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Capacity Development of Tribal Forest Dwellers Through Participatory Forest Management in Bangladesh

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EXECUTIVE SUMMARY

This thesis examines the Participatory Forest Management (PFM) approach in the micro-scale context of the Madhupur Sal forest in Bangladesh. In Bangladesh, PFM has been the main policy instrument for managing natural forest areas in the last two decades. The present national forest policy in Bangladesh emphasizes the importance of the participation of different actors, especially forest dwellers, in forest management programs. The overall aim of PFM is to capacitate and to improve the livelihood conditions of forest dwellers through different forestry extension programs. Since its outset, many PFM programs have been conducted within the context of Madhupur Sal forest. Scientific studies have examined PFM contexts using a wide range of indicators, focusing on outcomes such as change in forest coverage, change in income level, poverty reduction and livelihood improvement to evaluate the impact of a PFM program. Few studies have also focused on institutional analysis and looked at formal and informal institutions and their role in natural resource management.

According to scientific evidence, the impacts of PFM programs on livelihood and forest improvement remain contested. Despite the execution of different PFM programs over the last two decades in Madhupur Sal forest, the forest area reduced dramatically, the livelihood of forest dwellers became more vulnerable and forest dwellers engaged in conflicts with officials of the forest department (FD) concerning their rights. In the past, most studies considered that problem from the narrow perspective of a lack of 'knowledge or empowerment' of forest dwellers without systemic consideration of forest development agencies, and the roles of other actors in PFM. To date, there is still limited research which considers the capacity issue at the individual, organizational, and 'enabling environment' level. An improved understanding of the role of people's capacity level is, however, vital to guide future PFM programs. Therefore, this study considers the PFM context from a holistic perspective that focuses not on forest dwellers but other actors within this system. Thus, the objectives of this study are: (1) to determine the changes in capacity level of participants in PFM programs and to explore the factors that influence changes in capacity level of forest dwellers, (2) to assess the role and performance of the pluralistic forest advisory systems, and (3) to explore the potential of a rights-based approach to create an enabling environment for collaborative action and cooperative conflict management.

This thesis is composed of five chapters. The introductory chapter provides background information, the problem statement, the main research objectives, information about the study area and population, the theoretical embedding, and presents the outline of the thesis. The thesis combines qualitative and quantitative methods for collecting and analyzing data to deal with the three interrelated research objectives. The work on the first objective is based on a mixed methods approach (face-to-face survey, focus group discussions, key informant interviews, and participatory observation). The second

objective is pursued using qualitative methods (stakeholder analysis, semi-structured interviews, participatory workshops) while the third objective is followed employing a case study approach.

In Chapter 2, a modified analytical framework is used to explore the assertion that capacity is the outcome of a process-oriented approach like PFM. This revised framework combines different components of social learning platforms with essential components derived from a capacity development framework developed by the Tropical Agriculture Platform (TAP). Key capacities include the capacity to navigate complexity, capacity to collaborate, capacity to learn and reflect, and capacity to engage in political and strategical processes. Changes in the capacity level of forest dwellers were investigated with regard to the PFM initiative 'Re-vegetation of Madhupur Forests" (RMF). The findings show that this PFM approach has brought desired changes in different dimensions of capacity development, i.e., capacity to collaborate, capacity to learn and reflect, and capacity to engage in strategic and political processes. The initiative did not bring changes to the capacity to navigate complexity. Furthermore, the long-run engagement and a range of participatory activities with different development organizations increased the understanding of participants and kept them up-to-date about their rights in forest management. The results also reveal that the FD worked through existing social capital within the community and took initiatives like several group discussions and meetings with the tribal community and their leaders before the RMF program. This initiative resulted in a common consensus of the tribal forest dwellers and reduced conflicts between FD and tribal forest dwellers. Findings regarding factors that influence changes in the capacity level of forest dwellers reveal that extension services, credit support, trust within society, information and communication influence the level of capacities to adapt and respond to changes among the tribal forest dwellers.

