Identifying institutional barriers to marine fisheries development projects in Bangladesh

By

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Abstract

Marine waters of Bangladesh are amongst the most biologically diverse in the world. With financial and technical support from international organisations, several large-scale projects have been implemented to support the development and sustainable management of its marine fisheries. Although the majority of immediate objectives for these projects are generally achieved, in most cases, their development aspirations such as sustainable resource management, institutional capacity building, fisheries co-management are rarely attained. The objective of this research is, therefore, to understand why these projects fall short on attaining sustained outcomes beyond the life of the project through assessments of two recently completed projects (Bangladesh Marine Fisheries Capacity Building Project and Empowerment of Coastal Fishing Communities for Livelihood Security Project). The study identifies five categories of institutional barriers within the Ministry of Fisheries and Livestock and Department of Fisheries that are potentially affecting the long-term effectiveness of these development projects: legal limitation; strategic limitation; coordination gap; capacity limitation; and bureaucratic bottleneck. This paper concludes with recommendations on possible ways in reducing the impacts of these barriers, including periodic reviews of regulatory instruments, development of a comprehensive fisheries management plan, improving coordination through memorandum-of-understanding, adopting long-term career plan for technical staffs, and instituting mechanisms for evaluating project progress at each stage of the project implementation. With greater awareness of potential institutional barriers within Bangladesh's fisheries governance structure, future development projects should benefit from improved design and implementation.

Keywords: Bangladesh, marine fisheries, international development projects, sustained outcome, institutional barrier.

Abbreviations

BDT	Bangladesh Taka
BEC	Blue Economy Cell
BMFCBP	Bangladesh Marine Fisheries Capacity Building Project
CBFM	Community-based Fisheries Management
CCRF	Code of Conduct for Responsible Fisheries
DFF	District Fisheries Federation
DFO	District Fisheries Officer
DoF	Department of Fisheries
DPD	Deputy Project Director
ECFC	Empowerment of Coastal Communities for Livelihood Security
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organisation of the United Nations
FGD	Focus Group Discussion
FMAC	Fisheries Management Advisory Committee
FMO	Fisheries Management Organisation
GO	Government Organisation
GoB	Government of Bangladesh
GoM	Government of Malaysia
IDB	Islamic Development Bank
IUU	Illegal, Unreported and Unregulated
km	Kilometre
MCG	Micro Capital Grant
MCS	Monitoring, Control and Surveillance
MFO	Marine Fisheries Office
MFSMU	Marine Fisheries Survey Management Unit
MMD	Mercantile Marine Department
MoFL	Ministry of Fisheries and Livestock
MoU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
NGO	Non-government Organisation
NRCA	Natural Resource Conservation Activists
OIC	Organisation of Islamic Cooperation
PD	Project Director
SCMFP	Sustainable Coastal and Marine Fisheries Project
TCP	Technical Cooperation Programme
UFF	Upazila (sub-district) Fisheries Federation
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States Dollar
VDC	Village Development Committee
VO	Village Organisation
VTMS	Vessel Tracking Monitoring System

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Chapter 1: Introduction

Bangladesh is situated at the northern end of Bay of Bengal, the largest bay in the world, northeastern part of the Indian ocean. Country's 118,813 sq. km exclusive economic zone (EEZ) is a part of the Bay of Bengal Large Marine Ecosystem (BoBLME), which is characterised by the world's most biologically diverse region, nourished by Sundarbans mangrove forest and three great river systems, the Ganges, the Brahmaputra and the Meghna (Afroz & Alam, 2013; Ahmad, 2019; DoF, 2019b; M. S. Islam, 2003; Quader, 2010). From time immemorial coastal people of Bangladesh, India, Myanmar, Sri Lanka, and Thailand have relied on fisheries from the Bay of Bengal, which became part of their life, livelihood, and culture. Although marine sector provide only 15% of the total fisheries production of Bangladesh (DoF, 2019b), the marine and coastal environment additionally provides ecosystem services for other anadromous species harvested in the freshwater systems, including the national fish "Hilsa". The marine fisheries sector is directly and indirectly a significant contributor to the income, employment, nutrition, and foreign exchange earnings of the country (DoF, 2019b; MoF, 2018; MoFL, 2019).

The Ministry of Fisheries and Livestock (MoFL) is the government entity responsible for management, conservation, and development of marine fisheries resources. The Ministry implements and coordinates fisheries activities through the Department of Fisheries (DoF) and its' Marine Fisheries Office (MFO). In addition to its own management initiatives, MoFL periodically engages in collaborative development projects, fully or partially funded by external organisations, such as United Nations Development Programme (UNDP), Food and Agriculture Organisation of the United Nations (FAO), World Bank, Islamic Development Bank (IDB) and some developed countries. These projects are often designed with multiple intertwined development objectives. Recent development projects, for example, have sought to address sustainable resource management, strengthening of capacity for monitoring, control

and surveillance (MCS), and implement a system of fisheries co-management amongst their list of objectives. While these development projects aim to strengthen the primary activities of MoFL, they operate outside of the framework of establishment or core initiatives. However, sustained outcomes of these projects result in overall development of marine fisheries sector of the country.

Since its independence in 1971, at least five large-scale international development projects have been implemented in Bangladesh to address its marine fisheries. These projects were deemed successful, having achieved their immediate project benchmarks; however, little progress was made in the context of broader development aspirations. This failure to sustain development outcomes is evident from the fact that several new projects with similar development objectives have continued to be implemented over the past three decades (BMFCBP, 2019b; FAO, 2020a; SCMFP, 2018; UNDP, GoB, & FAO, 2003). The most recent example is the Sustainable Coastal and Marine Fisheries Project (SCMFP), a USD 240 million project launched by MoFL in January 2019. SCMFP lists as its goals, many development objectives from the predecessor projects, including the Bangladesh Marine Fisheries Capacity Building Project (BMFCBP) and the Empowerment of Coastal Fishing Communities For Livelihood Security Project (ECFC) (BMFCBP, 2019b; SCMFP, 2018; UNDP et al., 2003). It appears that financial and institutional investments committed to the earlier projects have yielded a limited long-term return in developing Bangladesh's economy.

In light of the continued lack of sustained development project outcomes, it is critical that assess why it is the case. While many actors, from international donor agencies, MoFL to stakeholder groups contribute to the sustained outcomes, one hypothesis is that there exist institutional barriers within the Government of Bangladesh (GoB). The objective of this research is, therefore, to assess the design and implementation of two recent international

development projects from the perspective of institution and identify possible barriers to sustained outcomes.

Institutional barriers, which are collectively the policies, procedures or systems restraining an institution from utilising its resources or potentials (Ashcraft, 2009), are common in many countries. Several authors have reviewed how such barriers impacted development projects' success or project outcomes' sustainability around the world, mostly in developing countries. Examples include, legal complexity in Indonesia (Patlis, 2005), lack of proper strategy for development in Ghana (Damoah, Akwei, & Mouzughi, 2015) and Malawi (Namakhoma, 2015), coordination gap among the implementing agencies in Malawi (Namakhoma, 2015), lengthy bureaucratic process in Africa (Ika, 2012) and Ghana (Damoah et al., 2015), bribery and corruption in most developing countries (Bhatia, 2016; Damoah et al., 2015; Ika, 2012; Yanwen, 2012), low institutional and human capacity in many developing countries (Essilfie-Baiden, 2019; Ika, 2012).

The overarching goal of this research is to identify potential institutional barriers within MoFL and recommend sustainable solutions to overcome those for future development initiatives. Recent development projects are analysed here as case studies considering that similar institutional barriers likely impact other projects under MoFL. It should be noted that MoFL-implemented donor-supported projects are not limited to marine fisheries but have also included development of inland open-water fisheries, shrimp aquaculture, livestock development, fisheries research, and livestock research. Awareness of possible institutional barriers, as identified through this research, may aid in guiding the decision-makers at MoFL and other associated departments in development and implementation of future projects.

This research paper is structured as follows. In Chapter One, the background and objectives of this research are presented. The second chapter provides a review of different definitions along with studies on international development projects and how their outcomes

are affected by the institutional characteristics of implementing organisations. Government institutional structure, development partners and other related issues for Bangladesh's marine fisheries management are described in Chapter Three. Methodology applied in this research is presented in Chapter Four, including descriptions of the two case studies. The results of the analyses of the two case studies are provided in Chapter Five with the identification of possible institutional barriers within MoFL and their potential impacts on the outcomes. Similar findings on institutional barriers from other case studies in Bangladesh and/or other developing countries are discussed in Chapter Six along with policy recommendations. The paper concludes with a summary of its findings in Chapter Seven.

Chapter 2: Literature review

2.1 Development projects

Projects are excellent opportunity for organisations to achieve their objectives through implementing change. Sometimes projects are also developed to create something unique. Development projects are usually different and vary from other types of projects due to their implementation methods. These projects provide socioeconomic assistance to developing countries and their unprivileged people to improve their standards of living, education, health and other needs (Khang & Moe, 2008). According to Youker (2003), development projects are public projects or programmes of medium to large size, implemented in different sectors of developing countries and financed by either Multilateral Development Banks, United Nations Associated Agencies, Bilateral and multi-lateral government agencies, Non-Governmental Organisations or Government agencies. Development projects introduces skills training and livelihood programmes to develop people's standard. Development organisations also support formal and informal institutions to build their capabilities and encourage community self-reliance through long-term sustainable strategies. Some development projects act as a single, transformative project to address only a specific problem and sometimes development projects work as a series of projects those target addressing multiple problems of the community or institution they are working for (Siles, 2018).

2.1.1 Project success

There is no concrete standard to measure project success. Over the past couple of decades, the success of development projects has been defined as its timely completion, according to its specifications and within the budget (Lock, 2007). However, the idea is now changed widely. Today, the definition of project success means the completion with acceptance by the project beneficiaries and minimum or mutually agreed upon scope changes without disturbing the main work flow of the organisation it is working for (Kerzner, 2017; Meredith

& Mantel, 2009). That means, project success is the effective use of project final outputs and sustainable achievement of the purpose and long-term aspirations of the project (Khang & Moe, 2008). Baccarini (1999) also viewed project success as product success in terms of "quality and impact of the end product to the end beneficiary".

2.1.2 Immediate objective and development objective

Development projects need to set short and long-term objectives to define the changes they are going to make. These objectives usually provide sufficient information, so that all the stakeholders can understand them and monitor the changes set by indicators. Although, the development projects mainly focus on achieving their short-term immediate objectives within the limited time frame, it is also important that project interventions comply with the development aspirations of the institution, region, or country it is working for. Therefore, achieving both immediate objectives and development objectives are important for both project success and product success. International development projects generally explain immediate objectives as concrete and short-term targets, which are expected to achieve during the project period. Immediate objective is simultaneously known as project objective. On the other hand, development objective is something visionary and with wide spectrum. Development objective can be achieved as a result of broader change that happens because of sustained outcomes of project product.

2.1.3 Sustainable project outcomes

The concept of sustainability received proper attention over the last couple of decades (Michaelides, Bryde, & Ohaeri, 2014). It is the ability of an institution, organisation or entity to continue its mission or programme far into the future. In practice, all development projects have to end after certain period, but the projects can still continue to serve through its sustained outcomes. Donors of development projects also want to see that, the project and its outcomes will outlive without their direct involvement in the project. Therefore, it is important that,

development projects not only focus on short-term achievements, rather how to sustain outcomes even after completion. A project or organisation can bring sustainable outcomes in three main categories: community, financial and organisational level. Community sustainability is how the community carries out the project activities even after the external monitoring leaves. Financial sustainability is how the financial support required for the project or the organisation will continue after the grant has ended. Finally, organisational sustainability is how the monitoring entity itself continues to function post-project (Alonzi, 2020).

2.2 Institution

The institution is a concept that can be explained by many definitions and interpretations. People achieve collective aspirations and overcome gaps in the society through institutions, whether they are formal or informal, legislative or economic, cultural or political, local or global (Dovers, 2001). According to Hamilton (1932), "Institution is a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of the people". Cooley (1928) defined institution as "a complex integrated organisation of collective behaviour established in the social heritage and meeting some persistent need or want". Jentoft (2004) argues that institutes are durable and robust, having the ability to endure even when their personnel changes. Long-term vision and strategy, effort to sustain outcomes, initiating with pilot activities first, thorough capacity development plan, good working relation with government agencies are some of the issues those are needed for an institution to sustain (FAO & NACA, 2002).

2.2.1 Institutional barrier

The institutions are crucial, primary source to reach goals, but can also have barriers to achieving them (Dovers, 2001). In some cases, barriers are so severe that new institutions need to be established, whereas in other instances existing institutions need substantial reformation. However, it is difficult to find a well-accepted definition of institutional barrier in the academic

term. In this research the definition of institutional barrier is adopted as "policies, procedures or systems those systematically disadvantage formal or informal institutions to effectively utilise all its resources or potentials" (adapted from Ashcraft (2009)). Institutional barriers can appear from different sources: legislation and regulation, issues within the management councils, judicial challenges, and budgetary or staffing shortages (Tanz, 2016). It is a common obstacle to sustainable resource management (Dovers, 2001).

2.3 Institutional barrier in development projects

Development projects need to pass through numerous institutional arrangements from project design to completion. Some of the institutional issues may appear as a barrier to achieve project success. In a study, Ika (2012) identified the development project failure mostly due to institutional barrier, rather than technical issues. Such institutional barrier is prevalent mainly in developing countries, as because these countries have weak government and civil society institutions (FAO & NACA, 2002). The following paragraphs summarise different studies of institutional barriers observed in developing countries for project management.

