Mangrove Governance and Resource Conflicts: A Case Study of the Sundarbans Mangrove Forest in Bangladesh

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In memory of the Sundarbans, its beauty, serene, and the people

Abstract

This thesis paper focuses on the conflicting role of the Government and the local mangrovedependent communities in conserving the world's largest mangrove forest - the Sundarbans Mangrove Forest (SMF) in Bangladesh. Specifically, this thesis paper aims to investigate why active resource conflicts exists between stakeholders in the Sundarbans area and how such conflicts affect the sustainable governance of the Sundarbans. The study uses the concepts of comanagement arrangements in the domain of the theory of property rights to investigate the research questions. The co-management arrangements essentially recognize the roles of local communities in dealing with resource conflicts by proving them decision-making powers. Due to its underlying capacity in managing resource-related conflicts, the study finds co-management theoretically most relevant to its research aims. As a method of empirical analysis, the study applies exploratory case study research in two villages near the Sundarbans Reserve Forest area, namely, Pathor Khali and Munshiganji. Using semi-structured interview techniques, the study performed 27 Key Informant Interviews from the case areas which include 20 local resource users, 3 Forest Department officials, and 4 NGO workers. A thorough analysis of the collected data reveals that the local mangrove-dependent communities face severe exploitation by the Forest Department and other government agencies in the form of rampant corruption and harassment. Despite participatory forest management arrangements for the Sundarbans are in place, the local mangrove resource users do not have any decision-making powers. In fact, local users are not allowed to enter the protected area without permit license and entry pass. Findings show that all the respondents, who are local resource users, pay, on average \$6.25 to forest officials to get an entry pass every time. This rate is at least two times higher than the prescribed rate of the government. The study also finds that 80 percent of respondents, who usually enter the protected for resource collections, experienced kidnaping by pirates within the last one year. Those who were kidnapped paid, on average, \$750 to free themselves from the pirates. Surprisingly, they received, namely, no assistance from Forest offices, security agencies, or locally elected politicians. Although, 85 percent of the respondents are willing to participate in the co-management activities for the sustainable governance of the Sundarbans, the presence of distrusts and frustrations over mangrove resource use remains very active among the local resource-dependent communities. The noncooperation from the responsible state agencies is a major obstacle for efficiently implementing co-management arrangements which the study thinks is a crucial challenge for long-term conflict mitigation between the stakeholders and the better governance of the Sundarbans.

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Acronyms

BFD	Bangladesh Forest Department
BBS	Bangladesh Bureau of Statistics
EDC	Eco-development Committee
FAO	Food and Agriculture Organization
FPC	Forest Protection Committee
ILO	International Labor Organization
GOB	Government of Bangladesh
JMM	Joint Mangrove Management
MoEF	Ministry of Environment and Forest
NGO	Non-Government Organization
SIZ	Sundarbans Impact Zone
SMF	Sundarbans Mangrove Forest
WB	The World Bank

Chapter 1: Introduction

1.1 Introduction

Mangrove forests¹ are disappearing worldwide at 1 to 2 percent per year and some estimates put global loss rates annually at one million hactre, with some regions in dangers of complete collapse (Kathiresan and Bingham, 2001). Mangrove forests once covered more than 200,000 km2 of sheltered tropical and subtropical coastlines and are now present on only 15.2 million hectares (FAO, 2007). Only in the last two decades the world mangrove forests coverage has declined by 23 percent (Giri *et al.*, 2011). Losses are occurring in almost every country that has mangroves, but rates are rising more rapidly in developing countries, where more than 90 percent of the world's mangroves are located (Gilman *et al.*, 2008). Moreover, mangrove forests are under the condition of critically endangered and nearing extinction in 26 countries in the world. It is estimated that the loss of mangroves throughout the world may reach up to 60 percent by $2030.^2$

Reflecting the world trends, mangrove forests in Bangladesh are under a serious threat. Favoured by a tropical climate it houses the world's largest stretch of mangroves forests and plantations. Around half of the forests of the country occur in the 710 kilometres long coastal zone. Most of literature suggest that Sundarbans Mangrove Forest (SMF)³ covers an area of 601700 hactre (4.13 percent of total country) and includes fairly dense evergreen plant species which are adapted for

¹ According to Food and Agriculture Organization (FAO) "mangroves are a group of highly adaptive salt tolerant plant species inhabiting intertidal zones of tropical and subtropical coastlines. They require temporary supply of fresh, non-saline water for growth and survival. Mangrove habitats (sporadic or dense strands and multi-/mono-species) are reported from 124 countries between 30°N and 30°S latitudes." Access link: <u>http://www.fao.org/forestry/mangrove/en/</u> ² <u>http://www.unep.org/coastal-eba/content/mangrove-conservation-and-restoration</u>

³ There are three Protected Areas in SMF, which constitute the core area of the World Heritage Site, inscribed in 1997.

life under saline conditions and frequent inundation by the tides. Besides occasionally taking satellite pictures, there were no recent estimations of the size of Sundarbans Mangrove Forest. According to the World Bank, the present size of the Sundarbans is now barely a third of its original size when first mapped in 1764 – and it continues to shrink.

Ali *et al.* (2006) report that excessive exploitation and negligence of restocking are some of the main causes of overall depletion of the Sundarbans forest. The 2010 Poverty Map of Bangladesh by the World Bank identifies a high incidence of poverty in the region near Sundarbans, where 9.9 million poor lives, including 5.9 million living in extreme poverty (World Bank, 2010). These people largely rely on forest and fishery-based livelihoods, and fish supply is a significant portion of their dietary protein. Such high-dependence of coastal communities for their livelihoods also poses multiple threats to the mangrove ecosystem along the coastline.

Along with the problem of overwhelming livelihood dependency, existing scholarships suggest that the presence of hierarchical state-controlled management system is primarily responsible for the rapid decline in the size of the Sundarbans. Roy *et al.* (2012) point out that the Bangladesh Forest Department's (BFD)⁴ inefficiency in managing the Sundarbans poses new challenges to its conservation (Roy *et al.*, 2012). Roy *et al.* (2013) study "the role of potential ownership variations" (p.141) under a common property resource regime in the Sundarbans area. They surveyed 412 households in the Sundarbans area who were heavily dependent on mangrove resources for their livelihoods. Their findings show that existing management regime fails to extract the benefits of participatory forest management. Their findings also suggest that providing

⁴ The Bangladesh Forest Department (BFD) under the Ministry of Environment and Forest (MOEF) is solely responsible to manage the Sundarbans Mangrove Forest.

property rights to local communities would strengthen sustainable conservation practices of the Sundarbans. However, their study does not give any empirical insights about the viability of transferring property rights to such vast number of resource users.

The 1994 Forest Policy has strong provisions to include local communities in the conservation process of the Sundarbans, however in reality, these communities are excluded from the management process (Roy et al., 2012). The Forest Department allows restricted access to mangrove resources by issuing permits to local resource users. Roy (2014) suggests that these restrictions by the Forest Department encourage dependent communities to adopt illegal means to access to the core protected area. Such restrictions also encourage resource-dependent communities to apply their *de facto⁵* rights, in addition to their *de jure⁶* rights, to illegally access to mangrove resources. The overwhelming use of *de facto* rights might lead to overexploitation of the mangrove resources. However, this argument seems theoretically sound but may not hold true in a specific context where strict laws and regulations are in place to restrict the problem of illegal access to a protected forest site. In addition, the direct applications of the theory of property rights to mitigate resource-related conflicts between the stakeholders are not sufficiently tested at empirical grounds. The present study thinks that only transferring 'some degree' of property rights (e.g. access and withdrawal rights) to local dependent communities may not resolve the issues of resource conflicts.

⁵ The *de facto* property rights are those which are observed to be actually in operation and hence affect resource allocation and individual decisions (Adger and Luttrell, 2000).

⁶ *De jure* property rights are the explicit legal ownership, trade, and use rights as determined by the state, but which are only consistent with the de facto property rights to the extent they are enforced (Adger and Luttrell, 2000).

Therefore, it requires a different way to conceptualize the issue of resource governance and conflict. In the contemporary literature, the concepts of co-management are largely applied to develop tools for dealing with active conflicts especially, in the case of common pool resources. Since the co-management process essentially advocates the sharing of decision-making power between the stakeholders, it is necessary that we rely on the fundamental concepts of property rights theory. Because, the sharing of decision-making power is fundamentally associated with the sense of ownership. Therefore, this thesis paper will use the concepts of co-management in the context of the theory of property rights to develop critical understanding about resource governance and related conflicts. The details discussion on the concepts of resource conflicts and co-management is provided in Chapter 2.