Chapter 3 presents the role and performance of a pluralistic forest advisory system, considering the influence and importance of advisory service providers for managing natural resources, their organizational characteristics, and their service quality. A stakeholder analysis was conducted to identify advisory organizations along with the dynamics of power relations with forest dwellers. A 'best-fit' framework was used to explore the characteristics and service quality of the existing organizations. The findings reveal that a range of organizations including public, private, and social organizations was working with tribal forest dwellers and followed the common objective of improving forest management and the livelihoods of the local forest dwellers. Also, a number of organizations involved in the provision of advisory services were still struggling with lack of capacities such as a limited number of advisors, lack of training facilities for the advisors and a lack of need-based technological contents. The findings further reveal that the FD had limited linkages and partnerships with other actors at the local level, despite being a central coordinating and executing agency for furthering forest policies and programs. At the same time, analysis of the organizational pluralism highlights that some NGOs worked for the livelihood improvement of forest dwellers by providing a range of technologies and information. Here, social organizations collaborated closely with forest dwellers and provided necessary information about

the rights of forest dwellers. The overall assessment suggests that public sector organizations should take more proactive roles in integrating the important services of NGOs and other social organizations with forest dwellers within the pluralistic system.

The study on exploring the potential of the rights-based approach to creating an enabling environment (chapter 4) reveal that neglecting rights of the forest dwellers before the initiation of RMF program led to ineffective policies and programs and subsequently to long-running conflicts. Different development programs implemented by the FD without any prior concern of tribal forest dwellers' rights and interests, such as social forestry, eco-park and rubber garden establishment, became subject to conflicts. Results further revealed that several tribal forest dwellers died due to the clashes with the police when they steered the action of social movements for the sake of their rights. Tribal forest dwellers experienced top-down, non-cooperative, and even aggressive interventions from the FD which brought uncertainties into their daily lives. In contrast, participants of the RMF program reported that the FD initiated several meetings with tribal people and their leaders to know about their needs and expectations and engaged them in RMF program by offering several promises. During the execution of the RMF program, the FD contributed to welfare provisions like financial support, jobs, training, social forestry plots, healthcare cards, and similar offers. The results also reveal that the FD acknowledged different non-material issues like mutual respects, mobility in the forest, freedom to make decisions as a community forest worker, individual and social security, harassment-free life, access to information and regular communication between FD's and forest dwellers.

Based on the above findings, this study provides some recommendations for the future design and implementation of PFM in Bangladesh which are: (i) the government should integrate the rights-based approach in the policy development since this can transform long-run disputes into collaborative action; (ii) more attention needs to be paid by the FD for the establishment of coordinated advisory services with other advisory service providers; (iii) the importance and influence of social organizations to mobilize the tribal forest dwellers towards cooperation and action should not be overlooked by the FD; (iv) any participatory forest management intervention in the future should be designed in such a way that it implies changes in the capacity level of the forest-dependent people, (v) the FD should integrate other public sector organizations in the provision of advisory services for forest management, because they are providing a range of technologies and information and working closely with forest dwellers, and (vi) the Government should move away from 'one-size-fits-all' thinking to a 'best fit' thinking.

ZUSAMMENFASSUNG

Diese Arbeit untersucht den Participatory Forest Management (PFM) Ansatz im Kontext des Madhupur Sal Waldgebiets in Bangladesch. Seit zwei Jahrzehnten ist PFM in Bangladesch das wichtigste politische Instrument zur Bewirtschaftung der natürlichen Waldflächen. Die gegenwärtige nationale Forstpolitik in Bangladesch betont die Bedeutung der Beteiligung verschiedener Akteure, insbesondere der Waldbewohner, am Forstwirtschaftsprogramm. Das übergeordnete Ziel des PFM ist es, die Kompetenzen zu stärken und den Lebensunterhalt der Waldbewohner durch verschiedene forstliche Beratungsprogramme zu sichern und zu verbessern. Seit 1980 wurden mehrere PFM-Programme im Madhupur Sal Waldgebiet durchgeführt. Wissenschaftliche Studien haben den PFM Ansatz dabei anhand einer Reihe von Indikatoren und Ergebnissen untersucht, z.B. die Verbesserung der Lebensgrundlage, Armutsbekämpfung, Veränderung der Waldbedeckung und des Einkommens¬niveaus, um die Veränderungen und Wirkungen der PFM-Programme zu bewerten. Nur wenige Studien konzentrierten sich dabei auf die institutionelle Analyse. Diese befassten sich sowohl mit formalen als auch mit informellen Institutionen und deren Rolle im Management natürlicher Ressourcen.