Comprehensive planning is one of the key elements of every project success. Poor planning is the mostly cited institutional barrier that bring project failure (Damoah et al., 2015; Nzekwe, Oladejo, & Emoh, 2015; Tekinel, 2013). If project deliverables and how these would be achieved are not planned well, projects are likely to fail (Pinto, 2013).

Lengthy bureaucratic procedures in the government agencies may halt project progress (Bhatia, 2016). Large projects often can be accomplished only with direct government involvement. As a result these projects become highly bureaucratized and inefficient (Damoah et al., 2015; Yanwen, 2012).

Bribery and corruption are inherent within certain political and social settings and to some extent are pervasive in most developing countries (Bhatia, 2016; Damoah et al., 2015; Yanwen, 2012). This happens because of poor economy, lack of government accountability,

and absence of effective administrative systems. As a result of such corruption, development projects progress may slow down and in the worst case, cannot achieve success.

Development projects need to consider legal setup of the institution during design phase. However, weakness, ambiguity or complexity in regulatory instruments may appear as a significant barrier to achieve project success. This was the case of an Indonesian natural resource management programme, for which the management had to suffer during the implementation period (Patlis, 2005).

Politics play a crucial role in determining the progress of any project (Damoah et al., 2015; Essilfie-Baiden, 2019; Nzekwe et al., 2015; Tekinel, 2013). Development projects are vulnerable to failure, particularly if they are in an area where government is unstable (Bartram, 1999). Kilby (2012, 2013) documented the effect of political influence on preparation time of World Bank projects and the subsequent impact of this preparation time on project outcomes.

Lack of institutional capacity and trained personnel is also another barrier why projects fail in developing countries (Essilfie-Baiden, 2019; Ika, 2012; Williams, 2011). Project management weakness in these countries appear due to lack of adequate institutions, shortage of capable managers and weakness in the administrative systems (Yanwen, 2012).

Poor internal and external communications can also be institutional barrier to development projects (Namakhoma, 2015). Failure to communicate effectively prior to and during project implementation can lead to conflict in project's management (Ruuska & Teigland, 2009), which can drive the project to fail in achieving objectives. Development projects may also suffer due to lack of effective community involvement (Berman, 2000; Kakaza, 2009). Inadequate involvement of local voices increases the chance of unsustainable project outcomes (Tekinel, 2013).

Leadership is important in project management and in government implemented projects there are more of political leadership rather than management (Damoah et al., 2015).

When project managers are politically nominated without considering their basic qualities or previous experiences, it can be a problem in achieving project success. In a study of World Bank funded project performance, Denizer et al. (2013) reported project managers' quality as a significant factor for ultimate project outcomes.

Chapter 3: Overview of the marine fisheries management in Bangladesh

3.1 Key features of the marine fisheries sector

The littoral area of Bangladesh encompasses the second largest delta of the world, after the Amazon (DoE, IUCN, & BCAS, 2006). Its coast is 710 km long (CZPo, 2005), with unique features such as Sundarbans, the world's largest continuous mangrove forest; Cox's Bazar, the world's longest natural sea beach; coral island of Saint Martin; Swatch-of-no-ground submarine canyon, and highly productive estuarine systems with considerable biodiversity. For management purpose, its marine fisheries are divided into three regions based on depth contour: small-scale fisheries operating within areas of 40m in depth; industrial fisheries operating in areas of 40 to 200m in depth; and distant water tuna fisheries beyond 200m depth, though such fleet is yet to be operational. South patches, south of south patches, middle ground and swatch of no ground are four major fishing grounds in the Bangladesh marine waters (figure 1). Total fisheries production of the country is 4.3 million MT with marine fisheries contributing 15%. Artisanal and small-scale fisheries account for approximately 82% of marine landings (DoF, 2019b). The marine fisheries sector now has an estimated 34,810 non-mechanized and 32,859 mechanized fishing boats, and 255 industrial trawlers (DoF, 2019b).

In 2012 and 2014, Bangladesh established its sovereign right over 118,813 sq. km of EEZ in the Bay of Bengal, resolving a long standing dispute over maritime boundary with Myanmar and India under International Tribunal on the Law of the Sea (ITLOS) and Permanent Court of Arbitrations (PCA) (Planning Commission, 2015). These verdicts ensure legitimate and sovereign right to explore, exploit, conserve and manage living and non-living resources within the EEZ. GoB is now considering many pragmatic initiatives, especially fisheries management measures based on an ecosystem approach, and to harness fisheries resources at maximum sustainable yield (MSY) level.

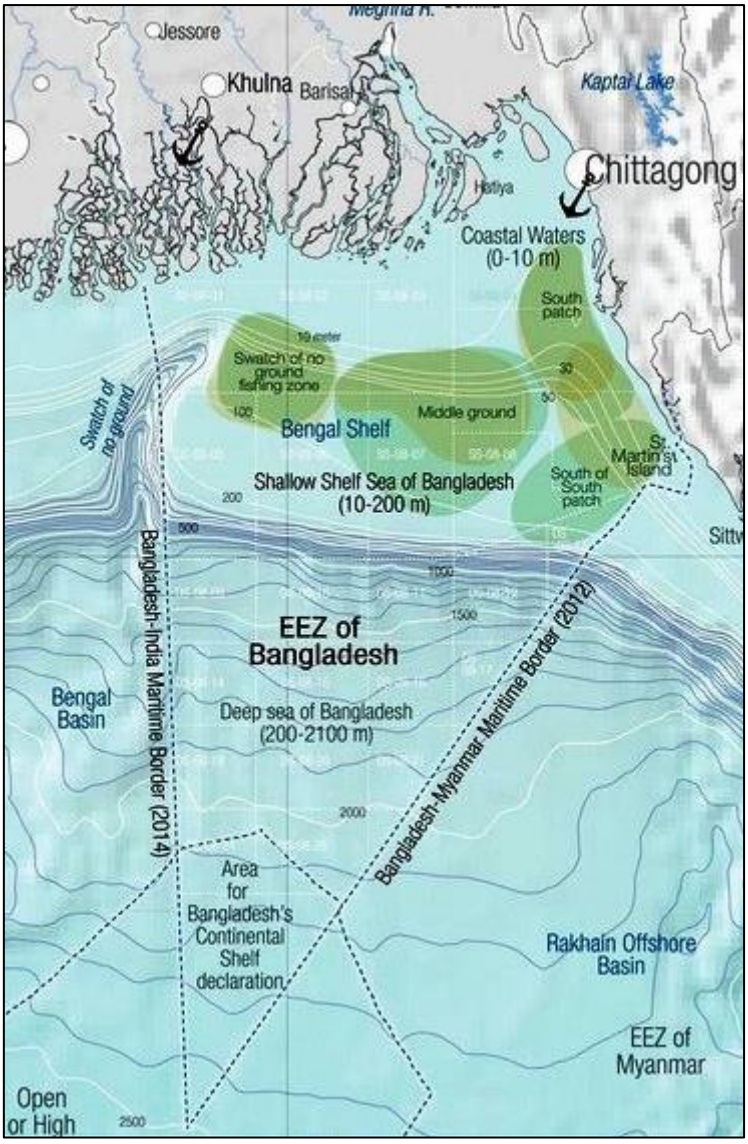

Figure 1: Maritime province of Bangladesh (Chowdhury, 2014).

3.1.1 Marine fisheries regulations

In Bangladesh, twelve national laws have been enacted with respect to management of the fisheries resources (M. A. Rahman et al., 2018). Marine fisheries, specifically, is governed by the Marine Fisheries Ordinance (1983). Under the provisions of the Ordinance, Director (Marine) of DoF is authorized to regulate marine fisheries exploitation, including vessel licensing and cancellation, monitoring fishing vessels and taking legal actions. Its activities are supported by Marine Fisheries Rules (1983) and supplemented by additional Statutory Regulatory Orders. Marine Fisheries Rules (1983) describe the process to file an application

for fishing licence in case for domestic vessel or foreign vessel, format of these licences, amount of fee for the application of licence, conditions for application for licence, time for which the licence shall be granted, mesh size of net which shall be used for fishing, area of fishing and prohibited method of fishing.

The Protection and Conservation of Fish Act (1950) and Rules (1985) also has some jurisdictions from the base line (18.29m) to the limit of territorial waters. These rules explain various measures of protection and conservation, including use of fixed engines, establishment of dams and embankments, manufacture and use of fishing nets, use of explosives or other destructive methods for fishing, fishing season and minimum size to catch fish.

3.1.2 Fishing communities

Bangladesh has an approximated 1.3 million fishermen, nearly 40% of whom are in the marine fisheries sector (DoF, 2019b). The majority of these fishers are poor, illiterate, socially excluded and politically disempowered (M M Islam, 2012; Jentoft, Onyango, & Islam, 2010; M. M. Rahman, Chowdhury, & Sada, 2003). Fishing labourers are overwhelmingly male, where female labourers earn less than half of males (Karim, Saadi, & Tamanna, 2015). More than half of these fishers face deficit in managing family with incomes throughout the year (M M Islam, 2012). Among the families engaged in fisheries, 64 percent have loans (Karim et al., 2015). Most of these loans come through an informal credit mechanism, *dadon*; an unwritten contract between the fisher and the local money lender, where the fisher sell the fish to the money lender or the money lender gets a specific commission in addition to the lending money when fish is sold to a third party.

3.2 Government institutions for marine fisheries management

3.2.1 Ministry of Fisheries and Livestock

MoFL is the main administrative agency responsible for formulating fisheries policy and development strategies of GoB. The Ministry was formed in 1985 when the Fisheries

Division and Livestock Division were moved out of the Ministry of Agriculture. MoFL is headed by a Minister or sometimes a State Minister who is responsible for conducting its business. Secretary is the administrative head of MoFL. Key responsibilities of MoFL related to the marine fisheries sector includes preparation of schemes and coordination of national policies; management, control and development of marine fisheries; conservation of fish and other of aquatic organisms of economic and ecological importance; monitoring permission, licensing and operations of fishing vessels; development of fisheries beyond EEZ, fish harbour, fish quality testing, laboratories and other ancillary organisations (MoFL, 2020a).

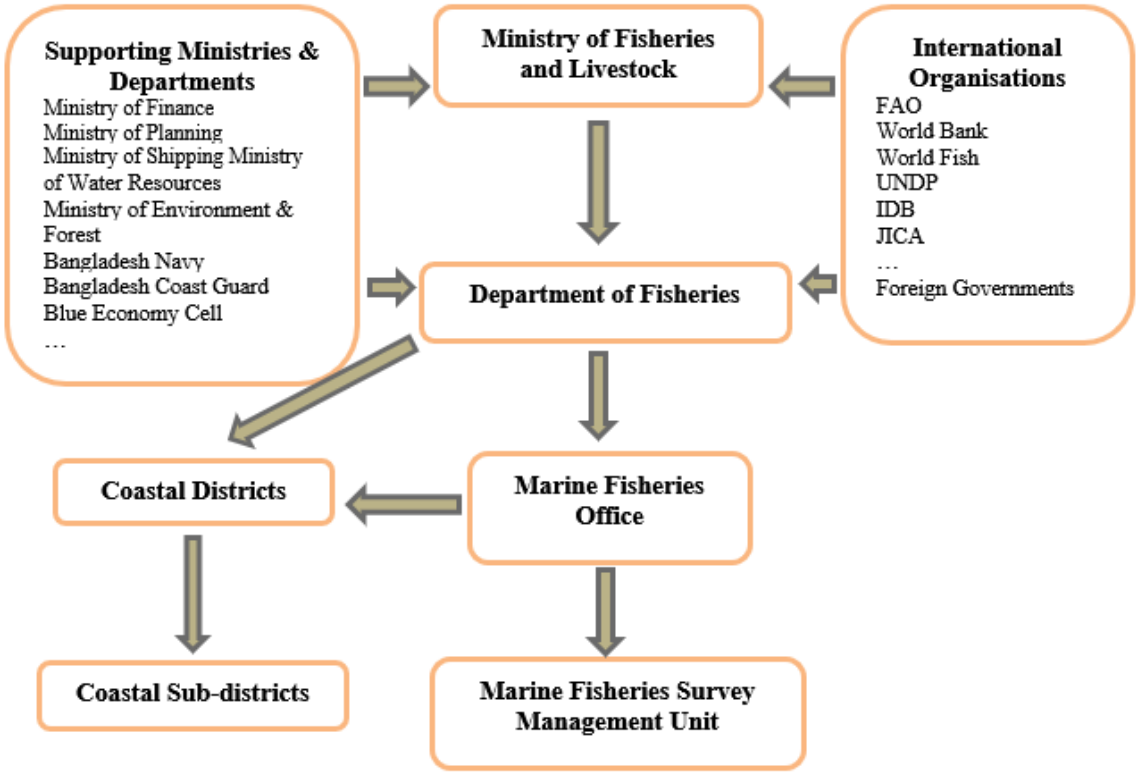

Figure 2: Institutional framework of marine fisheries management and development in Bangladesh.

3.2.2 Department of Fisheries

Considering the enormous potentials of fisheries sector and to ease fisheries administration and management in this region, Fisheries Department was established at the

beginning of the last century. After several administrative reforms, DoF reached to its current structure in 1984 (DoF, 2020a). DoF, which fall under MoFL, currently has more than 1,500 technical officers and supporting staffs (DoF, 2019b). The Department is headed by a Director General. Important management and development mandates of DoF with respect to its marine fisheries includes: assisting MoFL in formulating policies and regulations; conservation and management of fisheries resources; enforcing quality control measures; issuing health certificates for catch destined for export; conducting fisheries resource survey and stock assessment; facilitating alternative livelihood options for low-income fishing families; and implementing development projects/programmes (DoF, 2020a).