1.2 Research Problem

Since local communities in the Sundarbans area have restricted rights of access and withdrawal, the given rights are inadequate to meet the livelihood needs of approximately 5 million people who directly depend on the mangrove resources. So, it can be argued that the absence of embedded institutional structures with willingness to include local communities in the decision-making process escalates the problem of resource-related conflicts. These unintended consequences contradict the provisions recommended by the 1994 Forest Policy of the Government of Bangladesh (GOB) which essentially recognizes "the active participation of local communities" (GOB, 1994) in conserving the Sundarbans Mangrove Forest. Surprisingly, the role of the Bangladesh Forest Department (BFD) seems self-contradictory. At the one hand, the Forest Department aims to maintain sustainable conservation of the Sundarbans, on the other hand, it intentionally ignores the important contributions of the local resource-dependent communities to

conserve the Sundarbans. Many studies⁷ suggest that providing forest entitlements to local communities would resolve the existing problems of resource degradation in the Sundarbans area. However, these studies overlook the issue of resource conflict between stakeholders and its implications on the governance of the Sundarbans. Considering 'providing property rights' to local mangrove resource-dependent communities as a unique solution might underestimate the depth of the problems that exist in the Sundarbans area. However, the present study perceives that a thorough analysis of co-management arrangements in the lens of resource conflicts would provide us a better understanding about the problems of governance in the Sundarbans area. Further, a field research would help us to foster empirical knowledge about stakeholders' perspectives on resource governance and conflicts. Knowing different stakeholders point of views regarding the present situation would also help us to verify (in some extents) the global applicability of different theories related to the idea of collaborative management of common natural resource stocks.

1.3 Objectives of the Study

The specific objective of this study is to explore stakeholders' perspective on mangrove resource governance and conflicts in the Sundarbans area. Since the Sundarbans⁸ covers a vast area of forest lands between Bangladesh and India, the present study limits its focus on the exploratory case study research in two villages in the Bangladeshi part. Therefore, considering the potential limits,

⁷ Roy *et al.* (2012); Chowdhury *et al.* (2009a and 2009b); and Muhammed *et al.* (2008).

⁸ According to the UNSCO World Heritage Convention (1997) "the Sundarbans Reserve Forest (SRF), located in the south-west of Bangladesh between the river Baleswar in the East and the Harinbanga in the West, adjoining to the Bay of Bengal, is the largest contiguous mangrove forest in the world. Lying between latitude 21° 27′ 30″ and 22° 30′ 00″ North and longitude 89° 02′ 00″ and 90° 00′ 00″ East and with a total area of 10,000 km², 60% of the property lies in Bangladesh and the rest in India. The land area, including exposed sandbars, occupies 414,259 ha (70%) with water bodies covering 187,413 ha (30%).". Access link: https://whc.unesco.org/en/list/798

the study seeks to develop primary understanding of the existing situation of resource governance and conflicts in the Sundarbans area in Bangladesh. At the same time the study also aims to explore how a co-management regime works where active resource conflict exists.

1.4 Research Questions

To achieve research objectives, the study will try to answer following questions:

- a) Why active resource conflict exists in the Sundarbans Mangrove Forest area while current Forest Policy essentially advocates collaborative management of the Sundarbans?
- b) What are the nature of resource conflicts that exists in the Sundarbans area?
- c) How resource-related conflicts between stakeholders affect governance of the Sundarbans?

1.5 Hypotheses

Following the research questions, the study hypothesizes that:

- a) Weak governance scheme escalates resource conflicts in the Sundarbans area.
- b) The absence of mutual cooperation and trust between stakeholders generates long-term resource conflicts.
- c) Sharing the power of decision-making with local stakeholders can strengthen the sustainability of the resource governance and mitigate conflicts in the Sundarbans area.

1.6 Importance of the Study

Many studies including government reports⁹ suggest that overwhelming anthropogenic pressures along with natural causes are responsible for the present state of degradation of the Sundarbans forest covers. Mangroves generate valuable economic services which are crucial for the livelihoods of the dependent communities. As mangrove forest areas in Bangladesh are densely populated, it can be simply argued that there might a be problem of overexploitation of resources. This seems a common theoretical argument which might be true for many valuable forest resource stocks including the Sundarbans. However, in the case of the Sundarbans, the problem is multifold. The existing literature claims that the failure of bringing local communities into the management system remains major problem for ensuring sustainability in the present management scheme. But limited attention has been given to the problem of resource-related conflicts between the stakeholders that might have significant implications to develop an in-depth understanding of the problems that currently exist in many common pool resource areas. In this regard, the present study offers some important insights about the global applications of the concepts of co-management to the problem of resource-related conflicts that are prevalent in the management system of natural resources.

To address the research questions, the study first explores the theorical debates regarding the significance of co-management or shared governance in managing resource-related conflicts. Then the study, through an exploratory case study research, examines stakeholders' perspectives on resource conflicts and co-management arrangements in the Sundarbans area.

⁹ Roy (2016); Kabir and Hossain (2008); Ali et al. (2006); FAO (2007); and Iftekhar and Islam (2004).

Since the Sundarbans Mangrove Forest is considered as one of the most endangered mangrove ecosystems in the world, the sustainability of its conservation has an immense importance to its local, national, and international stakeholders. Therefore, it is crucial to develop an evidence-based understanding of why active resource conflicts exist in the Sundarbans area and what implications they have on conserving the world's largest and most vulnerable mangrove forest.

The empirical research of this study suggests that despite having potentials, the outcomes of comanagement arrangements may vary significantly depending on the contexts. In the case of the Sundarbans, it stands out that (as per the empirical), the idea of sharing joint decision-making powers with local resource-dependent communities remains a non-viable option due to the widespread corruption from the part of the responsible government agencies. The government agencies use unnecessary force to restrict local communities from reaching mangrove resources in the name of forest protection. However, such use of force, to many extents, take the form of exploiting the legitimate rights of resource-dependent communities. The study perceives that the presence of exploiting nature of the present management regime creates widespread distrusts among the local resource-dependent communities regarding the further institutional arrangements for improving collaborative governance in the Sundarbans area.

However, depending on the scope of the master's level thesis, the field study covers a very small part of the Sundarbans. Therefore, from the findings of this study, it is difficult to draw a universal conclusion about the nature of conflicts and governance that exist in many mangrove forest areas worldwide. But this study certainly challenges the global applicability of the concepts of comanagement in dealing with forest resource-related conflicts to an individual context.

1.7 Limitations of the Study

The major limitation of this study is the small number of selected cases. Depending on the available research logistics and scopes, the study selected two villages in the Sundarbans area of Bangladesh. Therefore, the findings of this study regarding resource governance and conflicts may not be true all mangroves worldwide. An analysis by the UNESCO World Heritage Convention shows that the Sundarbans¹⁰ has some unique characteristics that many other mangrove forests do not have. The unique characteristics of the Sundarbans (both ecological and economic) make it difficult to form assumptions that might be applicable to all other cases. In many extents, the applicability of the concepts of co-management is established in natural resource management research. However, depending on social, political, economic, cultural, and geographical characteristics these concepts have been challenged by many researchers. By examining a specific case, it is possible to develop an understanding about how local factors affect the resource governance and conflict issues in a

¹⁰ According to UNESCO World Heritage Convention (1997) "the Sundarbans provides a significant example of ongoing ecological processes as it represents the process of delta formation and the subsequent colonization of the newly formed deltaic islands and associated mangrove communities. These processes include monsoon rains, flooding, delta formation, tidal influence, and plant colonization. As part of the world's largest delta, formed from sediments deposited by three great rivers; the Ganges, Brahmaputra and Meghna, and covering the Bengal Basin, the land has been molded by tidal action, resulting in a distinctive physiology.

The Sundarbans supports an exceptional level of biodiversity in both the terrestrial and marine environments, including significant populations of globally endangered cat species, such as the Royal Bengal Tiger. The property is the only remaining habitat in the lower Bengal Basin for a wide variety of faunal species. Its exceptional biodiversity is expressed in a wide range of flora; 334 plant species belonging to 245 genera and 75 families, 165 algae and 13 orchid species. It is also rich in fauna with 693 species of wildlife which includes; 49 mammals, 59 reptiles, 8 amphibians, 210 white fishes, 24 shrimps, 14 crabs and 43 mollusks species. The varied and colorful bird-life found along the waterways of the property is one of its greatest attractions, including 315 species of waterfowl, raptors and forest birds including nine species of kingfisher and the magnificent white-bellied sea eagle.

The Sundarbans provides sustainable livelihoods for millions of people in the vicinity of the site and acts as a shelter belt to protect the people from storms, cyclones, tidal surges, sea water seepage and intrusion. The area provides livelihood in certain seasons for large numbers of people living in small villages surrounding the property, working variously as wood-cutters, fisherman, honey gatherers, leaves and grass gatherers." Access link: https://whc.unesco.org/en/list/798

country like Bangladesh. The finding of this study should be treated as a baseline evidence for rigorous empirical studies that are far beyond the scope of a master's level thesis.

Another important limitation of this study is the interview language. All the interviews were carried out in local Bengali language. The transcripted contents of the interviews may not be the perfect translation of the original contents. However, to ensure the validity of the transcripted contents and avoid the problem of misinterpretation a regular cross-examination has been performed in a systematic basis. Furthermore, respondents from the Bangladesh Forest Department declined to answer some of important questions. They referred that the information was sensitive and therefore, the problem of missing data remains unavoidable.

1.8 Structure of the Thesis

This thesis paper is organized in five chapters. Chapter 1 provides fundamental ideas about the research. Chapter 2 develops theoretical understanding about the issues in the study of resource conflicts and mangrove governance. And Chapter 3, 4, and 5 address the research questions of this study.

Chapter 1 introduces the research topic from both global and local perspectives. It provides a thorough overview on the relevant information and literary works related to the importance of mangrove forest as whole, the Sundarbans Mangrove Forest, and its management mechanisms. Following the literature, Chapter 1 also develops an understanding about the resource conflicts and governance in the context of the Sundarbans. Further, Chapter 1 proposes main research questions and hypotheses following the explanation of research problem and objectives of the study. Chapter 1 also discusses possible limitations of the study.