Nach wissenschaftlichen Erkenntnissen sind die Wirkungen der PFM-Programme auf die Verbesserung der Lebensgrundlage und die Verbesserung des Waldes umstritten. Trotz der verschiedenen PFM-Programme in den letzten zwei Jahrzehnten im Madhupur Sal Wald hat sich die Waldfläche drastisch reduziert, die Lebensgrundlage der Waldbewohner ist noch mehr gefährdet, und die Waldbewohner befinden sich bezüglich ihrer Rechte im Konflikt mit der Forstbehörde. In der Vergangenheit betrachteten die meisten Studien dieses Problem aus einer engen Perspektive als fehlendes "Wissen oder empowerment" der Waldbewohner ohne Berücksichtigung der Rolle von Forstentwicklungs¬organi¬sationen und anderen Akteuren als System. Zudem gibt es bisher nur begrenzte Forschungsarbeiten, die Fragen der Kapazität auf individueller und organisatorischer Ebene sowie das förderliche Umfeld berücksichtigen. Ein besseres Verständnis der Fähigkeiten der Waldbewohner ist von entscheidender Bedeutung für das Gelingen zukünftiger PFM-Programme. Daher betrachtet diese Studie den PFM-Ansatz aus einer ganzheitlichen Perspektive, die nicht nur die Waldbewohner, sondern auch andere Akteure in diesem System berücksichtigt. Damit sind die Ziele dieser Studie: (1) die Veränderungen des Kapazitätsniveaus bzw. die Befähigung der Teilnehmer, sich an PFM-Programmen zu beteiligen und die Faktoren zu erforschen, die die Veränderungen dieser Fähigkeiten der Waldbewohner beeinflussen; (2) die Rolle und Leistung des pluralistischen Beratungssystems zur Förderung einer nachhaltigen Waldnutzung zu bewerten; und (3) das Potenzial eines rechtebasierten Ansatzes zu erforschen, um ein günstiges Umfeld für kooperatives Handeln und kooperatives Konfliktmanagement zu schaffen.

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Diese Arbeit besteht aus fünf Kapiteln. Das einleitende Kapitel enthält Hintergrundinformationen, die Problemstellung, die Präsentation der wichtigsten Forschungsziele, Informationen über das Untersuchungsgebiet und die Bevölkerung, die theoretische Einbettung und den Überblick über diese Arbeit. Die Arbeit kombiniert qualitative und quantitative Methoden für die Erhebung und Analyse der Daten zur Erreichung der drei miteinander verbundenen Forschungsziele. Für die Bearbeitung des ersten Forschungsziels wird ein mixed-method Ansatz verwendet (Face-to-Face-Umfrage, Fokusgruppen-Diskussion, Interviews mit Schlüsselinformanten und partizipative Beobachtung), für das zweite qualitative Methoden (Stakeholder-Analyse, halbstrukturierte Interviews, partizipativer Workshop) und für das dritte Ziel ein Fallstudienansatz.

Im zweite Kapitel wird der analytischen Rahmen vorgestellt. Dieser wird verwendet zur Untersuchung der Annahme, dass die Ausbildung von Handlungsfähigkeiten das Ergebnis eines prozessorientierten Ansatzes wie PFM ist. Dieses Rahmenkonzept kombiniert verschiedene Komponenten der sozialen Lernplattform mit Komponenten des von der Tropical Agriculture Platform (TAP) entwickelten Capacity Development Framework. Zu den hier genannten Schlüsselqualifikationen gehören die Fähigkeit, Komplexität zu bewältigen, die Fähigkeit zur Zusammenarbeit, die Fähigkeit zu lernen und zu reflektieren sowie die Fähigkeit, sich an politischen und strategischen Prozessen zu beteiligen. Die empirischen Untersuchungen bezüglich der Veränderungen der Schlüsselqualifikationen bei dem an der PFM-Initiative "Re-vegetation of Madhupur Forests (RMF)" teilnehmenden Waldbewohnern zeigten, dass der PFM-Ansatz gewünschte Veränderungen in verschiedenen Dimensionen von Kapazitäten mit sich bringt. Konkret wurde die Kooperationsfähigkeit, die Lern- und Reflexionsfähigkeit und die Fähigkeit sich an strategischen und politischen Prozessen zu beteiligen verändert, allerdings nicht die Fähigkeit Komplexität zu bewältigen. Das langfristige Engagement und eine Reihe von partizipativen Aktivitäten erhöhten das Verständnis der Teilnehmer für die nachhaltige Waldnutzung und hielten sie über ihre Rechte im Forstmanagementsystem auf dem Laufenden. Die Ergebnisse zeigen auch, dass die Forstbehörde das bestehende Sozialkapital innerhalb der Gemeinschaft nutzte und bereits Initiativen vor dem RMF-Programm ergriff, die die Entwicklung eines gemeinsamen Konsens mit den Waldbewohnern förderten und Konflikte zwischen der Forstbehörde und den Waldbewohnern reduzierten. Faktoren, die die Veränderungen des Kapazitätsniveaus der Waldbewohner positiv beeinflussten, waren Beratungsleistungen, Kreditunterstützung, Vertrauen in die Gesellschaft, und Information und Kommunikation zur Anpassung an und Umgang mit Veränderungen.