3.2.3 Marine Fisheries Office

MFO is a special office under DoF, established in 1952, and extends its administrative and enforcement activities in management of industrial and artisanal fishing of the country. Although initially established as a separate department, MFO was integrated with DoF as a wing in 1984 (DoF, 2020a). Director (Marine) is the administrative head of this office. The office is responsible for the management, conservation, and development of Bangladesh's marine fisheries in accordance with Marine Fisheries Act (1983) and Marine Fisheries Rules (1983). The Act gives an authority to Director (Marine) in fishing vessel licensing, licence cancellation, issuing sailing permission, conducting surveillance operations and so on. Director (Marine) can also delegate authority to subordinate officers of coastal districts and sub-districts where necessary. Marine Fisheries Survey Management Unit (MFSMU) is a specialised office under MFO, which is dedicated for both fishery dependent and independent survey of marine fisheries resources (MFO, 2016; MFSMU, 2017).

3.2.4 Other associated government institutions

Although MoFL and DoF are key institutions for marine fisheries management, many other government ministries and departments are directly or indirectly involved in the process.

MFO needs to coordinate with Mercantile Marine Department (MMD) under Ministry of Shipping for fishing vessel registration and subsequent licensing. Bangladesh Navy, Bangladesh Coast Guard and other law enforcing agencies support DoF to conduct surveillance operations at sea and coastal areas. Additionally, DoF needs to harmonise with Ministry of Environment and Forestry, Ministry of Water Resources, Ministry of Science and Technology, Blue Economy Cell under Ministry of Power, Energy and Mineral Resources and so on. Ministry of Finance and Ministry of Planning has some overarching roles over the sector by allocating sufficient budget for establishment and development initiatives.

3.2.5 Marine fisheries decision-making process

The marine fisheries decision-making process in Bangladesh occur within MoFL. Monthly coordination meetings are headed by both Minister and Secretary where related officials and Project Directors (PD) present progress reports of different ongoing initiatives or projects. Further development proposals are also planned and evaluated in this forum. The case specific decision-making process starts with a working paper, which briefly describes the background issue and answers why, where, when, how and for whom. In some instances, subject specific specialists and related stakeholders are invited to deliver their insights. Decisions are made as a consensus.

3.3 International projects and partners for marine fisheries development

International development projects are effectively economic aids, provided on a national basis in Bangladesh (A. Islam, 2013). Donor organisations for development projects include individual countries, multinational financial institutions and international agencies and organisations. Technical assistance is also seen as project aid, which includes foreign aid for upgrading institutional capacity, technology transfer, import of expertise, and development of human resources (S. M. M. Rahman, 2015). Fisheries sector of Bangladesh has engaged in multiple international development projects since its independence, although these projects

have historically focused on inland fisheries (Kuperan & Jahan, 2010). This study identified five completed and one ongoing development projects those were explicitly for the development of its marine fisheries sector.

Marine Fisheries Survey Management and Development Project- This is the first known international development project in Bangladesh on the marine fisheries. The project was jointly funded by UNDP, Japan International Cooperation Agency (JICA) and GoB. Its objective was to conduct a comprehensive survey in Bangladesh's marine waters and generate policies and management strategies based on its findings. The project was launched in 1979, and in 1995 it became a permanent entity as the Marine Fisheries Survey Management Unit. The project was able to successfully conduct demersal fish survey, shrimp survey and oceanographic survey with technical expertise from local and international scientists and through research vessel Anushandhani (MFSMU, 2017).

Strengthening Marine Fisheries Resources Management Project- This FAO funded project was active from 1996 to 2001. A profile of the selected coastal communities was prepared, with information on the state of exploitation, resource potentials, socioeconomic conditions, resource use practices, biophysical environment, fishery and social infrastructure facilities. The project also improved fishery statistics collection systems, including a review of the sampling framework and establishment of a database (FAO, 2020a).

Empowerment of Coastal Fishing Communities for Livelihood Security Project (ECFC)– This project was designed to improve the livelihood security of the coastal fishing communities. Over the course of five years (2000-2005), the project was implemented demand driven and bottom-up approach in a participatory mode. It applied the principles of sustainable livelihoods and aimed at providing a holistic response to a set of dynamic issues that poor, vulnerable coastal fishing communities faced on a daily basis. This pilot project was funded

jointly by UNDP, FAO and GoB (Kumar, 2005; UNDP et al., 2003). The ECFC is one of the two case studies of this research and is further elaborated in the methodology chapter.

Bangladesh Marine Fisheries Capacity Building Project (BMFCBP)- This project was designed to elevate capacities of DoF officials on resource survey, assessment, analysis and MCS. The main outcome of the project was the procurement of a research vessel (R/V) *Meen Shandhani*, although stock assessments onboard was not attained due to short survey duration (BMFCBP, 2019b). It was jointly funded by IDB, GoM and GoB. BMFCBP is also one of the two projects to be assessed.

Technical Support for Stock Assessment of Marine Fisheries Resources in Bangladesh Project- This FAO funded Technical Cooperation Programme (TCP) was active for four years from 2016 to 2019. The aim of the project was to support the capacity development that were unattained by BMFCBP. TCP provided different vessel-based capacity building trainings from survey design to data analysis (FAO, 2020b).

Enhanced Coastal Fisheries in Bangladesh Project- Enhanced Coastal Fisheries in Bangladesh (ECOFISH-Bangladesh) project was adopted in 2014 and still ongoing. This project is not directly implemented in the marine areas. The objective of this project is to improve resilience of the Meghna River ecosystem and communities reliant on coastal fisheries (WorldFish, 2015). Development aspiration of this project is to support annual incremental production trend of the national fish, Hilsa, which is anadromous in nature and pass significant portion of life in marine waters. The project is funded by the United States Agency for International Development (USAID) and implanted jointly by World Fish and DoF.

Sustainable Coastal and Marine Fisheries Project- This World Bank funded project is the most comprehensive and best financed (USD 240 million) marine fisheries project in Bangladesh. The project has provision for building fishing community institutions, facilitate business development and promote market linkages for alternative livelihoods to support

livelihood transformation of 54,000 fishers' households including 25% of women in 450 coastal villages spread over 45 sub-districts of 13 districts (SCMFP, 2018).

Several other donors have contributed for inland fisheries development in Bangladesh, which also had indirect impact on coastal and marine sector and fishing communities. The donors of such development projects are the Danish International Development Agency (DANIDA), the International Development Association of the United Nations (IDA), the Department for International Development of the United Kingdom (DFID) and International Fund for Agricultural Development of the United Nations (IFAD).

Chapter 4: Methodology

4.1 Research approach

The objective of this study is to identify the institutional barriers within or related to MoFL with respect to implementations of international development projects. Two recent development projects were selected as case studies. To identify the intended long-term outcomes of these case studies, development objectives and project objectives of each project were identified using official project documents. Project deliverables were then assessed, and their achievements identified. To do so, promised deliverables were identified from the project proposals and their achievement status was confirmed from the project completion reports. Both project completion reports indeed explicitly described what is achieved, what is partially achieved and what is not achieved at all. Additional achievements, not mentioned in the project proposals as deliverables, were also listed. A total of six project related reports were reviewed for this purpose (elaborated in case study description sections of 4.3 and 4.4). Challenges and related issues during the implementation of projects were also noted. Non-project specific sources such as annual reports by MoFL and international partners, and government websites were used to evaluate their post-completion outcomes (i.e. sustained outcomes). The issues identified, both during the life of the projects and post-completion, were examined in the context of potential institutional barriers which may have contributed to these outcomes.

4.2 Justification of case studies

Failure to sustain project's post-completion outcomes was a common phenomenon of all marine fisheries development projects in Bangladesh. Among the projects described in Chapter Three, BMFCBP and ECFC were selected as case studies of this study. These projects were ones most recent completed and well documented to allow detailed analysis. They also covered broad development spectrum of the marine fisheries development, including

institutional capacity building, resource assessment, improving MCS system, empowerment of fishing communities and development of community-based fisheries management (CBFM).

4.3 Case study description: BMFCBP

BMFCBP was designed with the aspiration of enabling Bangladesh to scientifically assess the status of its marine fisheries resources and allows for evidence-based management. It was also expected that the project will improve the ability for the government to monitor, control and perform surveillance activities in its waters. The emphasis of the project was on developing the human resource and technical capacity needed to assure and manage the coastal and marine fisheries resources. The project was conceived under the framework of "South-South Cooperation" (BMFCBP, 2019b, p. 5). The Organisation of Islamic Cooperation (OIC) launched a capacity building programme for the OIC member countries in Kuala Lumpur in 2005 and for them to cooperate in improving their capacity in managing respective economies. Responding to the initiative, GoB submitted a proposal for BMFCBP to the Islamic Development Bank (IDB). GoB also convinced the Government of Malaysia to offer support for consultancy, training and workshop through in kind and cash grants. Initially, the implementation period was expected to be 2007-2011, but it was later extended up to June 2019 with expectation that it would complete fisheries stock assessment (BMFCBP, 2019b, p. 6). For analysis of this case study, Development Project Proposal (2007), Project Completion Report (2019), Stock Status Report (2019) and Exit Report (2019) were reviewed. Key features of the BMFCBP are summarised in Table 1.

4.4 Case study description: ECFC

ECFC was a project developed to aid coastal fishing communities of Bangladesh. The Project design included educating, mobilising resources/savings and organising the coastal fishing communities. The project acted as a facilitator and enabled resource for developing proper understanding and attitude among people and planning and implementation of the

development programmes on the participatory mode on their own. The project established different types of community organisations: Village Organisations (VO), Village Development Committees (VDC), Upazila Fisheries Federation (UFF) and District Fisheries Federation (DFF) and motivated them to collect personal savings to be used for different community purposes. It also intended to develop leadership within the community. The primary target beneficiaries of the project were the marginal fishing households: women, children and men. The secondary beneficiaries were the government organisation (GO) and non-government organisation (NGO) partners of the project. The project's covered 117 coastal fishing villages in 8 sub-districts of Cox's Bazar district (Kumar, 2005; UNDP et al., 2003). For analysis of ECFC, Mid-Term Evaluation Final Report (2003) and End of Assignment Report (2005) were reviewed. Key features of the ECFC are summarised in Table 1.

Table 1: Key features of the case studies.

Project features	**BMFCBP**	**ECFC**
Duration	July 2007 - June 2019	December 2000 - November 2005
Implementing organisation	DoF	DoF
Initiating ministry	MoFL	MoFL
Project funding	IDB, GoM and GoB	UNDP, GoB and FAO
Funding amount	BDT 1,654.51 million (~ USD 20 million)	USD 6.2 million
Target area	49 coastal sub-districts of 14 districts under 3 divisions	All 8 sub-districts of Cox's Bazar district
Target beneficiaries	Policy makers, DoF officials, law implementing agencies, academicians, NGOs, fishermen of marine and coastal areas	Primary: poor and disadvantaged coastal fishing communities Secondary: GO and NGO partners of the project

Chapter 5: Results

5.1 BMFCBP

5.1.1 Identification of objectives

The project documents of BMFCBP included seven development objectives and ten immediate objectives (Appendix). The accurate determination of MSY of marine fisheries resources (Development Objective 1) depended on stock assessment of coastal fisheries (Immediate Objective 1) and stock assessment of demersal and pelagic fisheries (Immediate Objective 2). Improved capacity for an integral approach to policy formulation based on social, economic and environmental factors (Development Objective 2) and developing marine offshore fisheries (Development Objective 3) did not appear to be related to any immediate objectives. Improved ability to MCS (Development Objective 4) required the development of mechanisms to implement MCS (Immediate Objective 9). Development of a modern and improved management information system (Development Objective 5) required performing a fishing vessel and gear census and establishing database (Immediate Objective 3) and developing a regular catch assessment programme (Immediate Objective 8). Development of improved socioeconomic conditions for coastal artisanal fishers (Development Objective 6) included building fishers' awareness of conservation and sustainable management (Immediate Objective 4). Ensuring adequate capacity in DoF to manage fisheries resources, in terms of human resources, technology transfer, and equipment, (Development Objective 7) included developing software-based capacity for data analysis (Immediate Objective 5), strengthening human capacity in stock assessment and management (Immediate Objective 7), and development of a marine taxonomic guide (Immediate Objective10). Study of effect of pollution on fisheries resources (Immediate Objective 6) could not be related to any of the development objectives.

5.1.2 Project deliverables and post-project outcomes

Table 2 presents project objectives, proposed deliverables and their achievement status as well as the status of their post-project outcomes.

Immediate Objectives 1 and 2, stock assessment of coastal fisheries and stock assessment of demersal and pelagic fisheries respectively, had mostly common targets. These two assessment activities required information from a land-based survey programme and a vessel-based survey programme. A sustained outcome of these objectives would include both the survey programmes continuing post-project to provide accurate information on marine fisheries resources. The project was able to procure a research vessel, R/V *Meen Shandhani*, and other equipment required for DoF to conduct fisheries surveys. A total of 24 survey cruises (each of 10 days) were completed to study the status of demersal, shrimp and pelagic fishery resources in two years (2017-18; 2018-19). However, the late arrival of the vessel meant that stock assessments for fish and shrimp were only partially achieved and MSY estimation could not be done at all. The project did manage to identify four species/groups as being particularly vulnerable (*Leptomelanosoma indicum*, *Otolithes cuvieri*, *Pampus argenteus* and *Sardinella* sp.) and proposed management recommendations (Fanning, Chowdhury, Al-Mamun, & Uddin, 2019). The land-based survey was operational for the last six years of the project and data collection was consistent throughout this period. However, after the life of BMFCBP, neither of these survey programmes were sustained (Dyoulgerov Vollen, 2020). Both surveys were supposed to be financed by DoF establishment budget or a later project, SCMFP (BMFCBP, 2019a; SCMFP, 2018).

