A STUDY ON THE COMMUNITY BASED FISHERIES MANAGEMENT (CBFM) APPROACH IN BANGLADESH

By

Dr. Md. Muzaffar Ahmed, Program Director-Shiree, Save the Children International in Bangladesh E-mail: muzaffar.ahmed@savethechildren.org

Abstract

This study examines and evaluates the community-based fisheries management approach innovated, piloted and practiced by different donor funded development programs during the mid-1980s and early twenty-first century in Bangladesh. A community based fisheries approach describes "improvement of inland open-water fisheries management through the development of sustainable, community-based institutions and supporting them in undertaking a program of adaptive management of their fisheries resources using technical measures such as stock enhancement of floodplain fisheries, restoration of fisheries habitats, establishment of fish sanctuaries, and construction of fish passes" (DoF 2003, paragraph 26.b.1.3). The study explores the establishment of three major donor funded projects in Bangladesh employing this approach in the inland open water fisheries sector in south-west Bangladesh since mid-1980s [FFP, MACH and CBFM-2]. The analysis reveals that CBFM-2 approach was the most successful one, since it was sustained for longer times, even after the withdrawal of funding supports by the development partners from the project. The study examines the institutional arrangements in order to develop an institutional framework for sustainability of the community-based fisheries management (CBFM) approach - an approach which works successfully in the fisheries sector in Bangladesh in general and in inland open water fisheries in particular. In my current research, I have analyzed three different approaches and found that CBFM-2 was the most sustainable one as proved in the sustainable score. Hence, as a result of this research on three CBFM approaches, CBFM-2 model is developed based on the CBFM-2 framework.

Whilst the research revealed that there is no blueprint model for properly utilizing the WBs and huge floodplains available in Bangladesh, it is still possible through combining the experiences, lessons learnt and best practices on the donor-funded three projects, that an instructional model is designed and developed for implementation at the field level. This research was used to develop a, "Co-Management Model for CBO Sustainability" to illustrate show the institutional development process by which targeted CBOs of the waterbodies (WBs) could reach to their desired long-term vision to manage the floodplains in the inland open water fisheries sector.

The Study

1. Background and Introduction

Bangladesh possesses the largest multi-species fisheries ecosystem in the world. Numerous rivers intersect the vast alluvial tract, streams and tidal creeks which are largely formed by the fertile deltaic region of three mighty rivers - **the Ganges, the**

Brahmaputra and the Meghna. There is a network of 230 rivers and their tributaries with a total length of 24,000 km (BBS, 1991). Thus, fish and fisheries constitute an integral part of lives and livelihoods of the millions of people in Bangladesh, particularly the poor and marginal fisher-folks. Bangladesh is fortunate enough to have an extensive and huge water resources scattered all over the country in the forms of small ponds, beels (natural depressions), lakes, canals, small and large rivers, and estuaries covering an area of about 4.34 million hectare. The types of culture fisheries include freshwater ponds (0.15 million hectare), and coastal shrimp farms (0.15 million ha). The total inland open water resources comprising rivers, floodplains, lakes and reservoirs, and ponds cover an area of 4.05 million hectare. The country has a coastal area of 2.30 million ha and a coastal fisheries (Mazid).