Kapitel 3 befasst sich mit der Rolle und den Leistungen des pluralistischen Beratungssystems unter Berücksichtigung des Einflusses und der Bedeutung von Beratungsdienstleistern für das Management natürlicher Ressourcen, ihrer organisatorischen Merkmale und ihrer Servicequalität. Eine Stakeholder-Analyse wurde durchgeführt, um die Beratungsorganisationen und ihrem Einfluss zu identifizieren. Der " best-fit" Framework wurde verwendet, um die Merkmale und die Servicequalität der bestehenden

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Organisationen zu untersuchen. Die Ergebnisse zeigen, dass eine Reihe von Organisationen, darunter öffentliche, private und soziale Organisationen, mit Waldbewohnern zusammen arbeiteten, um die Waldbewirtschaftung und die Lebensgrundlage der lokalen Waldbewohner zu verbessern. Eine Reihe von Organisationen, die an der Erbringung von Beratungsdienstleistungen beteiligt waren, hatten allerdings immer noch mit mangelnden Kapazitäten zu kämpfen, darunter eine begrenzte Anzahl von Beratern, fehlenden Ausbildungsmöglichkeiten für diese und fehlende bedarfsorientierte, technologische Inhalte. Die Ergebnisse zeigen weiter, dass die Forstbehörde nur begrenzte Verbindungen und Partnerschaften mit anderen Akteuren auf lokaler Ebene hatte, obwohl sie ein zentraler Koordinator und Träger für die Förderung der Forstpolitik und -programme ist. Auf der anderen Seite hat die Analyse des organisatorischen Beratungspluralismus auch gezeigt, dass einige NGOs durch die Bereitstellung von Technologien und Informationen zur Verbesserung der Lebensgrundlage der Waldbewohner beigetragen haben, wobei die sozialen Organisationen in enger Zusammenarbeit mit den Waldbewohnern notwendige Informationen über ihre Rechte zur Verfügung gestellt haben. Die Gesamtbewertung legt nahe, dass Organisationen des öffentlichen Sektors eine proaktive Rolle bei der Integration von NGOs und anderen sozialen Organisationen mit Waldbewohnern innerhalb des pluralistischen Systems spielen.

Die im vierten Kapitel vorgestellte Studie über die Erforschung des rechtebasierten Ansatzes zur Schaffung eines unterstützenden Umfelds (‚enabling environment') zeigt, dass die Vernachlässigung der Rechte der Waldbewohner vor der Aufnahme des RMF-Programms zu ineffektiven Richtlinien und Programmen und nachfolgenden und langanhaltenden Konflikten führte. Verschiedene Entwicklungsprogramme, die von der Forstbehörde ohne vorherige Rücksichtnahme der Waldbewohner durchgeführt wurden, führten dazu, dass Entwicklungsprogramme zur Sozialen Forstwirtschaft, zur Einrichtung eines ‚Ökoparks' und eine Gummiplantagenanlage Gegenstand von Konflikten wurden. Die Situation verschärfend wirkte ferner, dass mehrere Waldbewohner durch Zusammenstöße mit der Polizei starben, als sie sich in der soziale Bewegung zur Verteidigung ihrer Rechte engagierten. So erlebten die Waldbewohner dass top-down geführte, unkooperative und sogar aggressive Eingriffe der Forstverwaltung auf vielfältige Weise Unsicherheit in ihren Alltag brachten. Im Gegensatz dazu berichteten die Teilnehmer des RMF-Programms, dass die Forstbehörde mehrere Treffen mit den lokalen Waldbewohnern und ihren Anführern durchführte, um die Bedürfnisse und Erwartungen kennen zu lernen, und mehrere Versprechungen im Hinblick auf die Entwicklungsförderung zu geben. Während der Durchführung des RMF-Programms leistete die Forstbehörde Sozialhilfe wie finanzielle Unterstützung, Arbeit, Ausbildung, die Einführung sozialer Forstwirtschaft und einer Gesundheitskarte. Die empirischen Ergebnisse zeigen weiter, dass die Forstbehörde auch verschiedene nicht-materielle Themen wie gegenseitige Achtung, Mobilität im Wald, Entscheidungsfreiheit als kommunale Waldarbeiter, individuelle und soziale Sicherheit, belästigungsfreies Leben, Zugang zu Informationen und regelmäßige Kommunikation der Waldbewohner gefördert hat.