Immediate Objective 3 was to conduct a comprehensive census of coastal and marine vessels and gears. A sustained outcome from achieving this objective would include the census being updated periodically and the developed vessels-gears database being used productively for MCS activity and other purposes after the end of the project. The project did succeed in

recording all the fishing vessels (total 68,192; 33,341 mechanized and 34,851 non-mechanized) and gears (195,353) into a database (BMFCBP, 2019b, p. 2). The fisher population was also recorded by gear types and geographical areas. However, no information was found on how DoF will conduct a periodic census to update this database. Further, the link for the BMFCBP database could not be tracked in MoFL or DoF websites, and there is no information whether the database still exists or was lost after the life of project.

Immediate Objective 4 was intended to build awareness among the fisher folk regarding conservation and sustainable management. A sustained outcome from this objective would continue the formal awareness building of stakeholders within regular establishment initiatives. The project did conduct the awareness building programmes to achieve this objective. There was no information on other deliverables in the project documents, such as the use of modern navigation and communication systems, stakeholder policing, and fishers' engagement in management. Awareness building initiatives with the fishers were not continued post-project, although these were supposed to be reinstituted by SCMFP (SCMFP, 2018).

Immediate Objective 5 intended to develop software packages supporting surveys and fisheries data analysis. The sustained outcome from this objective would simply be the continuing use of these software packages. Deliverable under this objective was achieved as the project was able to adopt and develop software packages to analyse fisheries data. No significant deviation of the outcome of this objective was observed anywhere.

The project was supposed to study the environmental effect of pollution on marine fisheries resources under Immediate Objective 6. It was planned to identify areas of pollutant concentration, track effect of pollution on marine resources, and recommend management approaches for pollution. However, no achievement was reported in the completion document and this objective was completely overlooked in the final reporting with no explanation why the project management team excluded this objective during the implementation period.

Human capacity development of the DoF was targeted under Immediate Objective 7. As capacity development is a dynamic process, the sustained outcome from achieving this objective would include continued and increasingly advanced training for DoF staff provided in the post-project period. The project indeed delivered more training than promised- local trainings provided to 981 officials (target 455), foreign trainings provided to 43 officials (target 18) and study tours provided to 90 officials (target 5). Very similar trainings are being included again in the later project, SCMFP, suggesting that the various skills and capabilities developed were not retained after the life of BMFCBP (SCMFP, 2018). Although not directly related or stated under this objective, but from BMFCBP exit report it is evident that the project established a "Fish Gonadal Histology Laboratory" to identify the peak breeding season of commercially important marine fish species of the Bay of Bengal (BMFCBP, 2019a). This was supposed to increase the capacity of DoF officials to define scientific evidence-based fishing regulations. However, after the completion of BMFCBP no funding has been provided for this laboratory either from establishment budget or SCMFP, undermining whatever outcomes had been achieved through this intervention.

Immediate Objective 8 aimed to establish a catch monitoring programme for the coastal and marine fisheries. A sustained outcome from this objective would include the catch monitoring programme continuing after the life of the project. This catch sampling deliverable was met partially, as it was done for the last six years of the project. The catch monitoring programme was not continued post-project, however it was planned to be reinstituted by the SCMFP (Dyoulgerov Vollen, 2020; SCMFP, 2018).

Immediate Objective 9 aimed at developing mechanisms to implement an MCS system to oversee and manage marine fisheries. A sustained outcome for this objective would include the established MCS mechanisms continuing and further extended in later years. A major element of this objective was to establish a Vessel Tracking and Monitoring System (VTMS)

for the entire industrial sector. A total of 240 VTMS transducers were planned; however, the project could establish only 133 and these were discontinued. DoF did not renew the contract for these 133 VTMS with a local signal provider at the end of the project. Reinstituting VTMS was undertaken by the SCMFP immediately after the completion of BMFCBP but the contract progress is still too slow (Dyoulgerov Vollen, 2020; SCMFP, 2018).

Immediate Objective 10 was to develop a taxonomic guide with a complete list of marine and coastal resources. The project was able to publish a "Marine Fish Album" with 264 species (BMFCBP, 2019b, p. 41); however, there are known to be over 475 species in Bangladesh marine waters (MFSMU, 2017). After the completion of BMFCBP no further funding to study fisheries taxonomy or to further develop this album is available. Routine taxonomic training for all staffs involved in land-based or at-sea sampling is required.

Table 2: Analysis of project deliverables and post-project outcomes of BMFCBP.

Immediate objectives	Project deliverables	Status	Post-project outcomes	Status
1. To assess the standing stock and MSY of estuarine and coastal fisheries resources for management of the artisanal fisheries 2. To assess the standing stock and MSY of pelagic and demersal stocks of aquatic resources for their sustainable management	Stock assessment of fish and shrimp		Land-based survey is not continued post-project	
	Estimate MSY of fish and shrimp			
	Identification of vulnerable stocks			
	Procurement of modern marine research vessel			
	Conduct land-based and vessel-based survey			
	Ensure data consistency			
	Generate scientific advice		R/V *Meen Shandhani* survey was continued to a limited scale post-project	
	Produce cruise reports and technical reports			
3. To undertake census and establish data bank on different types of fishing crafts and gears	Develop database of artisanal crafts and gears		No strategy exists how to conduct periodic census to update the database Fishing craft and gear database is not now trackable in the web	
	List fisher population by gear types and geographical areas			
4. To create awareness among the fisher folk for conservation, proper utilization and sustainable management of the marine fisheries resources	Introduce modern navigation and communication system		Project-led awareness building initiatives are not continued	
	Fishers' engagement in management			
	Co-operative/stakeholder policing			
	Conduct awareness building programme			
5. Develop software packages convenient for all types of survey and study including small-scale and commercial fisheries data analysis and adoption	Develop software package for data analysis		Software packages are continued to be used for data analysis	
6. To study the environmental effect on marine fisheries resources due to pollution from different sources	Identify area of pollutant concentration		No information found	
	Track effect of pollution on marine resources			
	Recommend management approach for pollution			
7. To strengthen the capacity of the DoF in assessing and managing the marine and coastal fishery resources	Local training to 455 officials		Capacity development initiatives of related	
	Foreign training to 18 officials			
	Study tour to 5 officials			

	Train other stakeholders		officials are not observed post-project	
	Establish fish gonadal histology laboratory		After BMFCBP no funding is provided from establishment budget or SCMFP to the lab	
8. To develop a catch assessment programme for routine maintaining of the coastal and marine fisheries as to changes due to the dynamics of fishing	Continuous stock sampling		Regular catch assessment programme is not continued post-project	
	Identify optimum fishing effort			
	Develop process to reduce excess efforts			
9. Develop mechanism to implement MCS system to oversee and manage the resources	Establish VTMS in 240 trawlers		VTMS operation for MCS is not continued post-project	
	Establish Database Center			
10. To develop a booklet with a complete list of marine and coastal resources of the Bay of Bengal	Publish Marine Fish Album		No funding is provided to develop this album further	

Project deliverables: achieved partially achieved not achieved

Post-project outcomes: no deviation partial deviation significant deviation no information

5.2 ECFC

5.2.1 Identification of objectives

Project documents of ECFC revealed one development objective that included all three immediate objectives (Appendix). The overarching goal of the project was to promote the livelihood security of the poor coastal fishing communities through access to assets and resources (Development Objective). This was planned to achieve by helping communities to empower themselves to collectively address their problems and needs (Immediate Objective 1), enhancing the socioeconomic well-being of fishing communities (Immediate Objective 2) and facilitating sustainable conservation and management of fisheries resources through community-driven approaches (Immediate Objective 3).

5.2.2 Project deliverables and post-project outcomes

Table 3 provides objectives and the status of proposed project deliverables and anticipated post-project outcome.

As mentioned, the first Immediate Objective of ECFC was to help communities to empower themselves to collectively address their problems and needs through the organisation, management, access to information and improved linkages with local government institutions. Sustained outcomes from achieving this objective would include fishing communities are empowered through a set of local organisations and strong linkage with local government institutions exists even after the life of the project. A review of project deliverables associated with this objective reveals that all the stated deliverables were achieved. The project was able to form 249 VOs (125 women and 124 men), 117 VDCs, 8 UFFs and 1 DFF with full functional activities (Kumar, 2005, p. 22). VO leaders became confident to discuss their problem areas with political leaders and government higher officials. A Coastal Community Radio Unit (CCRU) was established by the project in collaboration with government owned radio, Bangladesh Betar (Kumar, 2005, p. 30). However, after the life of ECFC, the outcomes of this

objective did not sustain. Although it was not possible to know what had happened immediately after the project period, current research identified that the community organisations do not have formal activity or any institutional linkage with local government offices now. And DoF, the government implementing agency, has no official supervision on these organisations. These statements have been verified from extensive review of MoFL, DoF and local government offices websites and reports; if there is any practical linkage, it would be illustrated somehow.

Immediate Objective 2 of ECFC intended to enhance socioeconomic well-being in coastal fishing communities through organisation, mobilization of savings, facilitation of access to credit and promotion of alternate income generation enterprises. Sustained outcome from achieving this objective would require VOs continuation to organise themselves through community savings. ECFC provided trainings on account management to community organisation leaders, assisted in savings collection by VO members and deposited to their banks. The project helped the fishers to manage personal savings of BDT 10 per person per month that swelled up to BDT 9,272,963 (~ USD 110,000) at the end of project period (Kumar, 2005, p. 33). As a result, dependency on local money lenders and microcredit providing NGOs was decreased. It also improved the capacity of community organisations to cope with the natural disasters and their aftermath. After 15 years since the end of the project, the community organisations do not have any activity focused on savings. Personal savings are also not used productively. These assertions have been verified from an extensive review of government websites and reports. No information was found what happened to the savings reported by Kumar (2005).

Immediate Objective 3 was to facilitate sustainable conservation and management of coastal, marine and estuarine fisheries resources and habitats, through strengthening participatory, stakeholder and community-based approaches. A sustained outcome from achieving this objective would require the CBFM initiatives initiated by ECFC survives post-

project. A review of project completion report revealed the stated deliverables were achieved. The project could organise 60 village level focus group discussions (FGD) on FAO guided Code of Conduct for Responsible Fisheries (CCRF). Additionally, it facilitated participatory planning for developing village level action plan, formed six gear-based Fisheries Management Organisations (FMO) and linked with Fisheries Management Advisory Committee (FMAC), trained 117 Natural Resource Conservation Activists (NRCA) and provided Micro Capital Grant (MCG) to 6,720 beneficiaries for village infrastructure development, resource regeneration and group-based business (Kumar, 2005, p. 55,56,57,61). As a result, fishers voluntarily surrendered their destructive gears to sub-district administration, participated in mangrove re-plantation and protection, and altered their primary profession to betel leaf farming, beef fattening and eco-friendly net manufacturing (Kumar, 2005, p. 57,62). However, outcomes of this objective also did not sustain after the life of ECFC. CBFM initiatives did not survive as expected. No such management success story could be identified in Cox's Bazar region. Moreover, the lessons of ECFC were supposed to disseminate in other coastal districts; but no similar project was initiated in 12 years (2006-2018). This had been verified from review of MoFL and DoF websites and relevant reports.

Table 3: Analysis of project deliverables and post-project outcomes of ECFC.

Immediate objectives	Project deliverables	Status	Post-project outcomes	Status
1. To help communities to empower themselves to collectively address their problems and needs, through organisation, management, access to information and improved linkages with Local Government Institutions	Development partners (including GOs and NGOs) oriented to the content, strategy and approach of the project, and their capacity developed to undertake participatory rapid appraisals in participating communities		Community organisations do not have any formal linkage with local government offices now	
	Participating communities socially mobilized to organise themselves into VOs including functional groups and formation of VDCs			
	VOs and VDCs empowered to think through their problems and concerns and to address them in a self-reliant manner and through demanding their political entitlement			
	Use of radio as an information and development tool, to provide a voice to the people in participating villages and communities and to assist the project in its implementation efforts		DoF in practice has no formal supervision on VOs/VDCs now	
2. To enable the enhancement of socioeconomic well-being in coastal fishing communities through organisation, mobilization of savings, facilitation of access to credit, promotion of alternate income generation enterprises, improved access to extension and social services, and improved capacity to cope with natural disasters, in order to work towards sustainable human development	VOs and VDCs strengthened and their managerial capacity developed in operating community managed savings/credit scheme		VOs do not have any savings activity now	
	Increased access in coastal fishing communities to social and extension services provided by government organisations (GO)			
	Increased access in coastal fishing communities to selected social services, through NGO interventions through VDC/VDF managed and financial efforts		VOs' savings (whatever exists) are not used in productive ways like before	
	Increased access in coastal fishing communities to selected social services, school-based education and community healthcare on particular through organised self-management, privatization and VDC/VDF managed and supported efforts			

	Improved capacity of coastal fishing communities to cope with natural disasters and their aftermath			
3. To facilitate sustainable conservation and management of coastal, marine and estuarine fisheries resources and habitats, through strengthening of participatory, stakeholder and community-based approaches, organisation and empowerment of communities and promotion of alternative income generation opportunities	Community-based and stakeholder management of fisheries resources and habitats through reduction of fishing effort in over-fished fisheries, reduction of destructive fishing practices, protection/conservation/rehabilitation of fisheries habitats towards sustainable fisheries		Fisheries management initiatives did not survive as expected	
	Coastal fishing village economies diversified, alternative income generating enterprises established to increase incomes and reduce fishing pressure		Outcomes of ECFC were not introduced in 12 years (2006-2018)	

Project deliverables: achieved partially achieved not achieved

Post-project outcomes: no deviation partial deviation significant deviation

5.3 Institutional barriers and their impacts on project outcomes

Several institutional issues those potentially affected the outcomes of BMFCBP and ECFC were identified and listed in Table 4. These issues were grouped into five categories: legal limitation; strategic limitation; coordination gap; capacity limitation; and bureaucratic bottleneck. The phases at which these issues may have manifested were also identified as: design; implementation; completion; and post-project.