2. Importance of Bangladesh Fisheries Sector in its Economy

The importance of fisheries sector in Bangladesh on the growth and development of its economy cannot be exaggerated. Fisheries sector in Bangladesh has been playing a very vital role from the time immemorial. But in the past, due to our low population and optimum fish productions, special attention was not given to this sector. Bangladesh was so rich in agro produces like rice, fish and vegetables in the past there was a saying that "The rural household was full of cows in the cow-sheds, full of fishes in the ponds and full of rice in the store houses". However, those prosperous and golden days have gone. Now people in the rural areas are suffering seriously from deficits of foods, proteins and nutrition mainly due to over-population. But with the recent and innovative technologies and optimum uses of the natural resources it is now possible to bring back the old times of affluence and prosperity to many extents. The fisheries sector is now playing a very vital role in poverty alleviation, generating employment opportunities, producing animal proteins, earning foreign currency and increasing Gross Domestic Product (GDP) and Gross National Product (GNP). Nasir (2005) has found that fisheries sector contributes 5.71% of the total export earnings and 4.92% to the GDP. About 12 million people are directly or indirectly involved in this sector. Labor employment in this sector has been increasing approximately by 3.5% annually. Fish production in ponds, lakes, burrowpits, floodplains, oxbow lakes, and semi-closed water bodies are increasing day-by-day with the blessings of modern technology. Fish production has increased to 21.02 lakhs MT in 2003-04, which was 17.81 lakhs MT in 2000-2001. During 1980's about 95% fish spawns used to be collected from natural resources. Currently, more than 98% spawns are produced in the hatcheries. More than four lakhs beneficiaries (unemployed youths, landless people, farmers, fishermen, and destitute women) have been provided training on improved fisheries in the year 2003-2004. In four years, 265,000 farmers received 56.24 crores taka as micro-credits from various projects as well as revenue budgets of the Department of Fisheries (DoF). Fish production in some floodplains increased from 150kg/hectare to 2,000-3,000 kg/ha in recent years. In 2004-2005, the highest ever export earning of taka 2,572 crore was earned through export of 633,378 MT shrimp and fish products (Nasir, 2005). In 2006-2007 fiscal year the total catch of fish from the inland and marine sources stood at 24.41 lakhs MT which is 4.81% more than that of 2005-2006 fiscal year (Bangladesh Economic Study, 2007). In this sector, the growth rate has been calculated as 3.99% which was 3.91% more in 2005-2006. At the constant price, the GDP contribution for 2006-2007 for the fish sector has been calculated as 4.73%. With these detailed pictures and statistics, it can be easily said that the importance of Bangladesh fisheries sector is highly significant and it is steadily growing day-by-day.

The total contribution of the fisheries sector to the GDP is about 22% of the total agricultural productions. An estimated 1.2 million people directly depend on the fisheries sector. In addition, lives and livelihoods of another 12 million people depend indirectly on this sector those who are classified as subsistence fishers, part-time fishing laborers, aquaculture operators, fish traders and processors. The sector contributes about 6% to the country's total export earnings, ranks third in the list of export commodities of the country. The annual growth rate of exports since 1991 ranges between 6-8% and Bangladesh has immense potentials for increasing fish production and trading.

3. Inland Fisheries Sub-Sector – Nature and Scope

Huda (2003) states that Fisheries have four distinct sub-sectors - open water capture fisheries, closed water aquaculture, coastal aquaculture and marine fisheries. The first three of these constitute what is described as inland fishery. Under the inland fishery, there are closed beels, open beels, rivers, haors, baors and private floodplains. If we see and examine the latest (2006-2007, 2007-2009 and 2010-2011) statistics of the annual total catch and area-wise productivity by sector of fisheries, then it is quite evident that this sub-sector still occupies highest of the overall fisheries. Over the years, it is increasing due to its high potentials and wider scope.

Fisheries sector of Bangladesh is highly diverse in resources and species. There are about 795 species of fish and shrimp available in the fresh and marine waters of Bangladesh. A number of 12 exotic species have also been introduced in the country at different times (Mazid, 2002). During 1999-2000, fish productions from different components of inland and marine fisheries stood at 1.66 million metric tons (DoF-2002), while in 2006-2007 it stood at 2.44 million metric tons. It is evident that inland aquaculture and inland open water fisheries are the two dominant sub-sectors, which together accounted for over 81% of the total fish production in Bangladesh. Hence, development of these two sub-sectors is vital in the context of making a major impact on the fish production and economic development of the people of this country, mainly the poor and marginal fishers. This study also has given emphasis on the inland open water fisheries sub-sector, which is the life-line of the economy in respect of protein intakes and overall economic development of the country.