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Basierend auf den oben genannten Ergebnissen aus den drei Teiluntersuchungen liefert die vorliegende Arbeit eine Reihe politischer Empfehlungen für die zukünftige Gestaltung von PFM-Ansätzen in Bangladesch. Zunächst sollte die Regierung den rechtebasierten Ansatz in den politischen Diskurs integrieren, da dieser Ansatz langfristige Streitigkeiten in kooperatives Handeln umwandeln kann; zweitens wird empfohlen, dass die Forstbehörde der Einrichtung koordinierter Beratungsdienstleistungen mit anderen Beratungsdienstleistern unter Berücksichtigung der Bedeutung, der Merkmale und der Servicequalität der bestehenden Organisationen mehr Aufmerksamkeit schenken soll; drittens darf die Bedeutung und der Einfluss sozialer Organisationen für die Mobilisierung der Waldbewohner zur Zusammenarbeit durch die Forstbehörde nicht vernachlässigt werden; viertens sollte jede partizipative Waldbewirtschaftung in Zukunft so konzipiert werden, dass sie Veränderungen der Handlungsfähigkeiten der vom Wald abhängigen Menschen bewirken kann, und fünftens sollte die Forstbehörde öffentliche Organisationen in die Erbringung von Beratungsdiensten einbeziehen, und schließlich wird für die künftige Politikgestaltung empfohlen, dass die Regierung von einem " One-size-fits-all " zu einem " Best Fit " Konzept übergehen möge.

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LIST OF ABBREVIATIONS

ACF	Assistant Conservator of Forest
ADP	Asian Development Bank
BFD	Bangladesh Forest Department
CD	Capacity Development
CFW	Community Forest Worker
DFID	Department for International Development
DFO	Divisional Forest Officer
FAO	Food and Agriculture Organization
NGO	Non-government Organization
OECD	Organization for Economic Co-operation and Development
PFM	Participatory Forest Management
PNRM	Participatory Natural Resource Management
RBA	Rights-based Approach
RMF	Re-vegetation of Madhupur Forests
TAP	Tropical Agriculture Platform
UN	United Nations
UNDP	United Nationals Development Program

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1 Introduction

"You are doing research; it's alright. We need more scientific information to manage our forest, to improve the livelihood of local people, and to conserve the ecology. But I am afraid about the future of the Madhupur Sal forest."

- Divisional Forest Officer (DFO, Tangail, Dhaka, Bangladesh, 2016).

The quotation above indicates inadequacy in research as well as skeptical stance about the existence of remaining forest due to many continuous incidences in Madhupur Sal forest, Tangail, Bangladesh. Moreover, the fear about the future of this forest might focus on issues like lack of institutional capacity, lack of changes in individual capacity at the community level and the inability to minimize growing conflicts which are essential means for sustainable forest management. Bangladesh, a densely populated country, is struggling with the deforestation problem and cannot achieve their conservation objective. Forest management is a complex undertaking like other resource management issues, for instance, watershed, wildlife, and protected areas management. Governance of the forest area is too complicated for a single actor and required joint venture of different actors (Berkes, 2009). In this regard, Participatory forest management (PFM) has been receiving growing attention over the last two decades (Ayana et al., 2015). PFM is defined as a process and mechanism that involve forest dwellers (who have a dependency on forest resources for their livelihood) as key stakeholders and involve them in a range of participatory activities, make them capable of taking the responsibilities of forest management. The premises behind this growing attention is that this PFM initiative will involve a range of organizations (multi-stakeholder platform), enhance social learning and interaction in this platform which will bring changes in different dimension of forest-dependent people and thus bring ecological sustainability (Agrawal, 2007; Maryudi et al., 2012). PFM is also seen as a mechanism or a process of conflict management (see, Castro & Nielsen, 2001). Repercussion of PFM has been viewed differently in literature, for instance, decline the deforestation or increase in forest regeneration (Tsegaye et al., 2009; Takahashi & Todo, 2012), facilitates institutional set-up (Bradstock et al., 2007), and improve the livelihood of forest-dependent people (Tsegaye et al., 2009; Dambala & Koch, 2012). Critics, by contrast, argue that PFM initiatives have brought no fundamental changes (Ayana et al., 2015). It is instead of bringing different issues like inequitable benefit sharing, elite capture, and conflicts (Charnley & Poe, 2007; Tacconi, 2007; Schreckenberg & Luttrell, 2009).