5.3.1 Legal limitation

According to the completion report of BMFCBP, a large number of unregistered mechanised and non-mechanised boats were engaged in fishing in different isolated areas along the coasts (BMFCBP, 2019b, p. 26). One of the reasons for such situation is the limitation in legal instruments. The Marine Fisheries Ordinance (1983) does not give the authority to the Director (Marine) to limit the manufacturing of these fishing vessels. When these vessels are assembled in remote coasts and ready to fish, the fishers do not feel the need of registration and licensing, where Director (Marine) could control them. As a result, the number of such vessels are increasing substantially. The negative impact, due to inability to control fishing fleet number at their source is exacerbated by the weak MCS at marine and coastal waters. Similar scenario also happened in the case of industrial trawlers. Although, the ordinance gives power to the Director (Marine) to issue new fishing licence and to cancel existing ones, but some trawlers took trial permission directly from the court by superseding the opinion of the Director, over the last 30 years (MFO, 2016). Once they got trial permission, these trawlers start fishing like other licenced vessels but taking the privilege of limited control under the Director (Marine). Both of these unlicenced vessels are the reasons for illegal, unreported and unregulated (IUU) fishing, for what land-based fishery data collection and stock assessment of BMFCBP became unreliable. As a result, the project could not identify the MSY level of fish stocks (Development Objective 1).

It was also reported that, the fishers were using significant number of illegal and prohibited fishing gears and methods and showed hiding tendency during fishing vessels-gears census (BMFCBP, 2019b, p. 26). The inadequate penalty for using illegal and banned gears and methods is one of the reasons for this. As a result, there was lots of illegal vessels and gears in the region, who intentionally avoided the census to be listed. Although the project reported to achieve the target of a fishing vessels-gears census and database (Immediate Objective 3), but due to those unlisted vessels and gears, the database was not complete. As a result, the development aspiration of modern management information system was not met (Development Objective 5).

The practices of co-management and CBFM initiated by ECFC did not persist post-project. This was happened since there is no legally recognised cooperative mechanism in the marine fisheries management of Bangladesh. The mandate to manage marine fisheries resides only with MoFL. Thus, legally it is not possible for MoFL to share its governance authority in the form of co-management. While MoFL can solicit stakeholder inputs in its decision making, any fisheries management decisions are made solely by MoFL. With such legal absence of recognition for co-management or CBFM, any projects that aim to decentralise fisheries management and promote community-based fisheries models are likely to fail. Due to this reason the outcomes of sustainable conservation and management of fisheries resources through community-based approaches (Immediate Objective 3) were not sustained after the project period of ECFC.

5.3.2 Strategic limitation

BMFCBP intended to assess standing stock and MSY of coastal, demersal, and pelagic fisheries (Immediate Objective 1 and 2) by developing and using convenient software packages (Immediate Objective 5). To achieve these objectives, the project needed to develop technical capacity of scientists responsible for conducting these assessments. However, no

comprehensive project strategy was observed on developing such capacities. The project provided more local and foreign trainings than it promised, but these trainings were still insufficient in meeting the needs of survey design, operation, stock assessment, software package development, and data analysis. Consequently, the development aspiration of accurate MSY estimation (Development Objective 1) and ensuring adequate capacity of DoF to manage fisheries resources (Development Objective 7) could not be achieved. It was evident by the fact that the FAO Bangladesh implemented TCP project in November 2016 to supplement BMFCBP. TCP provided the necessary capacity for survey design, data collection and management, data analysis and stock assessment, taxonomy and species classification, fisheries monitoring and on board practical exercises on survey, safety of life at sea (SOLAS) for sea-going staff; and sampling and data computation by R/V *Meen Shandhani* (FAO, 2020b). From two projects' reports, it can be concluded that the capacity development objective of BMFCBP could not have been met without the technical and financial support from TCP.

Although BMFCBP ran from 2007 to 2019, four out of five capacity development trainings abroad were conducted between September 2018 and April 2019 (BMFCBP, 2019b, p. 54). In the project completion report the timing of these training programmes was justified as prioritising to the local trainings (BMFCBP, 2019b, p. 34). These trainings abroad were needed for capacity development for the vessel-based survey and VTMS operation. Delayed trainings could not be expected to assist and enhance the technical capacity for these activities. This ambiguous strategy of trainings abroad had also affected the project's long-term aspirations of MSY estimation (Development Objective 1), elevate ability to MCS (Development Objective 4) and adequate human capacity to manage resources (Development Objective 7).

The fishing vessels-gears database developed in BMFCBP was reportedly to be linked with both project and DoF website (BMFCBP, 2019b, pp. 7–8; DoF, 2019a, p. 19). However,

neither the project website nor the database could be found after the completion. Such lack of continuation demonstrates the strategic limitation, as these is a lack of guideline on how the outcomes from these projects are to be managed, and who to oversee those. Although Immediate Objective 3, i.e., the fishing vessels-gears census and database, was achieved, this lack of active use and availability of the database is indicative of the failure on Development Objective 5 of creating a modern management information system. For Bangladesh, the fishing vessels-gears database is important tool to give access for other departments and scientists in tracking the extent of dynamic changes of vessels and gears over time. The database could also help the law enforcing agencies to monitor illegal fishing.

BMFCBP started a visionary initiative of establishing a Fish Gonadal Histology Laboratory at MFSMU. Gonadal histology of five commercially important fish species was studied in the first year (BMFCBP, 2019a). It was expected that this laboratory would help identify peak breeding seasons of commercially important fish species of the Bay of Bengal, which could then test the effectiveness of the existing fishing ban period. However, no funding was provided to continue this initiative, neither from MoFL budget nor under SCMFP (DoF, 2020c, 2020b). This could be considered a strategic deviation on carrying project outcomes to a sustainable level, which had impacted the human capacity development (Immediate Objective 7) of BMFCBP to achieve sustained outcome.

Both BMFCBP and ECFC noted loss of institutional memory due to the frequent transfer of government field staffs (BMFCBP, 2019b, p. 31; Kumar, 2005, p. 77). Project period of ECFC was coincided with the transfer of two PDs, two Deputy Project Directors (DPD), two District Fisheries Officers (DFO) and 14 sub-district officers (Kumar, 2005, p. 77). After the project completion, officials involved were transferred back to their previous positions within DoF. While such practice is common, it is also necessary to use the expertise and experience of these project officials in later projects. For example, only three out of 54

officials that were involved in BMFCBP are currently engaged with SCMFP (DoF, 2020d; MoFL, 2020b). No information of ECFC project staffs could be tracked. Such disjointed career planning for its technical staff limits the effectiveness of capacity development initiatives. As a result, BMFCBP could not contribute to manage capacity at DoF (Development Objective 7) and ECFC faced challenges on fostering further GO-NGO partnerships (under Immediate Objective 1).

Another example of displaced institutional memory can be seen in the organisational structure of MFSMU. Vessel-based surveys of BMFCBP was dependent on the scientific expertise from this office. Yet, MFSMU scientists are unable to continue their service in this technical office throughout their career. The regulations at MFSMU stipulate that entry level scientists (Grade-9) leave office after their first promotion (Grade-6) and may return upon their promotion to Grade-4, which, in most cases, do not occur until near the end of their professional career (MFSMU, 2020). Such restrictions slow the capacity development of related officials and in turn hamper the sustainability of project outcomes. When there is institutional memory loss due to personnel movement, achievement of overarching goal and development aspirations of development projects are at risk. As a result, capacity development of DoF officials under BMFCBP could not achieve expected success (Immediate Objective 7 and Development Objective 7).

There was very smooth and effective working relation between the community organisations (VO/VDC/UFF/DFF) and local government offices during ECFC. However, no such formal institutional linkage persisted post-project. Moreover, DoF in practice no longer has formal supervision on community organisations. ECFC had developed an exit strategy on how these organisations will be sustained and continue to be linked with the local government offices post-project; however, this strategy did not work as expected. It was not the issue with the exit strategy itself but rather the overall strategy deviation of MoFL to make this work.

Such strategic deviation of MoFL and DoF on ineffective bridging these community organisations with government institutions had impacted the development aspiration of ECFC, i.e. to promote livelihood security in coastal fishing communities.

ECFC was a pilot project and, thus, the inherent aim was to establish similar community-based organisations and replicate co-management or CBFM initiatives in other coastal areas of the country. However, no similar project or intervention was adopted in the 12 years since the completion of ECFC. This is an example of strategic deviation of MoFL and DoF from replicating already established good practices in other areas. Although BMFCBP started its operation with large-scale funding almost immediately after the completion of ECFC, it did not address similar community-based interventions within its deliverables. Such strategic deviation had impacted the outcomes of sustainable conservation and management of coastal fisheries (Immediate Objective 3) under ECFC.

5.3.3 Coordination gap

ECFC mid-term evaluation report mentioned the prevalence of coordination gap at the policy level between the implementing partners (i.e. UNDP, FAO and GoB). These gaps were mostly observed in terms of decision-making and implementation (UNDP et al., 2003, p. 19). Project progress suffered due to a lack of timely decisions and prompt action on the part of policy-making partners. A free flow of information among the participating agencies was not observed during the inception years. Additionally, lack of delegation of authority was also observed at both policy and field levels (UNDP et al., 2003, p. 19). The project had encountered at least three serious management coordination problems, where two times decision were about to be taken to close the project (Kumar, 2005, p. 77). Although these issues were diagnosed in later years of implementation (Kumar, 2005, p. 77), however, these had impacted the capacity development of the implementing organisations (under Immediate Objective 1) during the

inception years. As a result, development aspiration of promoting livelihood security under ECFC may not had achieved expected success.

Coordination gaps were observed between the main branch of DoF and development project. Both establishment part of DoF and BMFCBP conducted land-based survey at the same time but in different ways. Establishment part usually conducts this survey with MFSMU scientists, who have the technical expertise (DoF, 2018). In contrary, while BMFCBP conducted similar surveys for six years (2012-2018), they were undertaken by sub-district office staffs (BMFCBP, 2019b, p. 22). These field staffs did not have technical expertise required for taxonomic identification. As a result, collected data were comprised of errors and could not be used for the Stock Status Report (Fanning et al., 2019). BMFCBP project completion report did not explain why similar surveys were necessarily to be undertaken by two different units within one organisation. Due to such coordination gaps, land-based survey data (Immediate Objective 1) became unreliable for stock assessment of coastal fisheries and MSY estimation (Development Objective 1).

Coordination gaps were also observed between development projects. Several project outcomes of BMFCBP were supposed to be carried on by the subsequent project, SCMFP. Both projects were designed on the common development ground, while the aim of the World Bank funded SCMFP was to build on the achievements of BMFCBP. Due to the slow progress made by SCMFP in its first year and half, most of the deliverables are yet to be started (Dyoulgerov Vollen, 2020). Land-based survey, vessel-based survey, VTMS operation, catch assessment programme, socioeconomic development initiatives of fishers and capacity development initiatives of DoF officials have not been continued after BMFCBP, while these initiatives were reported to be implemented immediately by SCMFP (SCMFP, 2018). It is anticipated that, with a good coordination and working relation between the two projects, these interventions would be continued according to the exit plan developed by BMFCBP. Due to

such coordination gaps, several objectives like stock assessment of coastal fisheries (Immediate Objective 1), stock assessment of demersal and pelagic fisheries (Immediate Objective 2), fishing vessels-gears census and database (Immediate Objective 3), fishers' awareness building for conservation (Immediate Objective 4), strengthened human capacity of DoF (Immediate Objective 7), development of catch assessment programme (Immediate Objective 8) and mechanism to implement MCS (Immediate Objective 9) of BMFCBP could not ensure sustained outcomes.

5.3.4 Capacity limitation

The completion report of BMFCBP stated that, the project suffered due to lack of proper fish landing information throughout the coasts (BMFCBP, 2019b, p. 36). This had happened due to the capacity limitation of MoFL, in terms of infrastructure and logistic at sea and land. Due to inadequate facilities, fishers often landed their catches in inaccessible places beyond supervision of the DoF officials. As a result, these catches created ambiguity about their actual representation in the stock assessment. This in return made fisheries data unreliable and stock assessment uncertain. Thus, the development aspiration of MSY estimation (Development Objective 1) of BMFCBP could not be achieved.