Chapter 2 provides comparative knowledge about the dominant theoretical scholarships relevant to this study. It focuses on several aspects like the applicability, relevancy, and weakness of existing theories and literary works related to natural resource management and resource conflicts. The critique of literature in this Chapter reveals that the global applicability of a dominant theory may not hold true in an individual context. That is, due to differences in socio-demographic and cultural factors, a global theory may fall short to capture the magnitude of an individual problem.

Chapter 3 provides description of the study area. The Chapter also presents that how cases and respondents were selected to maintain the reliability of the research. Finally, the Chapter presents an example of the managements practices for mangroves in India.

Chapter 4 gives justification for the selection of exploratory case study research as an empirical method for this study. This Chapter also discusses the data collection methods including the data reliability issues. Further, Chapter 4 further develops the analysis of the collected data.

Finally, Chapter 5 provides a summary discussion of the findings provided in Chapter 4. The discussion mainly explains the hypotheses (that are posed in Chapter 1) in light of the findings of the study.

Chapter 2: Theoretical Framework

Conflict persists as long as humans encounter one another. This view of conflict has important applications to natural resource management. Irrespective of geographical locations, social, cultural, and political structures, conflict over natural resource management is increasingly viewed as a crucial social process that, in many extents, can generate unintended consequences like continuous degradation of resource stocks. However, the concept of conflict is highly contested in academia. Surprisingly, there is no unique definition of conflict that can be considered as a golden standard for conceptualizing conflicts over natural resources. Therefore, a comprehensive survey of literature is needed to get an in-depth understanding of existing scholarships regarding the applications of conflict to natural resource management.

2.1 The Conceptualization of Conflict

Many scholars have strived to provide an adequate definition of conflict. Lewis Coser, a German-American sociologist, defines social conflict as a disagreement over values and claims. In fact, Coser (1956) considers social conflict as a claim to power, status, and resources which are not easily achievable. In this case, as Coser (1956) argues, the claims of the opponents are to take a hold on their rivals. Analyzing behaviors of rivals, incompatibilities between them, and the processes of engaging into a possible conflict. Fink (1968) characterizes a conflicting situation. A situation in which two or more actors try to thwart the other's attempt to attain a goal, can be characterized as a conflicting situation. From this characterization conflict can be thought as a significant difference in perceptions, interests, and goals between actors or groups of actors (Miller *et al.*, 2002). However, this characterization is a mere generalization of a bigger problem and falls short to provide adequate understanding about how conflict is integrated to our day-to-day social interactions. In addition, this traditional definition of conflict is not sufficient to develop effective solutions to natural resource-related conflicts because it does not draw a clear line between conflict and its underlying causes (Marfo and Schanz, 2009). Thinking conflict as a difference in goals or perceptions also ignores the existence of non-conflicting situations since 'differences' might exist in all forms of social encounters.

In recent decades, there have been significant contributions from scholars to conceptualize conflict from a more broader perspective. Marfo and Schanz (2009) and Glasl (1999) use 'impairment approach' to define conflict. They argue that 'differences' are the necessary conditions for defining conflict but not sufficient conditions. Conflict is a situation in which an actor (e.g. local people) feels impairment due to the actions of another actor and such feeling arises because of their differences in thinking, perceptions, and goals (Marfo and Schanz, 2009 and Glasl, 1999). This theorization conceptualizes conflict as an interaction between two actors (e.g. the proponent and the opponent) where 'the proponent' acts to impair another actor 'the opponent'. Hence actors can be thought as individuals or organizations (Marfo and Schanz, 2009). The advantage of 'impairment approach' is that the actor's experience from impairment is uniquely applied to distinguish conflict situations from non-conflict situations (Marfo and Schanz, 2009 and Glasl, 1999).

FAO (1998, 2000) terms conflict as a dispute over controlling 'something' (e.g. natural resources, land, power, and status) in which the interests of two or more actors clash. In this case, one actor tries to achieve its interests at the cost of another actor's interests. According to FAO (2000), conflict exists in every community to some degree, but this conflict is manageable. However,

Warner (2000) argues that "conflicts of this type do not necessarily have to be neither violent nor highly disruptive, in fact many conflicts that arise as a result of differing interests are low-level and non-violent phenomena" (p.9). Recently, Goldman and Nikolov (2008) attempt to conceptualize social conflict as an "interaction between two or more parties in which the actions are intense, adversarial, and likely to produce an organizational or institutional disequilibrium for an unspecified period of time" (p.1642). They further define conflict as a "social relationship between two or more parties in which at least one of the parties perceives the other as an adversary engaging in behaviors designed to destroy, injure, thwart, or gain scarce resources at the expense of the perceiver" (p.1644). In many extents, Goldman and Nikolov's (2008) characterization of social conflict is similar to that of Coser (1956). Although their definitions provide important insights about the nature and types of conflicts, however, the basis of conceptualizing social conflict remains the same.

A growing body of authors holds different views on the causes of conflict. The differences in scholarly views among authors are understandable because they study social and resource conflicts from the different socio-political contexts. For instance, a social conflict surfaces when (at least) two actors interact with each other over a disputable issue. From this interaction, (at least) one actor incurs losses and (at least) one actor (intentionally) tries to transfer or ignore the negative impacts on the other actor that emerge from their interaction (Mason, 2004). In the case of natural resource management, stakeholders engage into conflict not only for their resource stakes but also for intangible interests that are 'critically' connected to their livelihoods, cultures, values, identity, status, and power (de Koning *et al.*, 2008). Engel and Korf (2005) suggest that conflicts are interactive and dynamic social processes and no two conflicts are the same. However, they point

out that each conflict follows similar patterns or stages of development if no intervention is applied (see Figure 1).





Source: Engel and Korf (2005) and Author's contribution

2.2 The Conceptualization of Forest Resource Conflict

In recent years, natural resource conflicts have received significant attention from many scholars. In addition, an important portion of research on natural resource conflicts has been devoted to exploring conflicts in forest resource management. Barney (2007) suggests that forest resource conflicts are largely associated with land use and livelihoods related issues. Such conflicts are also centered on wide and critical differences between statutory and customary resource management systems (Barney, 2007). Similarly, the World Bank (2003) attempts to conceptualize conflicts over forest resource use. It states that conflicts over resource use become inevitable in a specific forest site if the responsible management regime fails to realize the importance of local livelihoods which are critically dependent on the forest resources (World Bank, 2003). However, researchers in this filed hold differing opinions in terms of accepting a common definition of forest resource conflict. Hellstrom (2001) and Yasmi (2003) argue that it is nature of forests that makes the definition of forest resource conflict often vague. FAO (2000) suggests that the access to and use of resource stocks are at the core of forest resource conflict between the stakeholders. The conflict occurs when one group tries to restrict or exclude the access, withdrawal, and decision-making rights of another group (Glasl, 1999 and Yasmi *et al.*, 2007). Although there is no common definition of forest resources is sufficiently prevalent though many would disagree over the underlying causes of that conflict.

In many extents, forest resource conflicts can be severe and can directly affect livelihood dynamics of dependent communities including continuous degradation of forest resource stocks. If forest resource conflict continues without a proper management, then it can endanger the fabric of entire dependent communities (Suliman, 1999). Therefore, dealing with forest resource conflicts requires in-depth understanding of the nature of conflicts over common-pool resources. It also requires the understanding of the effectiveness of different management regimes in sustainably managing resource conflicts (Adams *et al.*, 2003).

A number of policy options and institutional arrangements advocates a participatory and peaceful way of resolving natural resource conflicts. In fact, there is growing interest in applying comanagement strategies for resolving resource-based conflicts. Many scholars think comanagement agreements between stakeholders can offer new opportunities to effectively deal with resource conflicts. Co-management agreements can also help to develop a sense of community empowerment among the resource-dependent local people by including them in the decisionmaking and benefit sharing process. It is possible that incorporating co-management agreements as a natural resource management scheme can create new conflicts or escalate old conflicts (Castro and Nielsen, 2001). This might happen in a regime where state has growing interests in furthering its control over allocation of natural resources and resource policy. Such arrangements are detrimental to the process of empowering resource-dependent communities and can substantially contribute to undermining management efforts of valuable natural resources (Castro and Nielsen, 2001). However, a clear assessment of the limitations and benefits are necessary to understand how co-management arrangements can contribute to resolving conflicts in a conflict-ridden forest resource sites like the Sundarbans.

This thesis paper will explore the varying concepts of co-management and property rights from the perspective of forest resource management to understand the nature of resource conflicts that exist in the Sundarbans Mangrove Forest area. In fact, the concept of resource conflict is crucial to understand and design co-management strategies (Anau *et al.*, 2002; Yasmi, 2002; and Rhee, 2000). The concepts of co-management are also important to the allocation of rights over a common-pool resource to its dependent communities (Cronkleton *et al.*, 2012).

2.3 The Concepts of Co-management

Since 1990 the concept of co-management has received significant attention as an effective mechanism for dealing with natural resource-related conflicts (Fisher 1995 and Buck *et al.*, 2001). However, before exploring the effectiveness of co-management for managing forest resource-related conflicts, it is important to understand the fundamental concepts of co-management. In literature, the term 'co-management' is frequently used to describe 'shared governance' (Dudley, 2008). Hence, fundamentally, the management responsibility is shared between the legitimate stakeholders (e.g. the government and non-government¹¹ actors) (Dudley, 2008). It is important to notice that the degree of co-management activities may vary significantly on the basis of the distribution of relative power and responsibility between the stakeholders.