For any nation, management of natural resources is important means of development. In recent times, the world is facing the challenges of food crisis, population explosion, lack of shelter, employment, and the management of natural resources. But natural resources are contributing to the lion's share of the world's economy. Among all the natural resources, aquatic resources have been considered as a big source for meeting the protein deficits and vital for the economic development of the world economy. Fisheries as one of the aquatic resources, contributes to the world economy significantly and inland fisheries alone account for about nine percent of the total fish production. But due to lack of proper management and over utilization of resources, large population of fish is exploited and the total fishing ground is depleted, which eventually leads to the environmental degradations. Hence, the management of inland open water fisheries resources has become a crucial issue in recent times. There is a dire

necessity for establishing appropriate management regime for proper utilization and restoration of the depleted resources.

Under the leasing system, the existing fisheries management in Bangladesh allows the rich fishers, water lords, land lords and rich people of the community to harness maximum benefits using the public water bodies, i.e. canals, rivers, closed beels, semiclosed beels, open beels, haors and baors. But with the co-management approach, it would be possible to involve all levels of fishers and the related stakeholders through ensuring their direct participation in the planning, implementation and benefits sharing process of the water bodies, which are not used at optimum level at present. For this, cooperation and coordination of all stakeholders are important. The Community Based Organizations (CBOs), poor and marginal fishers, NGOs, all line agencies of the GoB and professionals should co-operate to employ the co-management approach, which has been piloted and practiced under several donors-driven models, such as, MACH. FFP and CBFM-2. In our country, inequality prevails almost in all sectors, including the fisheries sector. This management process and the equality in income distribution may be ensured through the fisheries management approach involving all levels of fishers and community. This is called CBFM approach, where WorldFish Center, DoF, PNGOs and CBOs jointly implemented during 1999-2007.

In the past, fisheries management did not pose a serious problem due to the abundance of the natural resources, lower population and availability of adequate food. Due to over population, now most of the countries in the world, especially the developing countries are facing acute food deficits, not only in case of staple foods, but also in case of fish consumption. In Bangladesh, the importance of fish in fulfilling the protein intakes for our requirements of calcium, phosphorous, iron, vitamins and iodine can't be ignored. For ensuring diet and health of the huge population of Bangladesh, fish is highly important. In addition, it can also contribute to ensuring security of the lives and livelihoods of poor people and it is a potential resource for general economic development of the country. About 80% of the rural households catch fish for consumption or sale and fish constitutes 60% of the total protein consumption. The per capita fish consumption fell drastically over the years (from 58 grams in 1975-76 to 48 grams in 1981-82). In comparison to the marine fisheries, the inland open water fisheries in Banaladesh have the enormous opportunities in percapita fish consumption. Of the total inland fisheries, 39% production has been contributed by the capture fisheries and 42% by the culture fisheries. It means that inland fisheries sector is playing almost similar role in fish production in the country. However, inland fisheries have been facing serious problems due to its common property characteristics in Banaladesh and globally. None of the mechanisms, like exclusive private property rights or state control can satisfy and fulfill the goals of efficiency, equity and sustainability adequately. In recent times, several partner NGOs and state initiatives have come up with the reforms in the name of community based or co-management based approach for developing new sets of institutions which satisfied the most needs of the poorest of the poor and marginal fishers and in some cases, the whole community irrespective of castes and creeds by making them a party to these institutions and ensuring them fishing rights collectively and subsistence fishing. In Bangladesh, there have been several mechanisms, which have been tried and piloted by the government in improving the management of inland fisheries. Licensing and leasing systems have been introduced by the government for utilizing over 12,000

public water bodies or *jalmohals*. Despite government efforts and initiatives the licensing and leasing systems have not been working well due to **some critical factors**, **such as**, **mismanagement**, **corruptions**, **lack of good governance**, **absence of proper planning**, **conflicts among the line ministries on the ownerships of the water bodies for management**, etc. In addition, the profiteering motives of the leaseholders, the public water bodies have been damaged by over-fishing and lack of conservations.