As already mentioned, a considerable number of illegal and prohibited fishing gears and methods were being used by some fishers and there were cases of misreporting in the fishing vessels-gears census undertaken by BMFCBP (BMFCBP, 2019b, p. 26). In addition to legal limitation (see 5.3.1), this had happened due to the lack of enforcement capacity at DoF. DoF has very poor enforcement capabilities, requiring support from other law agencies like Coast Guard, Bangladesh Navy, Bangladesh Police and Rapid Action Battalion. These agencies also have limited enforcement capacity to commit exclusively for marine/coastal waters or lands and also lacks sufficient manpower, patrol vessels, financial supports and other necessary logistics (Hoq, Haroon, & Chakraborty, 2013; Mohammad Mahmudul Islam et al.,

2017). Although BMFCBP managed to conduct the fishing vessels-gears census and created a database (Immediate Objective 3), its development aspiration of a modern management information system is unlikely attained (Development Objective 5).

Weak technical capacities of DoF has also been reported by ECFC. Government staffs who worked for ECFC were not well trained in multi-tasking, making it difficult for them to view the socioeconomic issues of coastal communities holistically (UNDP et al., 2003, p. 43). Sensitivity building of civil servants, introducing them to new responsibilities for facilitating the overall social and economic development of poor coastal fishing communities was challenging due to such capacity limitation (UNDP et al., 2003, p. 3). Weak technical capacities had impacted the community empowerment and their linkages with local government offices (Immediate Objective 1) during the project period and believed to be one of the reasons why the achievements of ECFC were not sustained post-project.

Weak technical capacities on land-based survey, vessel-based survey, non-technical works on R/V *Meen Shandhani* and data analysis had been reported in the project completion report of BMFCBP (BMFCBP, 2019b, p. 23,36). Development aspiration of accurate MSY estimation (Development Objective 1) of BMFCBP could not achieve expected success due to such weak capacities. Lack of operational knowledge of responsible officials on VTMS equipment made it difficult to effectively utilise the VTMS knowledge on enforcement efforts (BMFCBP, 2019b, p. 39). This had impacted the elevation of MCS capacity of DoF officials (Development Objective 4). Finally, a skilled taxonomist team for species identification was lacking while preparing the Marine Fish Album by BMFCBP (BMFCBP, 2019b, p. 41). This lack of capacity had created the risk of errors in species identification and development of the album (Immediate Objective 10). These capacity limitations required additional support from FAO Bangladesh funded TCP project (FAO, 2020b).

Although not acknowledged anywhere in the project documents, technical capacity lacking might have impacted the study of pollution on fisheries resources (Immediate Objective 6 of BMFCBP). As noted, this objective was overlooked during the implementation period of BMFCBP. It is possible that the project management team could not develop the technical capacity required to undertake such tasks even though the issue of pollution was considered sufficiently important in the original plan.

5.3.5 Bureaucratic bottleneck

Occasional bureaucratic delays in decision making and inefficiencies on the part of all three parties (DoF, UNDP and FAO) was mentioned in ECFC mid-term evaluation report (UNDP et al., 2003, p. 26). It was also observed that the project had been driven by a push method instead of pull. Many activities under the project seemed to have been pushed to DoF by either UNDP or FAO (UNDP et al., 2003, p. 19). No information was found on how much of these bureaucratic barriers during the inception years had been overcome in later years of project implementation. However, it can be assumed that the development aspiration of promoting livelihood security of ECFC was impacted by such bureaucratic bottleneck.

The procurement of R/V *Meen Shandhani* was also delayed due to lengthy bureaucratic process (BMFCBP, 2019b, p. 16,23). The initial plan was to deliver the vessel by June 2014 and start operation immediately after (BMFCBP, 2019b, p. 13). However, due to lengthy procurement process, the vessel arrived two years later than had been planned. For this reason, BMFCBP could not start its vessel-based survey on time (BMFCBP, 2019b, p. 16). This delay impacted the stock assessments of demersal and pelagic fisheries (Immediate Objective 2) and achievement of MSY determination (Development Objective 1) of the project.

In another case involving BMFCBP, a new contract of VTMS with a local signal provider was unexpectedly delayed again, due to lengthy bureaucratic procedures. As a result, VTMS could not be activated again during project period (BMFCBP, 2019b, p. 38). SCMFP

was supposed to continue this contracting procedure further (SCMFP, 2018). Although the process is already institutionalised, no progress on contract is known to date (Dyoulgerov Vollen, 2020). No explanation is found in BMFCBP documents or other publications on what exactly was the reason/s for such bureaucratic delays. However, such delays had impacted the development mechanism to implement MCS (Immediate Objective 9) of BMFCBP to achieve sustained outcomes.

Table 4: Origin of institutional barriers that led to unsustained project outcomes.

Institutional barriers	Issues	Projects	Design phase	Implementation phase	Completion phase	Post-project
Legal limitation	Inability to control fleet number	BMFCBP				
		ECFC				
	Inadequate penalties	BMFCBP				
		ECFC				
	Absence of recognition for CBFM	BMFCBP				
		ECFC				
Strategic limitation	Implementation ambiguity	BMFCBP				
		ECFC				
	Mistimed trainings	BMFCBP				
		ECFC				
	Planning disparity on carrying outcomes	BMFCBP				
		ECFC				
	Strategic deviation on carrying outcomes	BMFCBP				
		ECFC				
	Institutional memory loss	BMFCBP				
		ECFC				
	Broken institutional linkage	BMFCBP				
		ECFC				
Coordination gap	Implementing partners' coordination gap	BMFCBP				
		ECFC				
	Project - Establishment coordination gap	BMFCBP				
		ECFC				
	Project - Project coordination gap	BMFCBP				
		ECFC				
Capacity limitation	Limited infrastructure and logistics	BMFCBP				
		ECFC				
		BMFCBP				

	Poor enforcement capacities	ECFC				
	Weak technical expertise	BMFCBP				
		ECFC				
Bureaucratic bottleneck	Decision making delay	BMFCBP				
		ECFC				
	Lengthy contract and procurement process	BMFCBP				
		ECFC				

Chapter 6: Discussion

6.1 Legal limitation

In the previous chapter, the inability to control fleet number and lack of adequate penalties for illegal gears were identified as potential legal barrier in BMFCBP and absence of recognition for CBFM in ECFC (Table 4). These barriers were observed only one of the two projects and, thus, it is not possible to conclude whether these issues were institutional or unique to either BMFCBP or ECFC. Broadly speaking, many scholars have argued that the legal instruments for fisheries governance in Bangladesh are outdated (Mohammad Mahmudul Islam et al., 2017; M. A. Rahman et al., 2018). Keys acts such as the Marine Fisheries Ordinance (1983) and Rules (1983), and Protection and Conservation of Fish Act (1950) and Rules (1985) were enacted over 30 years ago with no amendment since their adoption. MoFL has finally acknowledged the insufficiencies of the legal instruments and replaced the Marine Fisheries Ordinance (1983) with Marine Fisheries Act (2020) on November 16, 2020. However, as this act is not published on government gazette, it is yet to see how much of the limitations of previous ordinance could be overcome by the new act. The finding of this study that the inadequacy of penalties for illegal gears was a barrier for the sustained success of BMFCBP is supported by Shamsuzzaman & Islam (2018) who also argued the financial penalties incorporated into legislation are outdated.

Another limitation in the existing legal instruments is the way in which marine space is delimited. Under the Marine Fisheries Ordinance (1983), marine waters exclude the coastal areas less than 18.29m (10 fathom) in depth, and, therefore, the jurisdiction of Director (Marine) in these shallower coastal areas is not clearly defined. Despite the importance of coastal areas as feeding, breeding, and nursing grounds for many commercially important marine species, the lack of jurisdictional clarity often leads to confusions and conflicts between inland and marine fisheries laws (Shamsuzzaman & Islam, 2018; Shamsuzzaman, Xiangmin,

Ming, & Tania, 2017). Such ambiguity in jurisdiction of coastal areas is likely to affect outcomes of any marine fisheries management and development projects for commercial stocks that depends on coastal areas in their lifecycle. This jurisdictional ambiguity can also be one of the reasons for indiscriminate use of prohibited fishing gears in Bangladesh coastal waters, which was documented by BMFCBP. Similar legal ambiguity was also observed in USAID sponsored Natural Resources Management Programme in Indonesia, during establishment of a marine park in North Sulawesi (Patlis, 2005). This was due to the ambiguity between the central government's new legal framework and pre-existing regional management.

There are 255 fishing trawlers currently operating in Bangladesh marine waters (DoF, 2019b). Original government decision was not to increase the number of trawlers before a comprehensive fish stock survey. However, in practice this did not happen and the numbers reached to the current peak by increasing exponentially from 80 in 2001-02 (Uddin, 2019). Some of these added trawlers received permissions from the government to operate on a political consideration and another 38 received permission from the High Court as trial trawlers (Mohammad Mahmudul Islam et al., 2017; Uddin, 2019). The Marine Fisheries Ordinance (1983) does not acknowledge a provision of trial trawlers. As the High Court order did not mention the maximum number of such trawlers, some fishing companies are taking privilege of applying repeatedly for such trawlers through writ petition. Such legal limitation of inability to control the fishing fleet capacity is likely to affect any interventions to effectively restore fish stocks.

6.2 Strategic limitation

Among five types of institutional barriers identified, strategic limitations played the most significant role in both case studies (table 4). However, only the deviations in strategies and institutional memory loss were found to be affected during the similar phases of the two projects. It is, therefore, possible to conclude that these barriers were institutional issues within

MoFL. In contrast, other identified barriers were observed only one of the two projects and, thus, not possible to conclude whether these issues were institutional in nature or more project specific. However, it is clear that strategic management of Bangladesh's marine fisheries has several limitations. MoFL has yet to develop a comprehensive marine fisheries management plan. Although MoFL had adopted policy guideline and a strategy for fisheries management (DoF, 2006b, 2006a; MoFL, 1998), several recent interventions did not comply with these guidelines. One of the reasons is likely the lack of focus on marine fisheries as the priority of MoFL has always been accorded to its freshwater fisheries sector (Kuperan & Jahan, 2010).

The monitoring and management responsibility of MFO was supposed to be decentralised and allocated to coastal districts and sub-districts (DoF, 2006a, p. 5). MoFL had decentralised its boat licensing process and some surveillance powers to coastal officers for a certain period of time. However, due to the lack of sufficient logistics and training, these activities were not successful. It was also planned to recruit 47 new coastal fisheries officers to support the existing staffs to assist in monitoring boats, gears, catch landings, and advise on the preparation of management plans (DoF, 2006a, p. 9). The sub-strategy also proposed to start the recruitment process for specialised officers trained in marine resource management (DoF, 2006a, p. 15). However, no progress has been made. Such strategic deviation led to the lack of capacity that is likely to affect outcomes of any development projects for MCS and to conduct landing-based fisheries stock assessment, as was the case with BMFCBP.

Proper strategy development and effective implementation are important processes in making appropriate resource allocation decisions (Hill, 2019). In the case of development projects, if project objectives and means of attaining them are not clearly outlined in the planning phase, projects are likely to fail (Pinto, 2013). Additionally, projects can also fail if they deviate from the strategies those were designed in their planning phase. In a study by Damoah et al. (2015), impoverished planning was identified as one of the significant inhibitors

to government project success in Ghana. According to Damoah et al. (2015), the Ghanaian projects are politically motivated and, therefore, strategies on how the project is going to be executed are often not well defined. Namakhoma (2015) also observed that poor planning had led Malawi's Horticulture and Food Crops Development Project (HFCDP) to fail. Others, such as Essilfie-Baiden (2019), Ika (2012), Nzekwe et al. (2015) and Tekinel (2013), also documented several international development projects that failed to achieve their expected outcomes due to strategic deviation of the interventions at different stages. Project success for this reason requires not only great ideas, but proper strategy to best implement the solutions (Ramirez, 2014).

6.3 Coordination gap

Although coordination gaps were prevalent in both case studies, the nature of these gaps differed. ECFC faced coordination gaps among the implementing partners, whereas BMFCBP had gaps with DoF main part and another project (table 4). Coordination gap is indeed an institutional barrier for marine fisheries management in Bangladesh; however, the nature of barriers identified here may be institutional or project specific. Further research with more case studies can test this hypothesis. However, a good coordination and cooperation among the implementing agencies and stakeholders is important for natural resource management. In Bangladesh, several ministries are responsible for marine resource management (M. M. Islam, Mohammed, & Ali, 2016), but a clear coordination gap is observed among these ministries (Mannan, 2019). For example, Blue Economy Cell (BEC) under the Ministry of Power, Energy and Mineral Resources (MPEMR) is tasked with coordinating all these ministries; yet BEC does not have the authority, capacity nor expertise to execute this task (Hasan, 2019; MPEMR, 2018). As a result, Blue Economy developments are uncoordinated and development projects cannot fulfil overall development aspirations of the country.