1.1. Problem background

Bangladesh is a highly climate vulnerable country. As a mitigation strategy, Bangladesh Government has initiated many policy actions and gave attention in forest management that has the role in climate change mitigation (Miah et al., 2014; Rai et al., 2014). But at the same time, Bangladesh experiences

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rapid deforestation due to socioeconomic and sociopolitical factors (Islam et al., 2014; Muhammed et al., 2008). According to the Global Forest Resources Assessment Report of Food and Agriculture Organization (FAO) (2015), Bangladesh loses 0.2% of its forest annually. Millions of people in Bangladesh are directly dependent on forest resources for their survival, and in most cases, indigenous people rely on the forest for their home, their daily subsistence, and livelihoods. In the face of continuing deforestation, both climatic condition and livelihood condition become vulnerable and become a challenging task for the government. The 2030 agenda for sustainable development (UN, 2015) emphasized the need for bold and transformative steps to move the world towards a more sustainable direction. After the declaration of the sustainable development agenda, world forestry congress also set up their vision (World Forestry Congress, 2015) to achieve sustainable development through the forest. Forest is not only the place for trees, but it also has a fundamental role in different issues like food security, poverty reduction, and climate change. In this regard, an integrative approach and better coordination among different actors are essential to combat with such issues and to ensure sustainability (FAO, 2015).

Bangladesh also embraced sustainable development goal in their proposed draft of national forest policy 2016 and wanted to march ahead to reach its forest coverage at least 20% of the total area of the country by 2035 (BFD, 2018a). Interestingly, in the previous national forest policy, which was taken in 1994 also stated the same objectives of achieving 20% forest coverage within 2020. The government of Bangladesh has accorded high priority on the PFM approach in both policy discourse to achieve their conservation objective. PFM has been seen as an empowering strategy, intended to improve the capacity of forest-dependent people to adopt the change process and share the management responsibilities with other actors, especially with forest people. In Bangladesh, forest management is associated with many complexities like the excessive dependency of forest dwellers on forest resources, social and political conflicts which cannot be addressed by a single actor. Therefore, the current policy statement emphasized coordinate efforts with all other possible actors who can play a significant role (BFD, 2018a). Complexity in forest management derives from the fact that forest resources are a non-excludable product and it is difficult to prevent the resource users from accessing it or bringing desirable change in their activities.

On the other hand, the success or failure of sustainable natural resource management is determined by the action of these resource-dependent forest dwellers (Gibson, Mckean, & Ostrom, 2000). Another complexity remains for the state to uphold the livelihood or to provide an alternative option so that forest-dependent people can reduce their dependency on the forest (Islam et al., 2013). Bangladesh adopted this PFM approach to include local people in forest management, but this approach becomes a subject of conflicts. With this participatory initiatives, state and state-organizations made promises to provide greater rights, access, benefits, and decision-making power over their ancestral land (Gain,

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2002). However, many of these promises have failed to be fulfilled by state and state-organizations and continue to remain plagued with deforestation issue.

In this regard, extension and advisory service is an important policy instrument used by state and non-governmental organizations to capacitate forest-dependent people and conflict management (Wild-Eck et al., 2006; Darr et al., 2014). Extension and advisory service is defined as a system with different types of organizations that support and facilitate people engaged in solving problem, keep maintaining relationship with each other, and help to obtain information, skill, technologies and improve their livelihood and well-being (Birner et al., 2009; Faure, Desjeux, & Gasselin, 2012). The PFM approach encourages organizational pluralism, and forest people are expected better access to technologies and information from this pluralism, which can support their vulnerable livelihoods. Organizations with their advisory service play a vital role in linking forest dwellers to necessary information and technologies that are essential to improve their quality of life. Moreover, forestry extension and outreach activities tend to focus on social learning and its effect over time (Ma, Kittredge, & Catanzaro, 2012). Current literature also emphasizes the potential of learning-based PFM initiatives which can enable forest dwellers to address different challenges and uncertainties in the context of forest management (Armitage, Marschke, & Plummer, 2008; Brugnach & Ingram, 2012; Suškevičs et al., 2017). Therefore, organizations with extension and outreach activities are relevant in forest management context to achieve social, economic, and environmental objectives.

But after decades of participatory extension and outreach program (Table 2), lack of participation and cooperation, conflicts, high dependency on forest resources by surrounding forest dwellers, high deforestation remains the common issue both in literature and practice (Nath & Inoue, 2010; Rasul, Thapa & Karki, 2011; Islam & Sato, 2013; Islam, et al., 2014). This information suggests flaws in the ongoing PFM approach.

