$n = \frac{Nz^2pq}{Nd^2+Z^2pq}$$ (Islam 2008:119)

So the sample has been selected by using proportional allocation system from two FRUGs and two RMOs. Hence, proportional sample size, from two FRUGs is 152 (67+ 85) and the proportional sample size from two RMOs is 21 (10+ 11). Thus the total sample size is 173 (152 + 21).

4.4 Research Instrument and Analysis Techniques

To collect quantitative primary data, a questionnaire has been designed that is appropriate for the social survey. So the research instrument of this study was a questionnaire and it's divided into five sections. The first section of the questionnaire collects the respondents' socio-demographic characteristics such as age and sex, marriage pattern, housing condition, education etc. The remaining three sections of the questionnaire consisted of Likert-type statement. Remaining three sections of the questionnaire was designate to collect data on the perception of co-operation among the members of community based resource management practitioner, perception of co-operation between resources management practitioner and other, perception of co-operation between the community based resource management practitioner and administration and finally respondent's attitudes towards practicing community based resource conservation is measured through Likert scale. There are also two Semantic differential scales and 8 FGD has been used to evaluate the perception of respondent and its impact about the community based resourced management in the last section. These data were analyzed by using different statistical tools and techniques such as Chi-square test, central tendency, percentage analysis and these outputs had presented with the expression of different tables, box and graph.

4.4.1Dependent Variable

The overall aim of the study was measured the effectiveness of community based fishery management system. This effectiveness is measured through different indicators. These are change in the livelihood condition, availability of fish, availability of aquatic resources, access of fish, and access of aquatic resources.

4.4.2 Independent Variable

The independent variable was measured with 14 different cooperation items. These are the role of fishery officer, the role of UNO, the role of RMO, the role of police, the role of IPAC, microcredit, executive committee, decision making, lacking of accountability, lacking for good discussion, lease for the surrounding lands of sanctuaries, collecting aquatic resources , catching fish, and stealing fish from sanctuaries.

4.4.3 Reliability

Reliability reflects the consistency of a set of items of variable scale by measuring the concept in particular. In this study, the Cronach's Alpha is computed by using SPSS scale reliability program for each set of constructs. The Cronbach's Alpha value has been found acceptable and standard, which satisfies the requirements (Islam 2010:81; Hair et al.2006:32). The Cronbach's Alpha value for dependent variables is .970 and for independent variables is .991.

5. Results

5.1 Cooperation of Community Based Fishery or Resources System Measured through Likert Scale

5.1.1 Co-operation among the Community Based Resources Management Practitioner

To measure the cooperation among the community based resource management practitioners has been five statements. For each statement the responses were coded from 1 for "strongly disagree" to 5 for "strongly agree". Thus the scores for each respondent on the five statements range from 5 to 25. Score from 4.5-10.5, 10.5-15.5, and 15.5-25.5 were classified as having "Poor", "Average", and "Good" relationship among the community based resource management practitioner. Distribution of the respondents' overall score of cooperation is shown in Table 1 and Figure 2.

Table 1. Co-operation among the community based resources management practitioner

Score	Attitudes	Frequency
4.5-10.5	Poor	100
10.5-15.5	Average	50
15.5-25.5	Good	23

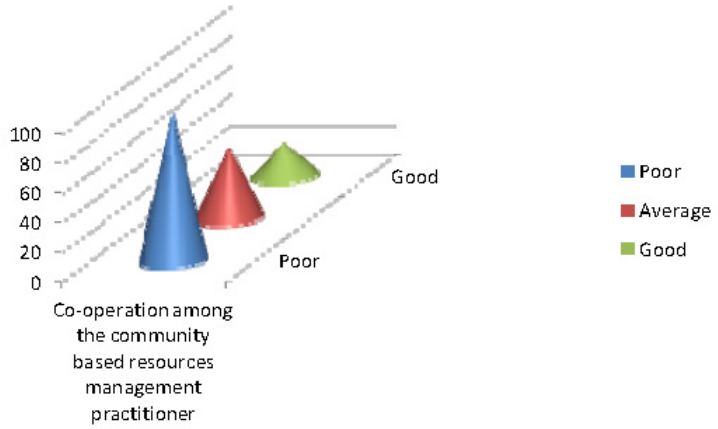

Figure 2. Patterns of cooperation among community based resource management practitioner

5.1.2 Co-operation between Community Based Resources Management Practitioner and Other

Five statements were used to measure cooperation between community based resource management practitioners and other. For each statement the responses were coded from 1 for "strongly disagree" to 5 for "strongly agree". Thus the scores for each respondent on the five statements range from 5 to 25. Score from 4.5-10.5, 10.5-15.5, and 15.5-25.5 were classified as having "Poor", "Average", and "Good" relationship between community based resource management practitioner and other. Distribution of respondents' overall score of cooperation is shown in Table 2 and Figure 3.