Development potentials of the marine fisheries sector is further impeded due to the inter-ministerial coordination in Bangladesh. MoFL and DoF need to coordinate with the Bangladesh Police, Bangladesh Coast Guard and Bangladesh Navy for enforcement operations in coastal waters and sea. However, no set rule for practical linkage and coordination between these government institutions is developed yet for using manpower and logistics and enforcing various regulatory measures (Hoq et al., 2013). DoF officers often do not get support from these agencies when needed (Hoq et al., 2013; Mohammad Mahmudul Islam et al., 2017). Adoption of a Memorandum of Understanding (MoU) and assignment of an enforcement liaison officer from DoF was supposed to undertake to coordinate this process (DoF, 2006a); however, no progress has been reported to date. In another case, the Forest Department exercises sole authority to manage the fisheries of Sundarbans and Chakoria mangrove forest. Revenue collection by providing permits for resource exploitation is the main purpose here. The Forest Department does not have a mandate to periodically assess fisheries resource status or any legal obligation to coordinate with DoF to manage fisheries resources in these mangrove forests. As mangrove areas provide ecosystem services to many marine and coastal fish species, a lack of coordinated monitoring measures makes this region vulnerable to overexploitation (Hoq et al., 2013). Another example of ineffective inter-ministerial coordination is fishing boat registration and licensing process. The Mercantile Marine Department (MMD) under the Ministry of Shipping, with limited operational bases in Chattogram and Khulna, has only authority to register and provide certificates to fishing boats. Manpower of MMD is limited, which has impeded the registration of fishing vessels and their subsequent licensing for fisheries purposes (DoF, 2019a, p. 22; Hoq et al., 2013). Whatever the capacity limitations that exist within MMD and DoF, it could be overcome through effective coordination. However, registration and licensing of fishing vessels is thus further slowed down due to coordination gap of these departments. Despite of listed 32,859 active mechanized fishing vessels

throughout the Bangladesh coasts (DoF, 2019b), only 5,838 has been reported to be registered till date (Uddin, 2019). This should be acknowledged that, most of the development projects in Bangladesh cannot achieve objectives by themselves, rather need intra and inter-ministerial coordination. Development projects, who depend on other agencies for implementation, are likely to fail to achieve development aspirations due to such coordination gaps.

Project level coordination framework of ECFC was studied by Murshed-e-Jahan, Belton, & Viswanathan (2014). In their study, the authors reported only fisher-to-fisher communication was effective. There was a negative perception of the effectiveness of communication with government agencies and administrators. It is not clear from the study whether such ineffective communication is common also in other development projects. But it could be the possible reason why ECFC's institutional linkage with stakeholders broke after the project completion. While investigating an agricultural project failure in Malawi, Namakhoma (2015) mentioned weak internal and external communication as a significant factor. By highlighting the importance of communication, Elenbass (2000) postulated that development projects are all about "communication, communication, communication" and gap in communication leads the project to fail.

6.4 Capacity limitation

Individuals, organisations and societies obtain, strengthen, and maintain the capabilities through capacity development process (UNDP, 2009). In this study, weak technical capacity was the only barrier found under capacity limitation that affected both case studies (Table 4), and possibly institutional in nature. However, it should be noted that limited infrastructure and logistics, and poor enforcement capacities also affected BMFCBP. As ECFC was less dependent on these later capacities, therefore it was not observed to be affected. However, these issues would arise in any development project that was dependent.

In terms of fisheries management, DoF suffers from the fact that it only has one surveillance check-post for 710 km of coastline (MFSMU, 2017; SCMFP, 2018). While the Marine Fisheries Ordinance (1983) gives responsibility of marine fisheries surveillance to the Marine Fisheries Office, the task is also supported by the district and sub-district offices along the coasts. With only one surveillance check-post, the ability of MFO and field offices to monitor marine fisheries is severely limited. This study found limited enforcement capacities to be a barrier for the implementation of BMFCBP. Other authors also argued that the existing marine fisheries legal instruments have not been enforced properly in Bangladesh and, even where implemented, noncompliance is extensive (M. M. Islam et al., 2016; Kuperan & Jahan, 2010; Murshed-e-Jahan et al., 2014; M. M. Rahman et al., 2003; SCMFP, 2018). Capacity limitation in enforcement, as well as the noncompliance led to the overexploitation of fishery resources (M. M. Islam et al., 2016; Quader, 2010). Such capacity limitation in enforcement have also led to the perception among most fishers that the likelihood of detection for illegal activities are small (Shamsuzzaman & Islam, 2018). Thus, there are strong incentives for illegal fishing, hindering the efforts of any projects focused on management of fisheries resources.

Due to limited technical capacity on R/V *Meen Shandhani* operation, DoF was dependent on the Bangladesh Navy for its staff. Some of the positions were too essential for the operation of the vessel, like skipper and chief engineer (BMFCBP, 2019b, p. 19). During a survey, cruise leader (lead scientist) and skipper (crew head) need to coordinate and discuss day-to-day operations. It is believed that coordination between the cruise leader and the skipper would be more effective if both are from the same department and receive directives from same office. Also, naval officers are subject to regular rotations to new posts, and good working relations and expertise developed on board the R/V *Meen Shandhani* is repeatedly lost to transfers. Such capacity limitations in key positions in the R/V *Meen Shandhani* is likely to affect developing consistent performance in vessel-based survey and therefore, resource

assessment. In a study, Christensen & Walker (2004) pointed out the weak technical capacity is one of the critical factors for what government projects have often not been completed or met success. Other researchers, like Anderson (2008), Voropajev (1998) and Yanwen (2012) also considered low institutional and human capacity as important factor behind low performance of projects in developing countries. Additionally, the nature of project management itself is a challenge for many projects in developing countries (Essilfie-Baiden, 2019). According to Pant, Allinson, & Hayes (1996), the principles of project management and managers background are contrary in developing countries. As an example, in Bangladesh there is no visionary process to develop an officer as a project manager (alternatively known as Project Director). However, it is true that, the project manager's background and characteristics are significantly correlated with project outcomes (Denizer et al., 2013).

6.5 Bureaucratic bottleneck

Delays in decision-making, and lengthy contract and procurement process were identified in this study as potential barriers for sustained project outcomes of both ECFC and BMFCBP. However, there was no clear pattern on how these barriers affected the two projects. It is, thus, not possible to conclude that these barriers represent institutional barriers. However, bureaucratic delays in getting an approval are common in many other countries. While investigating development project failures in Ghana, Damoah et al. (2015) stated that the government's procurement process and other activities followed more than usual bureaucratic processes as they required additional stages before any contracts can be awarded. Consultants who were in charge to certify projects had to go through burdensome administrative procedures that led to delays in the project completion, leading to an escalation in the project cost. Bhatia (2016) also reported the delayed project progress because of the lengthy bureaucratic procedures along with corruptions in government agencies. To explain the role of bureaucracy in development projects, Yanwen (2012) elaborated that most of these projects were so large

and costly that they can only be accomplished by direct governmental involvement. Such projects were, therefore, controlled almost entirely by government agencies with its accompanying bureaucracy. Thus, development projects become highly bureaucratised and inefficient, and turn into permanent entities of establishment, like any other government institution. Additionally, Ika (2012) observed too much emphasis within aid agencies on strong procedures and guidelines, while studying development project failure in Africa. This had driven to a culture of "accountability for results" rather little attention to "managing for results" (Ika, 2012). Easterly (2002) noticed a group of national and international bureaucracies dispensed foreign aid under conditions in which bureaucracy did not work well. These aid bureaucracies led the organisations to define output as money disbursed rather than service delivered, low-return observable outputs like glossy reports and create enormous demands on scarce administrative skills in poor developing countries.

6.6 Policy recommendations

Legal instruments are crucial to plan development initiatives. Although the project implementation can be impeded by limitations within the legal framework, project success can still be achieved by recognising, addressing and accommodating those (Patlis, 2005). As mentioned, current legal instruments of Bangladesh are outdated. New Marine Fisheries Act (2020) has just passed. It is recommended that this new act should be reviewed and updated periodically. Furthermore, such review process should include all stakeholders, especially the small-scale fishers who account for more than 80% of the marine catch. This will create ownership among them and encourage compliance. This will also support to overcome other barriers such as capacity limitations of MCS and coordination gaps among the enforcement agencies.

To overcome lack of post-project outcomes due to strategic limitation, MoFL should have clear policy guidelines, strategies, and management plans. These instruments should

complement each other and comply with existing acts and rules. Project specific management plans should be developed at the design phase aligning the overall sectoral management plan. Project planning should consider stakeholder consultations and accommodate the traditional/local knowledge. This planning process should also be dynamic. Project management teams should acknowledge the challenges during the implementation phase and adjust accordingly. Moreover, a project exit strategy should be realistic and consider the current scope of the institution. Lastly, it is also recommended that projects should focus on simple and achievable objectives rather than complex ones. Small and comparatively simple projects have been found to achieve promised deliverables during implementation period and sustainable outcomes post-project (Denizer et al., 2013).

Good communications seemed to be a great tool to improve coordination. To overcome coordination gaps, MoFL and DoF should increase communications with other government institutions, private sectors, and fishing communities. A MoU between all parties involved may aid in staking out how and who will coordinate communication. It is also advisable to officially designate an officer within DoF to coordinate all the communication back-and-forth with other agencies. Like inter-ministerial coordination, a designated senior official should also be assigned as a focal person to improve intra-ministerial coordination.

Capacity development for the fisheries management of Bangladesh should focus on adoption of a comprehensive plan and allocation of sufficient resources for implementation. A clear and long-termed career plan for its staffs would greatly improve the likelihood of sustained technical capacity development. Local and foreign trainings should be on a need-basis and must align with the long-term strategy of MoFL and DoF. Adopted plans should be structured within a timeframe and support with a sufficient budget. Finally, DoF should continuously seek for new avenues of capacity development, incorporate those into comprehensive plan and implement though an effective way.

To overcome the bureaucratic barriers within the institution, project scopes should be evaluated at all stages of implementation. Wherever there is risk of bureaucratic delays, project management team should proactively address those and adopt alternate means to achieve success. It is also recommended that the institution should diagnose whether these delays are caused by human factor, capacity lacking or any lengthy administrative procedures.

Chapter 7: Conclusion

This study examined challenges faced by the marine fisheries development projects in Bangladesh from the perspective of institution. Two recent development projects were investigated as case studies. The study revealed that the legislative instruments for marine fisheries management in Bangladesh were one such limiting factors. There was also strategic ambiguity in the implementation and coordination of different development initiatives, as Bangladesh has yet to develop a comprehensive marine fisheries management plan. Intra and inter-ministerial coordination gaps, as well as capacity gaps in terms of infrastructure, logistics, enforcements, and technical aspects were also noted. Bureaucratic delays within MoFL in issuing and approving contracts or purchases also created unnecessary complexity and impeded these projects from achieving sustainable outcomes. One limitation of this study was the small number of case studies to allow for a broader institutional analysis. Further review of all marine fisheries development projects in Bangladesh is needed to confirm whether the barriers identified here were in fact institution-wide barriers or more specific to the two projects reviewed here. However, these barriers are not unique to Bangladesh, rather many authors cited similar issues in other developing countries. Recommendations for overcoming these institutional barriers are:

- Periodic review and update of legal instruments and stakeholder involvement.
- Development of comprehensive marine fisheries management plan.
- Adoption of simple projects to achieve success and post-project sustainability.
- Developing realistic project exit strategy.
- Adoption of MoU for inter-ministerial communications and a designation of liaison officer to improve coordination.
- Development of a comprehensive career plan for technical officers and retain developed capacity in specialised roles.
- Evaluating project progress at all stages of implementation.

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Appendix

Bangladesh Marine Fisheries Capacity Building Project

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
1. Be able to determine the maximum sustainable yield of marine fisheries resources and manage them accordingly. Accurate information on this aspect will enable the country to formulate appropriate policy that can create a more conducive environment that will attract better investment opportunities in marine infrastructures such as docking facilities, cold storage, and repair and maintenance services	1. To assess the standing stock and MSY of estuarine and coastal fisheries resources for management of the artisanal fisheries	Stock assessment of fish & shrimp	Stock assessment was done partially (6 multispecies groups: Pomfrets, Croakers, Catfishes, Indian salmon, Sardines, Shrimp)	Lack of skilled manpower for data collection and analysis of land-based survey (BMFCBP, 2019b, p. 23) Thousands of unregistered boats were engaged in fishing in different isolated coasts and did not provide landing information (BMFCBP, 2019b, p. 26)	Land-based survey is not continued post-project (Dyoulgerov Vollen, 2020)	Legal limitation Strategic limitation Coordination gap
		Estimate MSY of fish & shrimp	No MSY was estimated due to lack of long-term data (only 6 years land-based and 2 years vessel-based)			
		Identification of vulnerable stocks	Vulnerable stocks identified (*Leptomelanosoma indicum*, *Otolithes cuvieri*, *Pampus argenteus*, *Sardinella* sp.)			
	2. To assess the standing stock and MSY of pelagic and	Procurement of modern marine research vessel	Purchase of R/V *Meen Shandhani*	Delay in start of the survey due to late purchase of the research vessel	R/V *Meen Shandhani* survey was done to a very limited scale in	Strategic limitation Coordination gap

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
	demersal stocks of aquatic resources for their sustainable management	Conduct land-based & vessel-based survey	LBS: Data collected from 35 landing sites; VBS: 10 shrimp, 10 demersal and 4 pelagic survey cruises were conducted	(BMFCBP, 2019b, p. 16) Lack of trained manpower for vessel-based survey (BMFCBP, 2019b, p. 23)	2019-20 survey season (Dyoulgerov Vollen, 2020)	Capacity limitation Bureaucratic bottleneck
		Ensure data consistency	Data collection was consistent during project period			
		Generate scientific advice	Stock Status Report (SSR) published with scientific advice			
		Produce cruise reports and technical reports	24 cruise reports, different working papers and technical reports produced			
2. Be able to formulate easily a more accurate policy response based on an integral approach that takes into account the economic, environmental and social factors that affect fish supply, fish stock and fishing capacity	NA	NA	NA	NA	NA	NA