1.2 Problem Statement

The state policy intervention in forest management is aiming at capacitating the forest people as well as local organizations along with the objective of livelihood improvement (BFD, 2018a). But among the different Asian country, Bangladesh forest management reflects a continuum of weak to very weak participatory approaches. The participatory approach implies governance components (involvement of actors, development of rules, regulations and cultural norms) which enable collectivities to act and take responsibilities to solve a common problem by the connectivity of individuals, organizations, and societal groups. However, observed forms of participation of forest people lie closer to pseudo participation where the role of forest people is minimal, incapable of exercising their rights and raising their voices to influence the organization and policy that shapes their lives (Rasul, Thapa, & Karki, 2011). This situation indicates an action gap between policy statement and the actual outcome.

In PFM, responsibilities of forest management are shared with the forest peoples and their organizations. Therefore, capacity and capacity development (CD) issue is seen as critical and essential components in PFM so that forest people can bring changes in their attitude and thinking to take the responsibilities. Again, organizations and institutional arrangement must facilitate the process of CD of forest people and enabling environment that allows for the unleashing of this change over time in a sustainable manner (Tropical Agriculture Platform, 2016). In this regard, many efforts have been made in the past from the side of the state to manage their vulnerable forest with the aim to capacitate forest people and to ensure their active participation, but the outcomes have been minimal and not adequate to prevent the trend of deforestation. The primary objective of PFM program in Bangladesh is to enhance the capacity of the forest resource users and support them with alternative livelihood options through forestry extension services (Salam & Noguchi, 2005b; Rana et al., 2007).

A number of studies have evaluated whether PFM initiatives lived up to its expectation or not, and the focus area remained to assess the effect of PFM on livelihood improvement and poverty alleviation of resource-dependent forest dwellers. Some other studies also look for the reasons of non-cooperation and lack of participation. For instance, Safa (2004) examined the effectiveness of practicing participatory forestry regarding asset creation and poverty reduction in the Sal forest area in Bangladesh. They reported that to some extent PFM program increased the employment opportunities, financial and non-land assets. In another study, Salam and Noguchi (2005a) evaluated the criteria of sustainable development of participatory forestry in Sal forest, Bangladesh and reported that forest dwellers were interested in working with forest department (FD) as it helped to increase their income level through the forest management program. But studies also indicated that forest dwellers refuse participatory initiatives as they observe inequity, violation of human rights and ignorance about the ethnic people's basic need who are the aboriginal people of Sal forest area (Islam and Sato, 2012b). Salam, Noguchi, and Koike, (2005) in another study, identified the factors that might influence the sustained participation of forest dwellers in the PFM program. They underlined the importance of cash and assurance of getting benefit from the forest management program as the main factors of participation by forest dwellers in the forest management program. Importantly, studies also reported that state organization, i.e., FD even refuse the role of existing informal institutions in this forest area (Rahman et al., 2014) which also remains a major cause of non-participation by the tribal forest dwellers. Nath and Inoue (2010) studied the impacts of participatory forestry on the livelihood of ethnic people. They reported that consideration of livelihood issues is an essential factor in forest management. Islam et al. (2013) in their study analyzed the nature and extent of peoples' participation in Madhupur Sal forest area in a project and evaluated the project's impacts on the livelihood of the participants. They argued that change in income level and livelihood improvement of forest-dependent people are not enough and not necessarily ensure sustainable forest management. This finding is quite contradictory with the conclusions from Nath and Inoue (2010), where they stressed the necessity of community empowerment. Theoretically, it is important to bring changes in the level of knowledge, skill, attitude, and behavior of forest-dependent

people to engage them in a long-run forest management program. On the other hand, organizations should effectively support them through their advisory services and initiates different strategies which can ensure an enabling environment for forest dwellers.

PFM approach in the form of development program/project has been practiced in the Madhupur Sal forest area for a long time. In early forest management strategies, people and their voices along with other actors (NGOs, social organizations/institutions) were not given due consideration, and therefore it could be argued that this negligence limits the ultimate goal of sustainably managing forests in Bangladesh. But even after the adoption of participatory approach in 1989 in Madhupur Sal forest area, PFM initiatives were not able to produce promising results, since forest area reduced drastically from 35% to 10% (Islam & Sato, 2013a), livelihood conditions of the indigenous forest dwellers became more vulnerable (Islam & Sato, 2013b) and the conflict between FD and the tribal community has overgrown (Gain, 2002). Although there are many studies as mentioned above, that evaluated whether PFM initiatives lived up to its expectation or not; most studies considered a narrow perspective without systemic consideration of other dimension/actors, i.e., the organizational capacity of the system. Therefore, it is necessary to understand the PFM initiatives from a holistic/systemic perspective that focus not only forest people but also other actors such as state organization (s), NGOs and social organization (s) who are providing their advisory services and has responsibilities to ensure an enabling environment for forest people. Holistic or systemic perspective is understood as a systematic recognition of the importance of thinking about individual, organizations and enabling environment as part of a broader system and recognize their interdependency for long-term improvements in capacity (Lavergne & Saxby, 2001).