However, many authors¹² think that co-management is an equitable way of sharing ownership and benefit. They argue that through co-management arrangements state agencies and resourcedependent local people can make management decisions jointly. The joint decision-making process allows stakeholders to bargain, define, and guarantee their equitable share of entitlements and management responsibilities for a given natural resource stock (Cundill *et al.*, 2013; Gutierrez *et al.*, 2011; Carlsson and Berkes, 2005; and Borrini-Feyerabend *et al.*, 2000). The attainment of negotiation power and entitlements through co-management activities mitigates weaknesses of each party involved (Singleton, 1998). McCay and Acheson (1987), in their famous edited volume Managing the Commons, apply the idea of co-management to explain the political claims of the resource-dependent local people. Such claims are valuable for local stakeholders to share power

¹¹ The 'non-government actors' here mean local actors.

¹² Cundill et al., 2013; Gutierrez et al., 2011; and Carlsson and Berkes, 2005.

and management responsibilities with the state (McCay and Acheson, 1987). Hence the philosophy of joint decision-making and power-sharing differentiates co-management from other forms of participatory natural resource management schemes (Carlsson and Berkes, 2005). The idea of power-sharing under co-management agreements requires more clarification. Pomeroy *et al.* (2004) state that power-sharing arrangements can take many forms and this variation is often presented along a continuum (see Figure 2). Power-sharing arrangements at both extreme points of this continuum and points everywhere in between represent co-management. Therefore, the idea of equitable power-sharing is not a necessary condition under co-management agreements.





Source: Pomeroy et al. (2004) and Author's contribution

Many authors use the term 'co-management' in a more inclusive way. In fact, the term is used to describe a situation where local stakeholders (e.g. local communities) engage in partnership with or without power-sharing arrangements with state agencies. Brown (1999) defines this kind of situation as 'working partnership' between local communities and the state. However, these forms

of partnership arrangements are more common in participatory, collaborative, and joint forest management regimes. Bowcutt (1999) states that the concept of co-management is similar to other forms of participatory resource-based concepts. According to Bowcutt (1999) "crafting partnerships between institutions and local communities is known by many names: co-management, community-based management, community forestry, social forestry, and watershed management" (p.359).

Though co-management arrangements can regulate access to and use of forest resources, but their main purpose may not be the protection of resources (Holm *et al.*, 2000). Therefore, the purposes of a specific co-management scheme may differ significantly than those modern or scientific resource management schemes. Multiple stakeholders under a co-management scheme may have multiple objectives which can create obstacles for achieving the goal of resource protection (Holm *et al.*, 2000). Considering these caveats, Holm *et al.* (2000) urge for a modified definition of co-management which should focus only on institutional arrangements that facilitates intensive participation of resource users to manage a specific resource site. However, Holm *et al.* 's (2000) definition does not consider the issue of power-sharing and this contradicts the fundamental principles of co-management arrangements.

Pinkerton (1992) states that the main goal of co-management is to minimize natural resourcerelated conflicts by ensuring participatory democracy. Co-management arrangements have the capacity to create a bonding between central and local levels by generating increased legitimacy downwards and increased accountability upwards (Hovik and Hongslo, 2017). Fostering strong public trust in decision-making process largely depends on whether majority people perceive the process transparent and considerate to conflicting views (Richards *et al.*, 2004). Therefore, comanagement scheme may increase public trust in government's resource-related policies by ensuring transparent management practices.

In addition to abovementioned functions, co-management scheme can empower non-government actors (Greenwood *et al.*, 1993), increase social learning by collaborative actions (Blackstock *et al.*, 2007), economically empower local communities (Berkes *et al.*, 1994), improve ecological, cultural, and social health sustainability (Berkes *et al.*, 1994).

2.4 The Role of Local People and Co-management

The role of local people in managing natural resources is highly contested. However, there are many counter examples that show incorporating local people into the natural resource management process can significantly change the conservation outcomes. Zachrisson (2009) and Zimmerer (2006) argue that local communities can significantly contribute to managing natural resource areas. They criticize the traditional hierarchical way of managing natural resources and claim that state-controlled management regime generates no real gains in terms of protecting valuable biodiversity.

The recent trend shows that many natural resource management regimes have decentralized management rights to local communities (Hongslo et al., 2016; Fedreheim 2013; Borrini-Feyerabend *et al.*, 2008; and Dudley, 2008). The approach of decentralizing management rights has been lauded by many as this process reaps the benefit from the customary knowledge of local people and encourages local stakeholders to exercise their democratic rights (Reed, 2008). In 1993, The Convention on Biological Diversity names this approach as the 'Malawi Principles for the

Ecosystem Approach'. It emphasizes that management rights for natural resources should be fairly distributed among the legitimate stakeholders. The International Labor Organization (ILO) Convention C169¹³ stresses that the decision-making process for any specific natural resource area should include resource-dependent communities.

De Pourcq *et al.* (2015) interview 584 residents from ten protected areas in Colombia to study the effectiveness of co-management schemes in managing resource conflicts. Their finding shows that co-management arrangements can be successful in mitigating resource related conflicts at the grassroots level if the effective participation of local resource-dependent communities in the decision-making process is ensured.

Castro and Nielsen (2001) study the relationship between conflict and co-management in the contexts of Canada and South Asia. Specifically, the cases cited in their paper include co-management arrangements in northern Canada, Joint Forest Management in India, and the Social Forestry Project in Bangladesh. In all of these cases co-management arrangements were introduced as response to the on-going resource conflict between the state and local stakeholders (Castro and Nielsen, 2001). Using their field experiences and empirical examples from existing literature, Castro and Nielsen (2001) try to figure out the "the divergent interests and motives of state agencies in planning and implementing co-management arrangements" (p.229). Further, their study emphasizes the legal, political, and social hurdles faced by the resource-dependent communities while try to negotiate for their rights under a co-management scheme. Castro and Nielsen (2001) also argue that even in a perfect co-management setting resource-related conflicts

¹³ http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100 ILO CODE:C169

can arise if local people have limited opportunities to participate in the decision-making process. In this regard, Box 1 presents Alfonso P. Castro (1997) field experience in Bangladesh regarding co-management and resource conflicts.

Box 1: Co-management as a Response to Conflict: Alfonso P. Castro's Field Experience from Bangladesh

Co-management as a Response to Conflict: Alfonso P. Castro's Field Experience from Bangladesh Bangladesh shared a colonial history with India, and similar sorts of struggles occurred with the imposition of custodial forest management in East Bengal. Forest conflict continued through the Pakistan years and after independence. A complex and sometimes contradictory array of land laws, regulations, and policies made the forest tenure situation murky. Some of the most enduring and intense conflicts occurred in tribal areas. The Forest Department responded to the presence of so-called encroachers through police action, including increasing the fines for illegal timber removal. This practice proved ineffective as conflicts continued. By the 1980s some policy makers started exploring participatory-oriented strategies as a proactive response to long-standing conflicts over state forest reserves.

The government launched the country-wide Social Forestry Project in the late 1980s with support from the United Nations Development Program (US \$1.9 million grant) and the Asian Development Bank (US \$44 million loan). The project incorporated resource-sharing arrangement into its design, proposing to establish co-managed woodlots and agroforestry plots on 16000 hactre claimed by the state but occupied or used by villagers.

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The Bangladesh Social Forestry Project had many positive accomplishments, particularly regarding the large number of people it trained and the tree nurseries it established. But the project's experience with co-management arrangements and benefit-sharing arrangements were problematic. Even if a co-management participant performed the assigned work in a satisfactory manner, there was no guarantee of his continued tenure. The Forest Department was often tardy in renewing the annual agreements, a source of concern to prospective beneficiaries. Many villagers believed that the project staff was trying to minimize local involvement on the woodlots and agroforestry plots as a means of separating the local population from any claim to the land or trees. In most places people seemed unsure how benefit-sharing would take place. Despite the project's enormous potential, it floundered in many places as rural people resisted its `preprinted participation'.

The reasons for the Social Forestry Project's disappointing performance were complex and varied, but several factors stood out. Some senior forestry officials were clearly unconvinced about the value of community participation. Their concept of collaborative or participatory forestry seemed to be that villagers ought to do what officials wanted them to do. The externally funded project was largely treated as an addition to existing departmental activities, instead of being integrated into the totality of its structure. The co-management arrangement was perceived from the outset as a means of co-opting local claims to contested land. Ironically, the project often intensified, rather than reduced, the tensions and conflicts between foresters and rural dwellers.

Source: Castro, 1997 and Castro & Nielsen, 2001.

2.5 Criticisms of Co-management

Despite effectiveness in dealing with natural resource-related conflicts, the concepts of comanagement are not out of criticisms. Cundill *et al.* (2013) and Dressler *et al.* (2010) claim that co-management was highly appreciated by many policy makers as an effective mechanism of dealing with resource related conflicts, however, it failed to live up to the expectations. The main argument behind such claim is that co-management arrangements overlook institutional complexities generated by the management of common-pool resources (Cundill *et al.*, 2013 and Adams and Hulme, 2001). The process of transferring and controlling management rights can be very complex and would produce high transaction costs for both the state agencies and the local communities. Therefore, even under a co-management agreement, excessive administrative complexities would create limited space for the other stakeholders and weaken the conservation goals (Armitage *et al.*, 2009).