For improving the management of public water bodies and floodplains, during the mideighties, several donor funded projects piloted the concept of community-based fisheries management approaches, which was found to be useful and suitable in many respects. Institutional arrangement plays a crucial role in such innovative projects, as it enhances the income of the rural poor through reducing the roles and interventions of the middlemen. However, there are differences in the opinions on the validity and actual outcomes of these institutions and approaches.

This study is an attempt in examining such institutional arrangements and to develop an institutional framework for sustainability of the community based fisheries management (CBFM) approach - an approach which works successfully in the fisheries sector in Bangladesh in general and in inland open water fisheries in particular. The community based fisheries management and community co-management issues have in recent years been widely discussed both in the country and globally, but not studied in respect of examining its appropriate methods and approaches. Several donor funded CBFM models in Bangladesh have been implementing this approach in the inland open water fisheries since mid-1980s. A study of this nature seems to me fully justified to make the current exploration from the perspective of reviewing the designed practices and approaches, as a part of CBFM approach study that stimulates the investigation for the viable approach attempts to cope with the current issues and problems, which are complex in nature, but not impossible to address collectively.

4. Statement of the Problem

Bangladesh has one of the richest fisheries resources in South Asia. Fish contributes about 60% of animal protein consumed in Bangladesh. The four million hectares of open waters in Bangladesh contribute about 42% of total fish production. It has been estimated that fisheries provided income for 1.5 million full-time fishers and 12 million part-time fishers. About 80% of rural households traditionally catch fish for consumption or to sell. As mentioned earlier, the jalmohals (i.e. the public water bodies), which are not properly managed and utilized and thereby expected benefits could not be harnessed from this abundant natural resources for the benefits of poor people. But a section of top level people with their muscle power and strong linkages with the power structures have been reaping the benefits at the expense of the poor and marginal fishers at the rural community level. In view of utilizing this important natural resource through using its full potentials and distributing benefits among the poor fishers, several interventions and approaches have been designed and developed, aiming at developing management systems for the open water fisheries sector, which includes, management policies, rules, regulations, government orders, decrees and several donor funded development projects.

In this context, since 1990, the GoB with the support from a few donors has been carrying out several experiments and pilot models in inland fisheries management. Of these, Fourth Fisheries Project (FFP), Management of Aquatic Ecosystems through

Community Husbandry (MACH) Project, Community Based Resource Management Project (CBRMP), Oxbow Lakes Small Scale Fishermen's Project Phase-2, and Community Based Fisheries Management (CBFM) Phase-1 and Phase-2 projects are noteworthy. These efforts were prompted by concerns for a declining capture fish stock, continuing loss of wetlands and worsening access situation faced by poor fishers. This approach to fisheries management has generated a few models ranging between CBFM to co-management. Co-management describes a range of management systems where responsibilities are shared between government and users. CBFM applies to cases where local communities take the main role in decisions and management but still with government support or facilitation. These projects have been working to empower fishing communities to become co-managers of these fisheries, and to ensure a more equitable distribution of benefits from fishing. Within this time, several positive impacts have also been visible in respect of empowerment of poor fishers through establishing their access rights and ensuring the households livelihoods and food security and other intangible benefits.

The CBFM approach has been implemented by different organizations in different perspectives. But, still it is not certain which institutional mechanism is sustainable in the future, so that the Government and donor agencies would not be required to extend support to the management of these vast resources. It would be able to sustain at its own. Therefore, sustainability is a major issue for the open water fisheries management at this stage, which needs to be sorted out.

It should be noted here that co-management is a participatory approach, compared to the traditional trickle-down approach. In this approach, all partners are providing their valuable contributions in making a common implementation plan for accomplishing the project activities. While in the past, it was a top-down approach and the jalmohal users were told what to do. That's why, no substantial benefits were made or accrued to the poor fishers and resource degradation was happening seriously. But with the inception of the CBFM approach in managing these huge natural resources, it started to provide benefits to the poor fishers. However, these accrued benefits are very much visible, during the project implementation period, but after the withdrawal of support, it may not be fully sustained. There is also not available evidence about the effectiveness and sustainability of the on-going CBFM approaches operating in Bangladesh.