Table 2. Co-operation between community based resources management practitioner and other

Score	Attitudes	Frequency
4.5-10.5	Poor	90
10.5-15.5	Average	67
15.5-25.5	Good	16

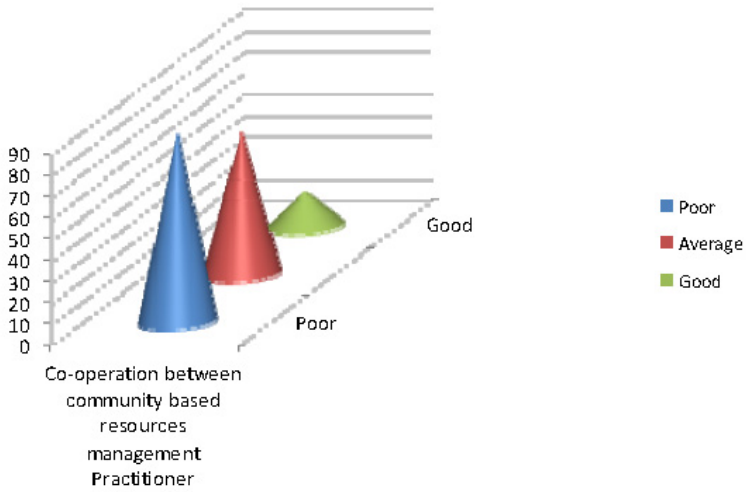

Figure 3. Patterns of cooperation between community based resource management practitioner and others

5.1.3 Co-operation between the Community Based Resources Management Practitioners and Administration

Another four statements were used to measure cooperation between community based resource management practitioner and administration. For each statement the responses were coded 1 for "strongly disagree" to 5 for "strongly agree". Thus the scores for each respondent on the five statements range from 5 to 25. Score from 4.5-10.5, 10.5-15.5, and 15.5-25.5 were classified as having "Not satisfied", "Neutral", and "Satisfied" relationship between resources management and resources user. Distribution of the respondents' overall score of cooperation is shown in Table 3 and Figure 4.

Table 3. Co-operation between community based resources management practitioner and administration.

Score	Attitudes	Frequency
4.5-10.5	Not satisfied	133
10.5-15.5	Neutral	30
15.5-25.5	satisfied	10

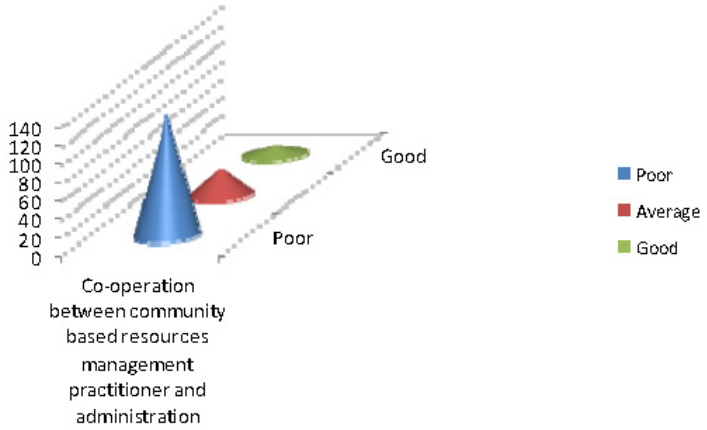

Figure 4. Patterns of Cooperation between community based resource management practitioner and administration.

5.1.4 Respondent's Attitudes towards Community Based Resource Conservation Practice

Again five statements were applied to evaluate the respondents' attitudes towards community based resource conservation practice. For each statement the responses were coded 1 for "Strongly disagree" to 5 for "Strongly agree". Thus the scores for each respondent on the five statements range from 5 to 25. Score from 4.5-10.5, 10.5-15.5, and 15.5-25.5 were classified as having "Negative", "Neutral", and "Positive" impact in the community based resource practitioner. Distribution of the respondents' overall score of cooperation is shown in Table 4 and Figure 5.