Most importantly, the sharing of decision-making power under a co-management scheme does not mean that the state agencies will lose control of administrative tasks. Such tasks definitely require that local stakeholders must follow strict compliance measures like receiving permit license, accepting restrictions on resource use, and following laws and regulations (Cronkleton *et al.*, 2012). In addition, many government agencies may have authority over a single forest territory and each agency may have different roles to play. Under such situations, co-management arrangements would not generate any meaningful outcomes when different agencies interacting with local stakeholders have conflicting policies and goals (Cronkleton *et al.*, 2012).

Cronkleton *et al.* (2012) also claim that rigid restrictions on resource use would discourage local participation in the co-management process or even exclude many people from the process. A serious allegation against co-management system is made by Cooke and Kothari (2001). They claim that co-management strengthens the influence of the elite by promoting the notion of collaborative participation. In many cases, co-management arrangements may exacerbate resource conflicts among the stakeholders instead of resolving it (Castro and Nielsen, 2001 and Carlsson and Berkes, 2005).

However, most of these studies only assess the conceptual dimensions of co-management. That is whether co-management is capable of contributing to sustainable management of natural resources (Gutierrez *et al.*, 2011 and Cox *et al.*, 2010). Empirical assessments of specific co-management strategies are required to examine whether co-management scheme is effective in mitigating resource conflicts at the grassroots level.

Furthermore, many perceive co-management arrangements as the cooperation between the state and the local communities as if both parties have homogenous share of decision-making power and experience resource-related conflicts in the same way. This kind of perceptions ignores the fact that the government and the local communities are not homogenous entity and both parties have different goals for participating in a co-management process (De Pourcq *et al.*, 2015 and Carlsson and Berkes, 2005). Community members usually have divergent goals and may experience the issues of resource governance and conflicts differently (Castro and Nielsen, 2001).

2.6 Institutional Arrangements and Co-management

Many studies hypothesize that in the absence of proper institutional arrangements an inverse relation may exist between co-management conditions (e.g. sense of ownership, effective participation) and the sustainable management of natural resources (Gutierrez, et al., 2011; Berkes, 2009; Pomeroy *et al.*, 2004; Pomeroy et al., 2001; and Ostrom, 1990). In the setting of common property theory, robust institutions are engineered depending on their capacity to resolve resource conflicts. Hence the idea of institutions can be understood as social norms, conventions, values, and rules that shape individuals' behaviors and perceptions about the world (Ostrom, 1990). Institutional ists argue that every natural resource management regime should have institutional relevance and therefore, the concept of co-management should be understood from the institutional context (Ostrom, 1990). That is, institutions have strong relevance to manage natural resource-

related conflicts (Ostrom, 1990). Proper institutional arrangements are also critical for a comanagement scheme to sustainably govern common pool resources (Berkes, 2009; Pomeroy *et al.*, 2004; Pomeroy *et al.*, 2001; and Ostrom, 1990). However, a thorough explanation of theory of common property resource is required before exploring its relationship with the co-management arrangements.

2.7 The Theory of Common Property Resource

There are many contested definitions of common property resources. For example, Berkes (1989) thinks that in the case of common property, each resource user reduces the availability of resources to others and the exclusion of users from the resource use is very difficult. While, Heltberg (2002) views common property as the communal resources where the ownership belongs to a community and the exclusion rights are set based on community membership. However, these definitions provide very narrow understanding about the functions and significance of common property resources.

Schlager and Ostrom (1992) describe that people usually misunderstand the term 'common property resource' by thinking it as a property owned by no one or by the state. Depending on the complex nature of such resources, Ostrom (1990, 1998, and 2000) terms these resources as common pool resources. She also describes 'common property' as a regime where common pool resources are held. This kind of regime requires a set of institutional arrangements to define the principles of resource use to deal with the problems that might arise from collection actions (Swallow and Bromley, 1995). However, in most of the common pool resource areas multiple stakeholders are involved. Therefore, imposing strong regulations to exclude some beneficiaries

would be costly (Ostrom, 1990, 1998, and 2000). Furthermore, most common pool resource areas happen to be big enough that many users can use the resource simultaneously (Ostrom, 1990, 1998, and 2000). In this regard, common pool resources may appear in different categories of property rights regimes in terms of the nature of resource use, size of the resource area, and overlapping claim of ownership (Ostrom *et al.*, 1999 and Feeny *et al.*, 1990).

Eggertsson (1990) offers three categories to define bindles of property rights. The first category is the right to use resources where the users have the right of physical transformation. The second is the right of earning monetary income from the use of the resources. Hence an individual user has the right to initiate a contract with the other users. The third category is the right of transferring or selling ownership of a resource to another party. This kind of right is usually termed as the alienation rights. Hence the user can transfer the property rights to 2nd party temporarily or permanently. However, this classification of the bundles of rights will only work if any specific resource or property has identified ownership. Eggertsson (1990) suggests that the proper enforcement of these property rights in a scare natural resource area requires the exclusion of other resource users from the use of that resource. The problem with Eggertsson's (1990) proposition arises when a natural resource site is significantly large and has multiple users. In this case, exercising Eggertsson's (1990) classification of bundles of rights would offer no real solution to resolve resource-related conflicts.

Later, Schlager and Ostrom (1992), depending the user's position, classify 'bundles of property rights' into five categories (e.g. access, withdrawal, management, exclusion, and alienation). Figure 3 gives a birds-eye-view on Schlager and Ostrom's (1992) bundles of property rights.

Figure 3: Bundles of property rights



Operational-level property rights assigned to individuals

Source: Reproduced from Schlager and Ostrom (1992).

The abovementioned bundles of rights have different applications depending on the levels of analysis. In the case of common pool resources, individuals (e.g. local resource users) are usually given operational-level property rights¹⁴. These rights are also called 'use rights' that is the user has only the rights of access and withdrawal. On the other hand, collective-choice property rights give resource users the control of management, exclusion, and alienation and usually termed as 'control rights' (Schlager and Ostrom, 1992). However, in the management of a common pool resource, control rights are rarely given to local users. Usually, these rights are exercised by the

¹⁴ Operational-level rights denote to exercising specific use rights allocated to someone without having power to design or change rules or resources use. For example, fishermen are allowed to fish in certain spots that may be set by authority, community or state (collective choice arenas). This fishing right is an operational-level withdrawal right authorizing harvesting from a particular area (Schlager and Ostrom, 1992).

state authority (Murombedzi, 1998). In an extreme case, participants in a common property resource regime might have access, withdrawal, management, and exclusion rights but not the alienation rights because no one actually 'owns' a common property. Hence, users do not have the right to sell their management and exclusion rights (McCay and Acheson, 1987). Therefore, the theory of common property resource shows that how local users can exercise their use rights or may be some degree of control rights without being the full owners of mangroves.

2.7.1 The Applications of Property Rights to Mangroves

Each mangrove forest cover has both aquatic and terrestrial functions and experiences daily tidal flow including seasonal variability of water regime. Due to their exclusive bio-physical structures and geographical locations, mangroves generate a set of unique ecological and economic services than those other ecosystems. Therefore, management of the mangroves remains a big challenge worldwide. Many scholars do not advocate a single management scheme for managing the mangroves. Since mangrove forests are inseparable from the waterbodies like rivers, canals, creeks, and channels, defining property rights in the mangrove area is also a challenging task (Adger and Luttrell, 2000). In fact, the dual role of mangroves (e.g. aquatic and terrestrial) makes it difficult to insert the idea of private property over mangrove resources. Rather the claim over mangrove resources is better understood from the view point of common property and multiple users (Lal, 2002). According to Mahoney (2004), if there four different resource users (say person A, B, C, and D) then each person may exercise different rights over mangrove resources. For example, person A may exercise right of fishing, person B may exercise the right of wood cutting and vice versa. So, when multiple users have different claims and roles over a specific mangrove resource area, the efficient allocation of control rights (especially, management and exclusion rights) would be an impossible option. However, the absence of property rights or institutional arrangements may encourage resource users to extract mangrove resource indiscriminately which will definitely weaken the sustainability of mangroves (Lal, 1990). On the other hand, full complete state control over mangroves may also severely undermine the livelihood security of mangrove dependent communities (Adger and Luttrell, 2000).

2.7.2 Understanding Mangroves as Common Property Resource

Mangroves generate a number of social benefits by protecting neighborhoods from natural calamities, providing carbon sequestration services, and most importantly creating livelihood opportunities for the dependent communities. The locals who are dependent on mangrove resource usually consider it as a common property resource and apply their customary knowledge to cohabitate with the mangroves. As multiple users are critically involved with mangrove forests and the allocation of property rights would generate divergent outcomes, the state also often consider mangrove as a common property resources (Adger and Luttrell, 2000). Ostrom (1990 and 2000) argues that depending on the size, location, and nature of resources, common property can be managed by the state agencies or by the communities. However, to mange the commons there is no single static institutions. In fact, based on socio-cultural and historical contexts institutions are evolved or established to manage the common property resource regime (Ostrom, 1990).