5. Goal and Objectives of the Study

Based on the above background and the problems stated, the goal of the research is to develop an institutional framework for the water bodies and floodplains, so that it would be sustainable without any external supports.

The objectives of the research are as follows:

- 1. To review the **institutional mechanisms** of community based fisheries management (CBFM) approaches in Bangladesh;
- 2. To identify the **strengths and weaknesses** of the existing institutional frameworks of the different community based fisheries management approaches implemented in Bangladesh for inland fisheries management; and
- 3. To propose an **institutional framework** (based on the results and findings) that will sustain without any support from the external organization.

6. Locations of Primary Research

In order to fulfill the objectives of the current research, 128 CBOs with closed beels, open beels, floodplain beels, small beels and rivers of CBFM2 project have been surveyed in different regions of the country. The NGO partners, who were attached to these CBOs and water bodies are - CNRS, Proshika, Caritas, BRAC, Banchteshekha, CRED, SDC, Gharoni and Shishuk. On the whole, the Department of Fisheries (DoF) was closely associated with these water bodies/CBOs in terms of recognizing their roles and responsibilities for making the concept of community based management for long-term sustainability and existence.

7. Justifications of the Study

This current study explores, evaluates and investigates the best institutions in community based fisheries management (CBFM), which have been practiced in Bangladesh with the donors' funds over the years. Based on the findings, the researcher would like to develop an institutional framework for sustainability, which will eventually address the crucial issues of all jalmohals (i.e. public water bodies) available in the country and will help the poor and marginal fishers, and the community as a whole to help in alleviation of their poverty and improve standards of living.

To conduct the proposed research is very timely. In the present research work, efforts have been made to make an in-depth study of the CBFM approaches (which have been implemented by different donor funded projects), in order to identify the existing strengths and weaknesses of the institutional frameworks of the different community based fisheries management approaches implemented in Bangladesh for inland fisheries resources management, so that an institutional framework for effective management of sustainability of inland fisheries can be made. Based on the research work, it would be possible to suggest a sustainable institutional framework for the inland fisheries management in Bangladesh. This institutional framework will help the decision makers and policy planners of the GoB and associated partners, including donors and other national and international organizations for the delivery of future inland fisheries management systems in Bangladesh. In this respect, it is assumed that no such attempt has been made so far to conduct a study in this direction.

This study is significant from the point of revisiting these formal organizations, which have been started to phase-out from the DFID-funded CBFM2 project from July 2005 under a planned exit-strategy. With the donor's encouragement the CBFM-2 project management in association with the partner NGOs and project beneficiaries i.e., CBOs, an exit strategy was designed and developed in early 2005 and has been implemented fully by March 2007 with a no-cost extension for seven months of the CBFM2 project, which was a unique and a successful one for such a community based fisheries management project. In this respect, this study is highly significant and an extraordinary one. In addition as a sample, another exit strategy (CNRS) which was developed by one of the 11 partner organizations of the CBFM-2 project, including the Department of Fisheries, as they also supervised some water bodies directly.

8. Methodology

The study employed primary and secondary data analysis to focus on the three Community Based Fisheries Management models. The secondary data analysis began with a review of existing CBFM related projects' in country together with international experiences to understand their relevance to community-based fisheries management as lessons learnt and best practices. This involved in-depth analysis of three donor-funded

CBFM type projects for assessing their institutional mechanisms, strengths and weaknesses of the institutional frameworks and sustainability in the long-run.

The primary survey was carried out on 128 Community Based Organizations (CBOs) for assessing the status of sustainability at different phases of handover of waterbodies and floodplains to the local level community and user groups. The assessment tool comprised a data collection questionnaire, which is filled-in through focus group discussions (FGDs) with CBO leaders and other CBO members of the waterbodies of the CBFM-2 project sites. I did the primary data analysis on the CBFM 2 Model, but first I did the secondary data analysis on the 3 different models, identified CBFM2 as the most sustainable one, then did primary data analysis on CBFM2 using the sustainability index from which I developed the model, which I feel is the strong, viable and long-term sustainable.