Table 4. Respondent's attitudes towards practicing community based resource conservation in their life

Score	Attitudes	Frequency
4.5-10.5	Negative	93
10.5-15.5	Neutral	60
15.5-25.5	Positive	20

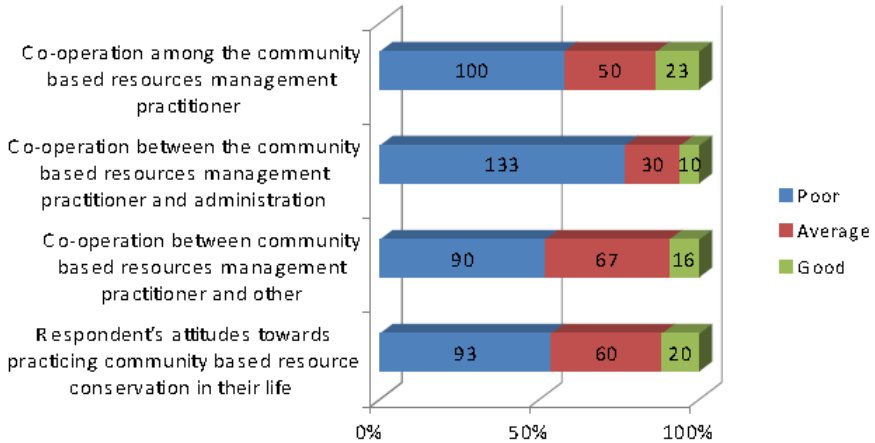

Figure 5. Patterns of cooperation among different groups and its impact of people life

5.2 T-test for Different Cooperation Indicators

The 14 items used for measuring the patterns of cooperation in the study in order to know the effectiveness of the Community Based Fishery Management System are given Table 5. They were analyzed by using Chi-square (λ2) test analysis. Since the calculated chi-square values for 14 statements are smaller than the Tabular

chi-square values. The results of the chi-square test show that the indictors of cooperation have a significant correlation with effectiveness of the CBFM.

Table 5. Chi-square (λ2) test for the different indicators of cooperation

Indicators of Co-operation	Chi-square	Degree of freedom	Significance
Micro credit.	74.776	4	.00
Executive committees.	75.642	4	.00
Lacking of good discussion.	81.303	4	.00
Lacking of accountability.	70.321	4	.00
Leasing of surroundings land of the Sanctuaries.	71.764	4	.00
Collecting aquatic resources.	71.942	4	.00
Catching fish.	74.772	4	.00
Role of fishery officer	99.572	4	.00
Role of police	34.948	4	.00
Role of IPAC	41.827	4	.00
Role of UNO	45.643	4	.00
Role of RMO	20.324	4	.00
Decision making role.	81.302	4	.00
Control of Sanctuaries.	46.351	4	.00

5.3 Cooperation and Its Impact Measured through Semantic Differential Scale

Table 6. Respondent assessment of cooperation

Attributes	Worse	Bed	Neutral	Good	Very good	Weighted Average Score
	-2	-1	0	1	2	-2 to+2
Dissatisfaction not occurred for micro credit.	44	82	30	10	7	-.344
Dissatisfaction not occurred for executive committees.	62	66	31	15	6	-.905
Dissatisfaction not occurred for the lacking of good discussion.	36	73	13	28	26	-.938
Dissatisfaction not occurred for the lacking of accountability.	17	48	69	24	22	-.077
Dissatisfaction not occurred for leasing of surroundings land of the Sanctuaries.	33	71	22	32	22	-.694
Dissatisfaction not occurred for collecting aquatic resources.	54	71	32	8	15	-.652
Dissatisfaction not occurred for catching fish.	64	85	4	20	7	-.994
Role of fishery officer	63	40	45	22	10	-.743
Role of police	42	50	24	36	28	-.233
Role of IPAC	58	44	8	42	28	-.344
Role of UNO	64	40	20	52	4	-.675
Role of resources management organization	33	53	19	50	25	-.105
Dissatisfaction not occurred for the decision making role	50	69	13	42	6	-.772
Dissatisfaction not occurred for stealing fish from sanctuaries	78	50	10	26	16	-1.17

Table 7. Respondent assessment of the effect of community based resources management

Attributes	Worse	Bed	Neutral	Good	Very good	Weighted Average Score
	-2	-1	0	+1	+2	-2 to+2
Change of people livelihood condition	54	68	16	28	14	-.668
Access of fish	64	68	16	28	4	-.977
Availability of fish.	8	25	30	65	52	.711
Access of aquatic resources	64	68	20	8	11	-.922
Availability of aquatic resources	6	14	45	68	48	.766

As it is seen from the table 5, dissatisfaction is not occurred for sanctuaries have been given the highest rating of -1.17. The lowest rating has been given with dissatisfaction is not occurred for the lacking of accountability. Dissatisfaction is not occurred for catching fish has been given the second highest rating (-.994). Similarly, Dissatisfaction is not occurred for the lacking of good discussion, Dissatisfaction is not occurred for the executive committee, Dissatisfaction is not occurred for the decision making role, Dissatisfaction is not occurred for the role of fishery officer, Dissatisfaction is not occurred for the for leasing of surrounding land of sanctuaries, Dissatisfaction is not occurred for the role of UNO (Head of the Sub-district government officer), Dissatisfaction is not occurred for the for collecting aquatic resources have been third, fourth, fifth, sixth, seventh, eighth, ninths rating of the respondent assessment of co-operation respectively. All fourteen attributes have been rated with negative score.