In many developing countries, rural communities overwhelmingly rely on common pool resources to secure their livelihoods. In such cases, improving cooperation between stakeholders is increasingly seen as an effective mechanism of dealing with resource-related conflicts and building socio-ecological resilience. The proper management of common pool resources can be also a viable option for poverty alleviation and mitigating social conflict.

2.8 The Allocation of Property Rights in complex Forest Landscapes: The Role of Co-Management

The theory of collective action by Olson (1965) and Hardin (1968) recognizes the role of both private property and the government to avoid the problem of overharvesting. This theory remined unchallenged until Ostrom (1990) proposed the theory of common property rights. Under a common property resource regime, the appropriate distribution of the bundles of rights to different stakeholders can resolve the 'so-called' collective action problems. Specification of the bundles of rights at the community level can also generate self-governance within the stakeholders. Such self-governance power is crucial to avoid situations like Hardin's tragedy of the commons. Based on the position of resource users, the allocation of the bundles of property rights can set strong link with other resource-based concepts like co-management to sustainably manage common pool resources (Schlager and Ostrom, 1992).

When multiple stakeholders are involved in a common pool resource area with competing interests, claims, and powers, the reform of the management regime for that resource area becomes inevitable. Furthermore, to understand how community forest management functions, it is important to examine which portion of the bundles of rights are given to community level stakeholders. In a complex forest landscape, transferring only access and withdrawal rights may not be sufficient to ensure effective participation of local resource-dependent communities. The transfer of the whole bundles of rights to local communities seems a non-viable option due to underlying administrative complexities. However, to possess the decision-making power the local stakeholders would need some degree of management rights. According to Barry *et al.* (2010), in many tropical forest areas, the state usually controls alienation rights while the local people possess

use rights including some degree of management rights. So, it is impossible to think a forest resource regime without the controls of the state.

To maintain forest resources, the state usually imposes different sets of restrictions on local users. The state, in many cases, can devolve the decision-making powers by granting management rights to the local people. For example, the community may receive the rights to use forest resources commercially like what forest resources to harvest and how to carry out the harvest, however, even in this case, the local users might need pre-approval from the state agencies and to follow the regulations set by the state. However, the devolution of decision-making power, in whatever degree, can generate participatory forestry models involving co-management arrangements.

Co-management results from the realization that local resource users have roles to play in the management process of a particular natural resource area. Such roles would also include conservation and development of a designated forest area. As Cronkleton *et al.* (2012) argue that the exclusion of the roles of local from a common property resource area is very difficult. Therefore, recognition of their 'legitimate' rights is important to sustainably manage a common pool resource. In addition, local people possess important customary knowledge of resource management. By providing decision-making rights, the state may have access to such knowledge. However, in reality, finding the right balance of power-sharing and associated responsibilities between the state and the local stakeholders can be very challenging.

Finally, the motivation to manage natural resources in a sustainable way largely depends on the trust factors between the stakeholders. The presence of cooperation and mutual trusts between stakeholders are critical for the effective implementation of co-management arrangements. The

excessive state control or complex administrative functions under a co-management scheme would generate different outcomes than the desired outcomes. Therefore, the success of a co-management regime in dealing with resource-related conflicts and ensuring sustainable governance critically depends to developing mutual trusts and cooperation between the state and local stakeholders.

Chapter 3: Description of the Study Area and Case Selection

3.1 The Study Area

According to the Bangladesh Forest Department (BFD)¹⁵, the total area of the Sundarbans Mangrove Forest (SMF) is 601700 hectare which covers 4.13 percent of Bangladesh and 38.12 percent of the total forest area of the country. The Sundarbans is located in the southwest part of Bangladesh which shares the vast area of Khulna, Satkhira, and Bagerhat districts. In fact, the whole area is designated as the Sundarban Impact Zone (SIZ) which consists of 2268 villages and 17 Upazilas (subdistricts) of these three districts (Roy *et al.*, 2012). In 1992, the Sundarbans is designated as the Ramsar Site¹⁶, later in 1997, the UNESCO recognizes the Sundarbans Mangrove Forest as the World Heritage Site¹⁷. For the proposed case study research, the study selects two villages, namely, Pathor Khali and Munshiganji. Pathor Khali is located at the Koyra upazila of Khulna district while Munshiganji is located at the Shyamnagar upazila of Satkhira district. According to the Bangladesh Bureau of Statistics (BBS, 2016)¹⁸, both Koyra and Shyamnagar upazilas have almost identical socio-economic characteristics and houses the substantial number of mangrove-dependent people. In terms of geographical distance, Pathor Khali and Munshiganji are some of the nearest villages to the Sundarbans reserve area.

3.2 The Selection of Cases and Respondents

The selection of cases is solely based on the distance of villages from the core protected area of the Sundarbans Reserve Forest and the dependency of villagers on the mangrove resources.

¹⁵ <u>http://www.bforest.gov.bd</u>

¹⁶ https://rsis.ramsar.org/ris-search/?f[0]=regionCountry_en_ss%3ABangladesh&pagetab=2

¹⁷ http://whc.unesco.org/en/list/798

¹⁸ http://www.bbs.gov.bd/

According to the Bangladesh Population and Housing Census 2011¹⁹, both Pathor Khali and Munshiganji are the nearest to the Sundarban Mangrove Forest area. Kabir and Hossain (2008) and Roy et al. (2012) identify five major professions of dependent communities in the villages near to the core protected area. These are bawails (wood cutters), mawalis (honey collectors), gol pata sangrahakari (nipa palm collectors), jele (fishers), and chunery (snail and oyster collectors). However, in recent years, the Forest Department has placed strong restrictions on wood cutting. Due to rigid regulations, many dependent communities find the profession not profitable. Instead, there is a growing trend for shifting professions in the Sundarbans Mangrove Forest area. Currently, many resource users find crab catching a profitable profession than that of wood cutting and nipa collections.

There are also aratdars (hoarders), dadondars (rent seekers), and mahajans (local middlemen and money lenders) who provide business services to the local dependent communities (Islam, 2010). These people do not directly depend on the Sundarbans; however, they have direct relationship with the resource users. Since most resource users live in poverty and are vulnerable to any shock (e.g. natural calamities, diseases, deaths, and etc.), they borrow money from the rent seekers or money lenders to meet the emergency needs. As local people do not have access to formal financial institutions, they usually rely on these people to accommodate emergency situations. Hoarders and middlemen are thought of primary buyers of products that are extracted from the core protected area. In addition to dependent communities, local elites, timber merchants, sawmill owners, and industries such as hardboard, match, furniture building also use de facto rights to collect resources from the Sundarbans. As the Sundarbans is a reserve forest, the Bangladesh Forest Department

¹⁹ http://www.bbs.gov.bd

(BFD) is the sole manager with the Ministry of Environment and Forest (MOEF) responsible for policy-making. The Forest Department through local forest offices allocate operational level rights by issuing permits to local dependent communities. Permits are mainly given to the fishers, crab catchers, nipa palm collectors, and honey collectors.

Since the aim of the research is to investigate the stakeholders' perspective on mangrove governance and resource conflicts, the study conducted Key Informant Interviews (KII) in the selected study areas in between May 10, 2018 to May 20, 2018. The key informants are perceived as people who have first-hand knowledge about what is going on in the community. Depending on the role of the professions on the mangroves, the respondents were classified into three different categories such as 1) the resource users directly reliant on mangrove resources for their livelihood, 2) the Forest Department (BFD) officials who are directly responsible for the management of resources, 3) members of non-government organizations (NGOs) who are working in proposed study area.

3.3 A Brief Overview of the Management Practices of Mangroves in India

According to DasGupta and Shaw (2013), In India, the community-based co-management arrangements received significant policy focus to manage the vast of area mangroves. Recognizing the potential of local communities, Indian government has started participatory management mechanism to protect its mangrove forest covers. However, on the other side of the border, the scenario is completely different. Despite having participatory policy frameworks in place, the responsible government agencies show little interests in cooperating with the local people to manage the Sundarbans in participatory way. Box 2 provides an example for mangrove management practices in India.

Box 2: Brief Overview of the Management Practices of Mangroves in India

Brief Overview of the Management Practices of Mangroves in India

India is home to a variety of coastal and marine ecosystems that includes 4662 sq. km of diverse mangrove forests. Although these mangroves account for only 0.67% of the total designated forest area in India, their presence remain utterly important under the growing concern of global reduction of mangrove habitats and need special attention.

India is particularly strong on the policy front with adequate legal support for conservation of mangroves. Since the implementation of Joint Forest Management scheme by the Government of India and subsequent modification in the National Forest Policy of 1988, community-based co-management is now greatly promoted. Joint Mangrove Management (JMM) has been particularly important; given the context of the Indian mangroves and their inaccessible geographical locations. Also, the sub-committee formed by the Ministry of Environment and Forest (MoEF) to review the restoration protocol and Joint Mangrove Management highlighted JMM as the best possible approach under the present circumstances.

Presently, many of Indian mangroves are managed through Community based Co-Management where the community develops some kind of sustainable model for mangrove management in consultation with the local forest department, scientific bodies, NGOs and other stakeholders.

Effective contributions from all the stakeholders are ensured through periodical discussions and workshops. Apart from the targeted mangrove conservation and restoration, several short and long term developmental goals are also implemented through this community-based organization, popularly known as Forest Protection Committee (FPC). For example, 54 FPCs along with some 14 Eco-Development Committee (EDC) are given the responsibility of managing approximately 64000 ha of the Indian Sundarbans.