The primary data collection was carried out jointly by a Data Collector and Centre for Natural Resources (CNRS) staff available at the waterbody (WB) sites. The main objective of facilitating all these five rounds of data collection was to identify the status of CBOs at different intervals in terms of their ability to the achievements of sustainability. Sustainability was defined as, fishers and users of the CBFM-2 project watebodies are continuing the project promoted activities and applied the knowledge and skills learned to other practices. The sample distribution of all 128 surveyed CBOs managing the following waterbodies: Closed Beel-11, Open Beel-29, Floodplain Beel-45, Small Beel-07 and Rivers-36. In terms of partner NGOs, the classifications of CBOs are: CNRS-61, Proshika-19, BRAC-15, Banchte Shekha-8 and others-9 (i.e. CRED, SDC, Gharoni, SHISUK and DoF).

9. Major Findings of the Study

Statistical analysis of the sustainability scores through the five rounds of analysis revealed the following major findings:

- 1. A general overall improvement is made in the sustainability level of CBOs from first round to fifth round where the most notable improvement was from:
 - a. July, 2006 and March, 2007, which indicated that more CBOs are shifting towards 'Very High Probability' (VHP) and 'High to Medium' (HMP);
- 2. During the fourth round assessment, 79 and 29 CBOs (out of 128) have reached to VHP and HMP, respectively, which was due to the introduction of 'Area Teams' strategy to reinforce the efforts of partner NGOs;
 - i. As of fourth round assessment, most of the better performing CBOs were managing either open beels of floodplains and it was evident that 18 open beel CBOs and 15 floodplain CBOs had reached VHP at the fifth round assessment, which means these CBOs contributed about 63% of the numbers in VHP;
- 3. In fifth round, small beel has received a good performance and it was indicated that more CBOs were shifting towards VHP and HMP and 8 and 2 CBOs (out of 11) have achieved VHP and HMP, respectively;
- 4. It is evident that CBOs under CBFM-2 project were sustained after the withdrawal of supports by the development partners and these local

- organizations have been established as institutions to work for ensuring the livelihoods of the fisher folks of the area;
- 5. Government supports remain highly important to continue to ensure the supports to the CBOs on a regular basis in respect of policy matters to keep the rental agreements on a permanent basis; and
- **6.** At the fifth-round survey, it was found that CBOs are now acting as institutions, which are established and sustained. Hence, we can conclude that it is established and proved that CBFM approach has a positive impact on the inland open water fisheries resources management in Bangladesh.

10. Conclusions

In sum, it can be said that the principle behind the community managed fisheries is that it upholds the handover of the management of fisheries resources to community groups that will manage the resources sustainably, efficiently and equitably. The benefits of this approach are multi-dimensional, which is pro-poor, equitable, profitable and sustainable. The project interventions, though in a small number of waterbodies in all three community-managed approaches: CBFM-2, FFP and MACH, have clearly showed that in the project areas poor fisher's access to waterbodies were ensured and established. Advocacy and awareness building component of the projects have resulted in increased and effective observation of fishing ban period (FBP), reduction in use of harmful gears and practices, establishment and restoration of fish sanctuaries and fish habitats, respectively. Alternative Income Generating Activities (AIGAs) for fisher communities in the project areas have led to observation of fishing restrictions and reducing pressure on fisheries. All of these together have resulted in an increase in fish production and bio-diversity in the project areas (CBFM Policy Brief-4, 2004). Despite several positive impacts, the projects had many challenges ahead in establishing and communicating CBFM approaches to the community leaders, local elites and administration, and key policy makers for sustainable management of the inland waterbodies. But if we see the current study results (based on the overall findings on the approaches and institutional arrangements of three CBFM type projects) then only in the CBFM-2 project areas at 128 registered CBOs, then it is established that those are sustainable and their overall performances are satisfactory. Based on the critical assessments of the CBFM-2 model, a co-management model has been designed and developed which might yield several expected benefits, if all stakeholders are supportive at all levels – national to local levels i.e. unions.