Again according to table 6, access of fish has been given the highest rating of -.977 and change of people livelihood condition has been given lowest rating of -.668. There is also another negative attribute of the effect of community based resource management-access to the aquatic resources, which has been rated the-.922. But, there are two positive attributes such as; availability of fish and availability of aquatic resources have given rating of .766 and.711respectively.

6. Discussion

6.1 Patterns of Cooperation in Community Based Fishery Management System

The principle aims of the community based fishery management system is to ensure the sustainable productivity, equitable distribution of resources and improved conflict resolution among fisheries and other (Mokkamel 2006:12; Pomeroy 1995:145; Fakrul and Tulshi et al. 2006:3; Ghani and Ahmed 2008:8; Mokmmal et al. 2004:2; Nishikatan2005:29; CBFM 2001; Pomeroy 1995:145; Mckenzie et al. 2004:5; Rahman and Begum 2010:87). But in this study it's found that a negligible level of relationship or co-operation exists among the community based resource practitioners and others. Most of the respondent's views were negative about the community based fishery management system.

There are two groups practicing community based fishery in Hail haor. These are resources user group (RUG) and resources management organization (RMO). But all of the members of resource management organization and executive committee of resource user group are rural elite. It is found through the FGD that RMO are control all of the aquatic and other types of resources. FRUG formulated to decrease the dependency on haor aquatic resources. Microcredit, however, provided to the member of FRUG who are ultra poor and fully dependent on haor resources. But, the executive members of FRUG do not provide microcredit to the poor people regularly. For the better profit, microcredit is given to the businessmen rather than to the members of organization. Consequently maladjustment such as corruption, nepotism is occurred to allot micro-credit. However, factionalism is increasing between executive committee and general members of organization. Likewise, members of RMO or the members of FRUG conflict for the post of executive committee. Consequently disappointment is occurred between the members of organization and it's decreasing their co-operation. Again, powerful peoples mainly involved in resource management system and their number is very limited. Moreover, it is decreasing every year because, influential bodies make plot against people whom they find unfavorable according to their will. These activities, however, are hampering social integration.

Fishery officer and Police do not perform their duties properly. As a result, proper monitoring system is absent which provides opportunity of fish poaching in a high volume from the sanctuaries and it is increasing day by day. Most of the respondents were said that the members of RMO are involved with this type of poaching activates. Fishery officer often does not take proper step against these stealing activates but some time harasses

the real fisher men or ultra poor who have no relation to the stealing. As a result, dissatisfactions lurk out among the resources management group, administration and others.

Different types of sanctuaries were established in Hail haor for conserving mother fish and others aquatic resource. Although, all of the sanctuaries are maintained by RMO and they are involved in different illegal activities. Some time conflicts are occurred to control the sanctuaries. That is why, frustration is observed between the RMO and others. On the contrary, limited accesses to fishing, limited scope of collecting aquatics resources are fostering illegal activities. Influential RMO members blame local poor in such case. RMO brings charge against the poor in the court. As a result, co-operation is declining between RMO and others. These activities are creating maladjustment situation in the society, which is ultimately imposing a negative impacts on the livelihood security of haor areas' people.

6.2 Impact of Community Based Fishery Management in People Life

People of wetland do not manage their livelihood and daily necessity in sufficient way. In that context, government takes community based resources management approach (Byomkesh et al. 2009:81, Fakrul and Tulshi 2006:23; Ghani and Ahmed 2008:5; ICUN 2008; Thompson et al. 2003:308). According to the result of the Chi-square test, the different variables of cooperation are highly associated with the effectiveness of the community based fishery management system. Again, these patterns of cooperation are put up a negative impact on the life of haor people which is also found through the Semantic differential scale. Community based resources or fishery management rather creates some good opportunity only for elite classes. It is observed that, the actual fisher men can't catch fish whole year. Most of the fishermen waited for rainy season when seasonal flood occurred and fish escapes from the sanctuaries. Majority of the respondent said that micro credit is not available for all people. At beginning of community based resources system MACH (Management of Aquatic Ecosystems through Community Husbandry) and Government Organization provides with different assistance. Now they do not provide these kinds of assistance but micro-credit. As a result, rural poor's neither can catch fish nor can get microcredit. This situation is considered as great hamper to secure their livelihood condition. Again, every year in winter season different seasonal birds come in Hail haor. These birds convene different virus such as bird flue in this area. These also effect in people life.