The Eco-Development Committees, on the other hand, are responsible for creating public awareness. In all such cases, forests are primarily protected by the local communities and the near forest dwellers who in turn enjoys their traditional claim over the Non- timber Forest Products (NTFP) such as wax, honey etc.; also, in the majority cases local communities are given 25% share of the annual revenue generated from rotational felling or ecotourism. JMM is particularly prominent in the state of Tamil Nadu, Orissa, West Bengal and Gujarat.

Source: DasGupta and Shaw, 2013 (p.107 & p.116).

Chapter 4: Research Design and Analysis

4.1 The Rationale for Method Selection

The study applies exploratory case study research method to explore the stakeholders' perspective on resource governance and conflicts in the Sundarbans area. Exploratory method often reflects the nature of the research problems. Generally, the case study research facilitates the opportunity to examine a problem within a particular context. Yin (1984) argues that through a case study method, a researcher can closely observe different phenomena which exist is a specific dataset. However, in most cases, the case study method focuses on a small geographical area or limited number of subjects of interests (Yin, 1984). Compare to quantitative analysis, which examines data at the macro level based on the frequency of the observed phenomena, case study research observes data at the micro level (Yin, 1984).

However, case study method is not out of criticism. Many contemporary researchers in social sciences think that case study method lacks robustness as a research tool (Zainal, 2007). Considering this criticism, the designing of case studies including case selection has immense importance to ensure the acceptability and validity of case study research. Under the framework of case study, researchers can select single or multiple cases to conduct their study. However, the selection of single case can make the study weak enough to infer a general conclusion (Zainal, 2007). To minimize this problem, depending on the scope of the research, this study has performed exploratory case study research in two villages at the Sundarbans Mangrove Forest area. In fact, exploratory case study research gives researchers opportunity to explore phenomena within the data which might be unfamiliar to them. Schutt (2006) argues that exploratory research helps

researchers to explore 'what is going on here'? and associated social phenomena in an explicit way.

As a qualitative research design, the Key Informant Interviews (KII) technique is followed to collect the data. To explore the issues in question, the study has specifically performed semistructured interviews with key respondents from the study area. The rationale of using qualitative research approach is that "it provides a deeper understanding of poorly understood or sensitive topics, and insights into the process as opposed to outcomes" (Britten and Fisher, 1993, p.270). Using the Sundarban Mangrove Forest as a context of the case study research, the study offers deeper insights into the issues critically related to resource governance and conflicts. Therefore, the exploratory case study method is better suited to the objectives and expected outcomes of this study.

4.2 Data Collection

The study performed semi-structured interview techniques to conduct the interview. Each interview was last for 30 to 40 minutes. The study selected key resource users depending on the intensity of available professions in the Sundarbans Mangrove Forest area. The study finds that fishing, carb catching, and honey collecting are three major professions in the Sundarbans area. According to Bernard (1995), a sample size of 30 to 50 is sufficient for exploratory research. Concerning the scope of the master's-level research, time limits, and financial constraints including unfavorable weather in the study area, the study was able to perform 27 interviews. Depending on the intensity of professions, the study selected three categories of resource users, such as (1) fishers, (2) crab collectors, and (3) honey collectors. Table 1 shows that out of 27 respondents, 20 persons were direct resource users from the Pathor Khali and Munshiganj village,

4 persons were NGO workers, and 3 persons were Forest Department officials. The study performed 11 interviews in the Pathor Khali area 16 interviews in the Munshiganj area.

Total number of respondents	27
Number of local resource users interviewed	20
Number of Forest Department staffs interviewed	3
Number of NGO workers interviewed	4
Number of respondents from Pathor Khali	11
Number of respondents from Munshiganj	16
Number of local resource users interviewed from Pathor Khali	8
Number of local resource users interviewed from Munshiganj	12
Total number of fishers interviewed	7
Total number of crab catchers interviewed	9
Total number of honey collectors interviewed	4

Table 1: Summary Information of the Interviews

Source: Author's calculation

The interviews focused on the underlying causes of active resource conflict based on respondents' perception and understanding of the situation. Respondents (resource users) were asked about how their association/relationship with the Sundarbans. If they said they were actively associated with the Sundarbans for their livelihoods, then they were asked about their professions and their assessment about the current management regime of the Sundarbans. They were encouraged to describe in detail what they perceived as the causes of tension with the Forest Department and local politicians. With the clear consent of the respondents, the interviewer was able to voice record 21 interviews out 27s. All interviews were undertaken with the help of local guides. Being proficient in local language was another important way to absorb information by discussing various issues with respondents in an informal way.

The collected data against each respondent were coded and documented following the standard procedure of qualitative data coding. Depending on the collected data, calculation of percentage and average were performed. It is important to note that the analysis of collected data made in this way is not out of the problem of subjectivity. Hence, the collected data is the researcher's own construction of interviewees' views about resource governance and conflicts. Therefore, it should not be expected that the data collected through interview is completely free from the problem of subjectivity is unavoidable in socio-cultural research because it is difficult to draw a clear line between "substantive content and the mode of representation" (p.37).

4.3 Data Validation, Reliability, and Analytical Techniques

In the case of qualitative research, the validity and reliability of the collected data has paramount importance. In addition, it is also important to make sure that the responses are not misinterpreted, and the information extracted from the interviews are valid. Since the study conducted all the interviews in local Bengali language and most of the interviewees had maximum primary level education, therefore after documenting and transcribing the interviews, frequent cross examination was performed ensure the validity of the collected data. In the case of ambiguities, I took the help of local guides and contact persons to cross check the information. As the number of resource users is extremely large, and many resource users are engaged in different levels of resource extractions and related activities, therefore I randomly approached to them without following any specific pattern of identifying the respondents. While analyzing the data, the study followed five general steps as prescribed by the Taylor-Powell and Renner (2003):

Figure 4: Steps of data analysis



Source: Taylor-Powell and Renner, 2003.

4.4 A Brief Overview of the Collected Data

The study performed 20 interviews from the local resource users' communities in Pathor Khali and Munshiganj village who usually enter the protected areas for resource extraction by issuing permit license from the nearest Forest Office. Among them 7 interviewees were intensely involved in fishing profession, 9 were in crab catching, and 4 were in honey collecting profession. Surprisingly, all the interviewees were male. This is understandable from the fact that the traditional village societies in rural Bangladesh is highly male-dominated over family affairs. Table 2 shows that the average age of respondents is 38.2 years. Almost all of these respondents are entered their respective professions even before their legal age and have received no formal education. The Table 2 also shows that crab catching is the highest earning profession among the local resource users in the Sundarbans area. In fact, crab catchers earn at least 2 times higher money than that of the honey collectors. Explorative discussions with the respondents find that there is growing tendency to shift between existing professions in the Sundarbans area. As these poor villagers have least opportunity to manage alternative employments, it is not unusual that they will always seek best option within available options.

Tal	ble	2:	Summar	ized In	formati	ion II
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Average age of the respondents	38.20 years
Average monthly income of respondents (only local resource users)	\$236.50
Average monthly income of fishers	\$225.71
Average monthly income of crab catchers	\$274.44
Average monthly income of honey collectors	\$170.00
Average dwelling distance from the protected area	0.65 km
Percentage of respondents have Boat License Certificate (BLC)	100
Average number of times respondent enter the protected area (per month)	3.10

Source: Author's calculation

However, to fish, catch crab, or collect honey within the protected, local resource users must need to have a Boat License Certificate (BLC). The BLC is issued for 1 year and costs up to 65 USD to issue it. However, this rate is at least 2 times higher than that of the rate prescribed by the government. Most respondents think issuing BLC is a first form of getting introduced with the corruption cycle of the Forest Department officials. However, all three interviewees from the Forest Department declined to answer on this issue.

Another important finding from the Table 2 is the dwelling distance of the resource users from the protected area. The study finds that the average dwelling distance for local resource users (those who were interviewed) is 0.65 kilometer from the protected area. This reveals how closely they are attached to and dependent on the Sundarbans for their livelihoods.

4.5 Permit License and the State of Exploitation

Each resource user must need to acquire an entry pass from the local Forest Offices to enter the permitted protected areas of the Sundarbans, since entering protected areas without a valid entry pass is a punishable crime. Each pass is given for only one week. The 25 percent of the respondents reveals that they usually take permit license directly from the forest office while 75 percent reveals that they take the help of middleman to get the entry pass (see Table 3). However, the money they pay for the entry pass every time is at least 2.5 times higher than the prescribed rate. This indicates the presence of rampant corruptions in the Sundarbans area. The local resource users, as the most respondents perceive, are subject to continuous exploitations from the government agencies.

Table 3: Summarized Information III

Percentage of respondents takes entry pass directly from the Forest Office	25
Percentage of respondents receive entry pass via middleman	75
The average amount of money spent on taking each entry pass	6.25 USD
Percentage of respondents pay bribe for getting entry pass	100
Percentage of respondents experience some form of harassments from the Forest	100
Department Officials	

Source: Author's calculation

4.6 The Prevalence of Pirates

All resource users interviewed in both Pathor Khali and Munshiganj areas experienced kidnapping at least 3 times in their professional lifecycle while working within the protected areas. However, 80 percent of the respondents reveals that they experienced kidnapping at least 1 time within the last one year. To set free, they paid, an on average, a ransom money of 756.25 USD to the pirate groups (see Table 4). Interviews with NGO workers and Forest department staffs also confirm that the claims made by the local respondents. The problem of pirates remains most active and severe obstacle to extract resource from the protected areas. In addition, the amount of ransom money and the threat to life remains a biggest challenge. However, most victims surprisingly received negligible assistance from the responsible government agencies. The interviews also reveal that this problem is continuing for years without any possible cure. The inactivity of the Forest Department including security officials and locally elected politicians has created growing frustrations and distrusts within the dependent communities.