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
3. With a greatly improved fisheries information system, be able to develop more compellingly the marine offshore fisheries that can sustainably exploit both pelagic and demersal resources	NA	NA	NA	NA	NA	NA
4. Significantly elevate ability to monitor, control and perform surveillance activities on marine fishing vessels and, more importantly limited fishery resources, which will then help to strengthen economic capacity and food security	9. Develop mechanism to implement MCS system to oversee and manage the resources	Ensure VTMS in 240 trawlers	VTMS was established in 133 trawlers	Lack of operational knowledge on VTMS equipment to the DoF officials (BMFCBP, 2019b, p. 39) Delayed contract with the signal provider for VTMS operation (BMFCBP, 2019b, p. 39)	VTMS operation for MCS is not continued post-project (Dyoulgerov Vollen, 2020)	Strategic limitation Coordination gap Capacity limitation Bureaucratic bottleneck
		Establish Database Center	Established in Chattogram			
5. Have a modern and much improved marine fisheries management information system, which will enable it to dynamically assess the state of the sector, and the costs and benefits	8. To develop a catch assessment programme for routine maintaining of the coastal and marine fisheries as to changes due to the	Continuous stock sampling plan	Stock sampled for 6 years from landing and 2 years by research vessel	Shortage of trained manpower for data collection (BMFCBP, 2019b, p. 36) Lack of actual fish landing information throughout the coast	Regular catch assessment programme is not continued post-project (Dyoulgerov Vollen, 2020)	Coordination gap Capacity limitation
		Identify optimum fishing effort	Not achieved			

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
resulting from adjustment in fishing capacity	dynamics of fishing	Develop process to reduce excess efforts	Not achieved	(BMFCBP, 2019b, p. 36) Lack of long-term complete data series (BMFCBP, 2019b, p. 36)		
	3. To undertake census and establish data bank on different types of fishing crafts, and gears	Develop database of artisanal crafts and gears	33,341 mechanized & 34,851 non-mechanized boats, 195,353 fishing gears listed, and data bank linked with DoF website	Unwillingness of the fishes to provide actual data of their crafts and gears due to fear from the fisheries legislations (BMFCBP, 2019b, p. 26) Fishers were using considerable number of illegal and prohibited fishing gears and methods, and showed hiding tendency during (BMFCBP, 2019b, p. 26)	Fishing craft and gear database link did not persist in DoF website, and even BMFCBP website is not now trackable in the web (online search)	Legal limitation Strategic limitation Coordination gap
		List fisher population by gear types and geographical areas	Data bank developed			
6. Socioeconomic condition of the coastal artisanal fishers would be improved and the livelihoods are assured and more employment generated	4. To create awareness among the fisher folk for conservation, proper utilization and sustainable management of the marine	Introduce modern navigation & communication system	No information found	Lack of adequate fisheries knowledge of the stakeholders (BMFCBP, 2019b, p. 29) Difficulty in providing fisheries information to the illiterate and	Project-led awareness building initiatives are not continued (Dyoulgerov Vollen, 2020)	Coordination gap
		Fishers' engagement in management	No information found			

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
	fisheries resources	Co-operative/stakeholder policing	No information found	marginal fishing community (BMFCBP, 2019b, p. 29)		
		Conduct awareness building programme	Awareness building programmes conducted (no number found)			
7. Bangladesh Fisheries sector specially the marine fisheries (of DoF) will have adequate capacity to assure and manage the coastal and marine fisheries resources in terms of HRD, technology transfer and equipment	7. To strengthen the capacity of the DoF in assessing and managing the marine and coastal fishery resources	Local training to 455 officials	Local trainings to 981 officials	Frequent transfer of officials working in the sector, thus limiting capacity development (BMFCBP, 2019b, p. 31)	Capacity development initiatives of related officials are not observed post-project (Dyoulgerov Vollen, 2020) After BMFCBP no funding is provided from establishment budget or SCMFP to the lab (DoF, 2020c, 2020b)	Strategic limitation Coordination gap
		Foreign training to 18 officials	Foreign trainings to 43 officials			
		Study tour to 5 officials	Study tour to 90 officials			
		Train other stakeholders (BFRI, MFA)	Trained; no number found			
		Organise local workshops	18 workshops (12 consultative) organised			
		-	Established gonadal histology laboratory			Strategic limitation
	5. Develop software packages convenient for all types of survey and study	Develop software package for data analysis	A combination of NANSIS, PGAdmin, R Studio developed	Lack of adequate knowledge on specialised type of software (BMFCBP, 2019b, p. 31)	NA	
			Integrated BANSIS software developed			

Development objective	Immediate objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
	including small-scale and commercial fisheries data analysis and adoption		Collected data stored in Cloud Server of Bangladesh Computer Council			
	10. To develop a booklet with a complete list of marine and coastal resources of the Bay of Bengal	Publish Marine Fish Album	Marine Fish Album developed with 264 species	Lack of skilled taxonomist for species identification (BMFCBP, 2019b, p. 41)	After BMFCBP no funding is provided yet to study fish gonadal histology (DoF, 2020c, 2020b)	Capacity limitation Coordination gap
NA	6. To study the environmental effect on marine fisheries resources due to pollution from different sources (no direct linkage with any development objective, but indirectly relate this)	Identify area of pollutant concentration	No information found	No information found	No information found	Capacity limitation
		Track effect of pollution on marine resources				
		Recommend management approach for pollution				

Empowerment of Coastal Fishing Communities for Livelihood Security Project

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
To promote the livelihoods security of the poor through access to assets and resources. [The project] will promote employment and foster skills among the poor. In order to achieve this it is imperative to establish [an] environmentally sound sustainable coastal fisheries development programme through the empowerment and full participation of coastal	1. To help communities to empower themselves to collectively address their problems and needs, through organisation, management, access to information and improved linkages with Local Government Institutions	Development partners (including GOs and NGOs) oriented to the content, strategy and approach of the project, and their capacity developed to undertake participatory rapid appraisals in participating communities	1 project orientation programme describing overall concept, strategy and approaches for implementation	Capacity, awareness and sensitivity building of civil servants, introducing them to new responsibilities for facilitating the overall social and economic development of poor coastal fishing communities was challenging (UNDP et al., 2003, p. 3) A general lack of coordination was observed at the policy level between UNDP, FAO and GoB in terms of taking decisions and then implementation. Project activities have suffered during	Community organisations do not have any formal linkage with local government offices now (relevant reports and web search) DoF in practice has no formal supervision on VOs/VDCs now (relevant reports and web search)	Strategic limitation Coordination gap Capacity limitation Bureaucratic bottleneck
			Several rounds of PRA sessions were facilitated by GO-NGO partners in 37 villages			
			5 days long 'Comprehensive Extension Training' provided to field-level staffs of GO-NGO partners			
			Conducted 1 meeting of entire sub-district implementation team once a month to review progress and coordinated plan of next month			
			Conducted a series of short-term and need based skill development trainings (no number reported)			
			Exposed to development activities in other countries as study tour (no number reported)			
		Participating communities socially mobilized to organise themselves	249 VOs (123 men & 125 women) formed with full functional activities			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
population both in planning and implementation		into Village Organisations (VOs) including functional groups and formation of VDCs	117 VDCs formed	the inception years due to a lack of timely decisions and prompt action on the part of policy making partners (UNDP et al., 2003, p. 19) The project seems to have been run by a "push" method instead of the "pull" method. Many activities under the project seem to have been pushed by either UNDP or by FAO (UNDP et al., 2003, p. 19) General lack of delegation of authority was also observed at both the policy and field levels. A free flow of information among the participating agencies was not observed (UNDP et al., 2003, p. 19)		
			8 Upazila Fisheries Federation (UFF) and 1 District Fisheries Federation (DFF) formed. UFF and DFF Executive Committees included at least 3 women participation out of 7			
			Establishment of 108 Village Resource Center (VRC) in project villages			
		VOs and VDCs empowered to think through their problems and concerns and to address them in a self-reliant manner and through demanding their political entitlement	Mandatory participation of VO/VDC/UFF members in monthly and quarterly planning and progress meetings/workshops, Upazila Project Implementation Committee (UPIC) and other activities have given opportunity to raise their issues and demand across and seek support for village development			
		Use of radio as an information and development tool, to provide a voice to the people in participating villages and communities and to assist the project in its implementation efforts	1 Coastal Community Radio Unit (CCRU) is established in collaboration with Bangladesh Betar			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
			CCRU is assigned to produce and broadcast 20 minutes bi-weekly participatory community programme 'Sagor paper jibon' (Livelihood of Coastal People) for coastal fishers	Occasional bureaucratic delays in decision making and inefficiencies on the part of all three parties to the project (UNDP et al., 2003, p. 26) A rigid and centralized political system was reducing the impact of empowerment activities at local level (UNDP et al., 2003, p. 26) Project lacked a strong organisational set up with core decision-makers (UNDP et al., 2003, p. 36)		
	2. To enable the enhancement of socioeconomic well-being in coastal fishing communities through organisation, mobilization of savings, facilitation of	VOs and VDCs strengthened and their managerial capacity developed in operating community managed savings/credit scheme	Helped them to manage personal savings of BDT 10/person/month		VOs do not have any savings activity now (relevant reports and web search) VOs' savings (whatever exists) are not used in productive ways like before (relevant	Strategic limitation Coordination gap Capacity limitation Bureaucratic bottleneck
			Organised fortnight meetings on savings management and utilization of community managed savings at VO level			
			Provided trainings on account management to VO/VDC leaders, assisting in savings collection by VO members and depositing to their banks			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
	access to credit, promotion of alternate income generation enterprises, improved access to extension and social services, and improved capacity to cope with natural disasters, in order to work towards sustainable human development	Increased access in coastal fishing communities to social and extension services provided by government organisations (GO)	Involved various welfare or development department/agencies of the Government as active implementation partners of the project including agriculture, livestock services, rural development, social services, primary education, youth development, public health, family planning	Government staffs were not well trained for multi-tasking, it was difficult for them to view problems holistically (UNDP et al., 2003, p. 43) Loss of institutional memory of the project due to frequent transfer of Government field staffs. The period was marked by transfer of 2 PDs, 2 DPDs, 2 DFOs and 14 sub-district officers (Kumar, 2005, p. 77) Except for the mobile phone there has been no communication facilities like email, telephone and fax,	reports and web search)	
			Resource persons of these Government organisations are invited to various district and sub-district level events, such as workshops, consultations, planning exercise, training etc.			
		Increased access in coastal fishing communities to selected social services, through NGO interventions through VDC/VDF managed and financial efforts	Established working relationship between VOs and NGOs operating in the district			
			Locally active NGOs have been invited to participate in various workshops, meetings and consultations			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
			Project availed 7 thematic services (social mobilization, disaster preparedness, income generation, school-based primary education, community participation in coastal fisheries resource management, legal aid support, primary health, water and sanitation, gender mainstreaming) from 13 NGOs on sub-contract arrangements	which made it difficult to access vital information and timely delivery of the project (Kumar, 2005, p. 77)		
		Increased access in coastal fishing communities to selected social services, school-based education and community healthcare on particular through organised self-management, privatization and VDC/VDF managed and supported efforts	1 Community Health Activist (CHA) was identified each village and trained			
			10 members of each VO trained on primary health care, first aid and sanitation			
			31 villages already attained 100% sanitation status			
			Drinking water facilities made available in 100% project villages			
			46 primary school established to provided primary education to the out-of-school children of the coastal fishing communities			
		Improved capacity of coastal fishing communities to cope with natural disasters and their aftermath	Trained to increase awareness among the coastal communities about the importance of pre-disaster preparedness in coping with and minimizing the impact of natural disasters			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
			Constituted 117 Village Disaster Preparedness Committees (VDPC)			
			Change Agents (CA) and village-level volunteers (10 in each village) have been trained by imparting knowledge and skill development in the field of disaster preparedness and response			
			Provided 20 life buoys in each fishing village			
	3. To facilitate sustainable conservation and management of coastal, marine and estuarine fisheries resources and habitats, through strengthening of participatory, stakeholder and community-based approaches, organisation	Community-based and stakeholder management of fisheries resources and habitats through reduction of fishing effort in over-fished fisheries, reduction of destructive fishing practices, protection/conservation/rehabilitation of fisheries habitats towards sustainable fisheries	Conducted trainings and awareness programmes on strengthening of VOs, incorporating resource management concerns in their plan of actions, developing leadership and capacity of the organisations in management of coastal fisheries resources and participatory development for fisheries co-management		Fisheries management initiatives did not thrive as expected (relevant reports and web search) Pilot outcomes of ECFC were not replicated in 12 years (2006-2018) (relevant reports and web search)	Legal limitation
			Conducted participatory planning for developing village level action plan (PAPD)			
			2 NGOs (CNRS, BCAS) were availed on sub-contracted basis for 2 years			
			6 gear-based FMO were formed and linked with FMAC			
			117 NRCA have been trained			

Development objective	Project objective	Project deliverables	What project delivered	Problems faced during project	Post-project sustainability	Institutional barrier
	and empowerment of communities and promotion of alternative income generation opportunities		60 village level FGDs were organised on FAO-CCRF			
		Coastal fishing village economies diversified, alternative income generating enterprises established to increase incomes and reduce fishing pressure	PRAs were conducted to enable the communities appraise resources and opportunities around			
			Provided related skill development trainings (livestock farming, aquaculture, fish processing and retailing, fishing net making, horticulture) followed by simple account keeping/business management trainings			
			One community entrepreneur was selected in each village and trained to demonstrate their own income generating activities			
			Provided MCG for village infrastructure development, resource regeneration and group-based business. 6,720 beneficiaries have been involved in MCG operated businesses			

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