There are two types of sanctuary, seasonal or temporary and permanent, are found in study area. Seasonal sanctuaries are those types of sanctuaries where fishing may be closed for breeding season in the breeding ground to allow successful spawning or, in the dry season, to protect brood stock. The main purpose of these sanctuaries is to protect short lived species of vulnerable stage in their life cycle.

Most of the respondent said that fish especially small and extinct fish are more available at present in comparison to past. By the establishment of sanctuaries and the project of MACH (Management of Aquatic Ecosystems through Community Husbandry) beels, canasl etc. were re-excavated to improve fishing habitat. As a result, fish production has been increased and different kind of fishes such as *Foli* fish, *Shoil* fish, *Taki* fish, *Kai* fish, *Katol* fish and Different types of carp fish are now more common in Hail haor areas. But this fish production is increasing and conserving in a particular area. Due to these initiatives, fish production is being high day by day but the species are not extending as there are no way out to the other sanctuaries or haors. Consequently, the production is much higher in proportion to the area and fishes are dying and spreading many diseases.

Community based fishery management is expected to result in greater security of access of aquatic resources and co-operative leading to enhance sustainability of resource .For these reason, different permanent and temporary sanctuaries were establish in Hail haor. But all of the fishery resources are controlled by the executive member of RMO. Consequently, general people do not get access to the established of sanctuaries. RMO leases all the surrounding lands of different sanctuaries and, most of the time, these leasing are taken by them. So, the real fishermen who are fully dependent on haor resources, can not access to fishing. Again, RMO members create different barrier in rainy season that's why fish cannot escape from the sanctuaries.

Some positive changes have also been observed in the aspect of the availability of aquatic resources. Majority of the respondents were said that aquatic resources are increasing in the Hail haor. RMO plants different types of trees such as *Hijal* (Barringtonia aquatangula) and *Koroch* (Pongamia glabra). This swamp forest is important for providing with habitat for growing fish during the monsoon as well as habitat for other wildlife. Permanent sanctuaries such as *Bikka beel* is a restricted area for this reason, different types of aquatic resources such as *Sapla* (water lily), *Saluk*, *Hingir* and different types of vegetable are available here now then previous time.

Different types of aquatic resources have increased in Hail haor for the establishment of sanctuaries. But all of these resources are controlled and used according to the direction of RMO. Yet again, sanctuaries and its

surroundings areas are kept under protection. Thus, poor people can not collect aquatic resources. They easily use different grasslands and *kash* land for the grazing of domestic animals before the establishment of sanctuaries.

7. Conclusion and Recommendation

Community base fisheries management is expected to result in greater security of access and co-operative leading to enhanced sustainability of resource and co-operation is one of the most important components of this system. In Hail haor, three groups such as FRUG, RMO, and NGO (IPAC) consist co-management arrangement bodies. All of the decision making, implementation of decision and monitoring and controlling process are maintained by this co-management arrangement bodies. But the structure of co-management is creating polarization between the poor and rich people of haor area. Because, most of the rural elite people are involved in resources management programme and they control all kinds of resources. Limited accesses of fishing, limited scope of collecting aquatic resources are increasing illegal activities. Fore this reason, influential RMO members blame local poor people in this context. RMO bring charged against the poor people in the court. As a result co-operation is declining and it is effecting on their life. So, poor people are unable to secure their livelihood condition. Different types of social problem such as corruption, stealing fish from sanctuaries, number of bringing charge in the court and nepotism etc are also take place because of the decreasing of social integration. These problems should be prevented as soon as possible. For this, the steps could be obtained as follow (1) Sanctuaries resources monitoring system should be increased. (2). Members of FRUG and RMO are also should be increased in every year. (3). Taking adequate steps against any kind of corruption. (4). Social development activities should be increased in the Hail haor area. (5). Different kinds of awareness raising program should be increased in hail haor. (6). Government should increase civil participation. (7). Government and NGO should be increased alternatives income generating activities. (8). A plan of action regarding re-introduction and rehabilitation community based fishery system should be taken. (9). Participation of real fishermen and poor people in the resources management process should be increased.

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