Table 4: Summarized Information IV

Percentage of respondents experienced kidnapping by the pirates' groups in the	80
last one year	
The average amount of ransom money paid to the pirate groups	\$756.25
Percentage of respondents who did not receive any assistance from security	70
officials	
Percentage of respondents did not receive any assistance from locally elected	65
politicians	
Percentage of respondents received assistance from the Forest Office	0
Percentage of respondents received some assistance from the local NGOs	75
Courses Authorize and substantion	

Source: Author's calculation

A majority of respondents also blame pirates for illegal poaching of wild animals and trading of valuable trees. The Forest Department staffs including many news reports highlight this severe problem of pirates in the Sundarbans protected area.

4.7 The Scenario of Non-cooperation

The poor village communities have no access to credits from formal financial intermediaries like commercial banks. For emergency situation, they usually depend on rent-seekers, co-operative societies, and microfinance institutions. However, the payback rate of loans from these sources are

simply exploitive. The filed survey shows approximately 70 percent of respondents take highinterest loans from the cooperative society to deal with an urgent situation like paying ransom money to the pirates (see Table 5).

Percentage of respondents who have access to credits from the formal financial	0
intermediaries	
Percentage of respondents who take loans from rent-seekers	50
Percentage of respondents who take loans from co-operative societies	70
Percentage of respondents who have Vulnerable Group Feeding card	35
Percentage of respondents who are engaged in alternative employment activities	20

Table 5: Summarized Information V

Source: Author's calculation

The state of non-cooperation between different actors at the Sundarbans area is very complex. For example, locally elected politicians are supposed to provide government prescribed social protection services to the most marginalized communities in the form of food supports. However, the survey reveals that only 35 percent of the respondent receives some form of support from the local political leaders.

4.8 Response from Forest Officers

The study interviewed 3 officials from the local Forest Station of Pathor Khali and Munshiganji village. The interview with forest officers reveals that they are skeptical about providing decision-making powers to the local resource-dependent communities. All three respondents from the Forest Office think that providing access and withdrawal rights to local communities would lead to illegal woodcutting and over-extraction of other mangrove resources. They, in fact, put blames on local communities for the illegal access to the core protected area. While asked about the

efficiency of present management regime, all 3 respondents claimed that allowing local communities to enter the protected area would affect the sustainability of the Sundarbans. Although they denied the allegations of corruption in the process of giving permit licence and entry pass to the local resource users, they agreed with the local respondents about the problem of kidnapping within the core protected area. However, they seemed reluctant to discuss this issue into more details and declined to answer some relevant questions referring the sensitivity of the information.

4.9 Response from the NGO Workers

All 4 NGO workers interviewed in this study, were asked about their works in the Sundarbans area. They said they mostly work on the social development issues like girls' education, health, and female empowerment to improve the lives of coastal communities. While asked about the problems of governance and conflicts, they also provided similar comments with the local respondents. From their view points, the study finds that the nature of exploitation exists in the Sundarbans area is quite complex. According to the respondents from the NGOs, coastal communities have no alternative employment opportunities to secure their everyday livelihoods rather than depending on the Sundarbans. As the coastal lands suffers from the severe problem of salinity, the production of agro crop is not also possible except the shrimp and crab farming which are mostly owned and dominated by the locally powerful businessmen and politicians. The interview also reveals that in between April to August the Sundarbans areas frequently experience cyclone storms and tidal surges. During this period, the local resource-dependent communities pass the hardest time and receive namely little assistance from the government and non-

government agencies. While asked about the problem of pirates within the protected area, all the 4 respondents unanimously agreed with the opinions provided by the local respondents.

Chapter 5: Discussions

5.1 Summary Discussions

In Chapter 1 (Section 1.5) the study hypothesizes that weak governance scheme escalates resource conflicts in the Sundarbans area. The government policy shows that the Sundarbans has been always under the hierarchical state-controlled regime. Though the 1994 Forest Policy advocates the inclusion of local communities in the management process, the present management regime shows little interest in cooperating with the local people. However, the analysis of contemporary literature in Section 1 shows that the Sundarbans in experiencing continuous mangroves loss. Furthermore, the analysis of the collected data in Chapter 4 reveals that local resource users are subject to rampant corruption by the forest department officials. The perception of the resource dependent communities towards exploitation from the state agencies is an indication of the weak governance in the Sundarbans area. The present management regime should not only focus on the conservation of the forest covers, it also needs to formulate policies or institutional arrangements that can ensure the security of lives and livelihoods of millions of the mangrove-resource dependent people. A failure to do so would only escalate conflicts between the stakeholders.

The study also hypothesizes that the absence of mutual cooperation and trust between stakeholders generates long-term resource conflicts. This argument is a major drawback for the co-management arrangements in the Sundarbans area. Since, the local resource users experience discrimination in many forms, they have negative perceptions towards new institutional arrangements. In fact, most of the respondents perceive that establishing a new set of institutional regulations would create new problems for their livelihood activities in the Sundarbans area. Such negativity and distrust

have been developed among the local communities from their long-standing experiences of exploitation by the state agencies and local government members (or politicians). Therefore, non-cooperation and distrust between stakeholders is a major challenge for implement co-management arrangements and can create a complex line of conflicts between the stakeholders.

Finally, the study hypothesizes that sharing the power of decision-making with local stakeholders can strengthen the sustainability of the resource governance and mitigate conflicts in the Sundarbans area. It may seemingly look impossible to incorporate such vast number of local resource users into the management or decision-making process but based on the size of the common pool resource areas in the Sundarbans, a comprehensive and inclusive framework of management should be planned, designed, and implemented to provide local resource-dependent communities some degree of decision-making power. Providing management and exclusion rights to dependent communities might not be a viable option as the process involves high volume of administrative complexities. But giving only use rights (access and withdrawal rights) to local communities can be a useful option to deal with resource-related conflicts between the state and the local stakeholders.

The study also thinks that having a sense of ownership is crucial to the efficient management of common pool resources. Without providing access and withdrawal rights to local users, no incentive is sufficient enough to reduce the problem of overexploitation of resources from the core protected area. The sense of ownership can also resolve the problem of inefficient governance. As local communities are living with the Sundarbans for centuries, they are potent with valuable customary knowledge of resource conservation. The Forest Department should extract benefits from this valuable customary knowledge by giving local people to exercise the use rights.

However, restricting the minimum level of use rights by using excessive would only escalate conflicts between the state and the local stakeholders.

Concluding Remarks

Mangrove forest resources are vital to the survival of many people around the world. The effective management of a mangrove forest has paramount importance to its multiple stakeholders, especially local stakeholders. It is an established fact that conflicts over forest resources may arise from different factors like the nature of management regimes, government sanctions, economic conditions, differing cultural values, social norms, and geographical locations connected to a specific forest area. It is also widely accepted that active conflicts between stakeholders over a valuable forest area can pose major challenges to its sustainable governance. Since the Sundarbans is recognized as one of the most endangered mangrove forest covers in the world, the presence of active resource conflicts between the state agencies and local stakeholders should receive sufficient attention from the policy makers to ensure its sustainability.

Depending on the theoretical analysis in Chapter 2, result analysis in Chapter 4, and discussions in Chapter 5, this study perceives that the Sundarbans severely suffers from the weak governance. It is not about the policies that make the governance system weak, it is about the willingness to implement those policy recommendations made by the 1994 Forest Policy of the Government of Bangladesh. In this respect, the findings of this study can help to develop an in-depth understanding about what is going on in the Sundarbans area. The major findings of this study show that the state agencies (e.g. local Forest offices) are not willing to cooperate with the local stakeholders to develop a participatory management framework for the Sundarbans. On the other hand, local resource users face different forms of exploitation by the government agencies, local politicians, and pirates, which, the study thinks, is a major cause of frustrations and distrusts that

exist among local resource users in the Sundarbans area. Here, the line of conflicts between stakeholders is very complex.

Therefore, the proper implementation of co-management arrangements in the Sundarbans area seems an implausible option. Since, co-management arrangements essentially advocate the partial transfer of decision-making power to local stakeholders, the absence of mutual cooperation and trusts between the state agencies and local resource users make it difficult for co-management options to work effectively. Moreover, to many extents, the success of co-management arrangements depends on the realization of decision-making power that usually comes with associated responsibilities like conservation and development. However, in the presence of the exploiting nature of the current management regime, local resource-dependent people in the Sundarbans area has very limited opportunities to play their valuable roles to protect and conserve the Sundarbans. Finally, where access to forest resources is critically connected to livelihood security of millions of poor and vulnerable people, the absence of cooperation between stakeholders will essentially lead to active resource conflicts and weak governance. In fact, comanagement arrangements have a very few scopes to work where limited attention has been given to the nestedness of the resource-dependent communities. Therefore, dealing with active resource conflicts and weak governance definitely requires meaningful cooperation between the rightful stakeholders and vice versa.

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