In terms of challenges, the most crucial one is the active coordination of the key ministries, mainly, between the Ministry of Fisheries and Livestock and the Ministry of Land. If the key challenges can be addressed, then there will not be any bottlenecks in implementing CBFM concept and approaches widely in all waterbodies of Bangladesh in near future.

11. Policy Recommendations

The most important policy recommendations on CBFM for further replication can be summarized as follows:

- 1. To clearly demonstrate impacts from CBFM interventions, appropriate mechanisms need to be designed and developed in advance to assess the impacts of these interventions on the wider community;
- 2. The CBOs should be given official recognition at all levels as legal entities, and laws on sanctuary establishment and their maintenance need to be formulated and enacted for implementation, as soon as possible;
- 3. Watershed management policies implemented by the DoF should reflect the need for networking. Local government control over fisheries should be strengthened through forming Upazila Fisheries Committees (UFCs). It is important to establish strong linkages between CBOs and UFCs and to encourage NGOs and other agencies to facilitate community management of fisheries. Local government officials need to be involved in policy development recommendations at all levels;
- 4. Long-term tenure for leaseholders is crucial to ensure sustained and improved development of the waterbody. Similarly, support by external agencies must be long enough to build the capacity of CBOs. Future community managed fisheries programs need to incorporate long term tenure for CBOs and all programs and projects should be at least for 10 years;
- 5. The Bangladesh Department of Fisheries and Partners should develop an ICF which supports expansion of community managed approaches. This should be implemented as soon as possible to improve the sustainability of fisheries and help the communities sustain on these fisheries;
- 6. A policy decision needs to be made at the Ministry of Fisheries and Livestock level with active support from the Ministry of Land on distribution of the state owned waterbodies to the poor fisher groups, which will follow the CBFM-2 model. This policy should be the same as the GoB Khas Land distribution policy (distribution of khas land to the landless);
- 7. The number of waterbodies under CBFM should be increased to 12,000 from its current number of 260 for disseminating the proven concept, so that poor and marginal fishers can maximize the benefits from these public waterbodies;
- 8. The system of maximizing revenue should be replaced with the pro-poor management and leases to waterbodies should be used as a means to set conditions for access and conservation rather than as a way of generating revenue only;
- 9. Upgrade the long-term use of waterbodies by fishing communities through affordable, long-term lease, waving VAT and income tax for leases. This will ensure CBO sustainability and continued access to the poor;
- 10. Multi-stakeholders approach should be implemented to make better use of the CBFM approach, which will ensure the CBO sustainability;
- 11. Based on the importance to the national economy, the fisheries sector should be divided into various production zones, such as: 1) Small-scale fisheries in the inland waterbodies and rivers to be cultivated by the private fishermen; 2) Large-scale fisheries in the coastal areas to be cultivated by the native private companies; and the 3) Deepsea marine fisheries as partnerships/joint venture between the government and the foreign donors/countries; and

12. To constitute and set-up a coordination committee (CC) with representatives from the concerned Ministries (having a leading role by the Department of Fisheries under the Fisheries and Livestock Ministry) to perform multiple functions like: i) Monitor compliance with government policies/regulations; ii) Provide security to fish cultivation in the private small-scale fisheries and to all fisheries during the fishing ban period (FBP); iii) Resolve disputes between/among CBOs and fisheries operators; and iv) Formulate new policies on sustainable development of the fisheries sector.

However, scaling-up will definitely require certain changes at the policy levels to facilitate the process. It would be worthwhile to follow-up the impacts of the recent research, particularly on the sustainability of the activities, after a certain period of time. Because the situation may vary across the country, it would be useful to undertake further research on the similar subject in other parts of Bangladesh, which will help to develop wider understanding on the CBFM.

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Note: Author of this paper is a Life Member of the Bangladesh Economic Association (BEA)