The CD of the forest-dependent people to achieve integrated planning and management of the forest area remains a critical issue. But this capacity issue is disregarded in the current literature. There is a real opportunity to enhance the effectiveness of participatory approaches with a better understanding of capacity and CD issue in the actual context of forest management in Bangladesh. The purpose of this study is to provide empirically supported information on capacity and CD gaps that can be useful for designing future PFM program.

1.3 Objectives and research questions

1.3.1 General Objective

This study aims at understanding the PFM context from a holistic perspective that focuses not only forest resource users but also other actors such as, community-based organizations, government organizations, and non-government organizations, and issues which can minimize the conflicts and enabling environment for joint action. Our findings will be useful for designing future PFM program and help to incorporate different factors that could enhance the capacity of existing actors in such platform.

1.3.2 Specific Objectives and Research Questions

The specific objectives of this thesis are-

1. To assess the outcome of PFM regarding the CD of resource users
    - Are there any changes in the capacity level of the forest-dependent people who participated in the PFM program?
    - What are the factors that influence the changes in the capacity level of the forest dwellers?
2. To investigate the existing advisory service providers for managing natural resources
    - Who are the existing advisory service providers supporting the natural resource management of forest dwellers?
    - What is their importance and influence in the forest management and community's livelihood improvement?
    - To what extent are identified organizations satisfying forest dwellers' needs and demands (quality of services)?
3. To critically examine the potential use of the rights-based approach to create an enabling environment for collaborative action and cooperative conflict management
    - What are the causes of forest resource conflicts over time, as perceived by the tribal forest dwellers?
    - How do conflicts have an impact on the economic, social, and environmental situation of tribal forest dwellers in Madhupur Sal Forest?
    - How are different rights addressed to diminish long-running conflicts and ensure an enabling environment for collaboration?

1.4 Description of the study area

1.4.1 Current state of the forest in Bangladesh & Why Madhupur Sal forest

In 2018, the forest area in Bangladesh (3.10 M ha) covered 21% of the total land (14.75 M ha) (according to the forest department, BFD, 2018b). Ten years ago the forest coverage was 17% of the entire land area, but according to FAO, forest area in Bangladesh covers around only 10-11% (1.44 M ha) of its total land area (see, http://www.fao.org/countryprofiles/index/en/?iso3=BGD). At present, the total area of forestland is 3.10 million ha, and the FD has control over 2.31 million ha of land. This controlled forestland area is classified into four major categories as hill forest, natural mangrove forest, planted mangrove forest, and Sal forest. The FD is the sole authority regarding all management aspects of the forest. On the other hand, remaining 0.79 million ha of forest land in Bangladesh designated as unclassed state forest and village forest which is not controlled or managed by FD.

Among different forest area, we have chosen the plain land Sal forest area for our study which is distributed over the central part and some areas of the northern part of the country. More specifically, we have conducted our study in Madhupur Sal forest, Tangail, Bangladesh. This forest area is under the jurisdiction of Tangail forest division. The total land surface area of Madhupur Sal forest was 25,495.96 ha in 1982 (Islam & Sato, 2013), but at present, this forest coverage is lower than 8000 ha (Islam et al., 2013). This Sal forest area was selected purposively for our study area. The reason behind this selection was continuous deforestation and growing conflicts among tribal forest dwellers and forest managers (FD) in this forest area. Deforestation is likewise a typical issue in different forest areas; however, according to research finding the rate of deforestation is higher in plain land Sal Forest (see, Islam et al., 2013). Though according to the statistics of the FD, there is no change in forest coverage in the last ten years but due to the management problem and high deforestation, this forest already comes close to extinction over the previous 30 years (Safa, 2004; Rahman et al., 2010). Moreover, according to the global forest watch (see the picture in Figure 1), this Sal forest area experienced massive deforestation from 2001 to 2017 (for details see, https://www.globalforestwatch.org/map). However, still, this plain land Sal forests are considered to be of more environmental and economic importance (Safa, 2004; Alam et al., 2008).

Table 1.1 Forest lands of Bangladesh.

Category	Area (million ha) in 2008	Percentage of the total land	Area (million ha) in 2018	Percentage of total land
Forest managed by FD				
Hill forests	0.67	4.54	1.38	9.38
Natural Mangrove forests	0.60	4.07	0.61	4.13
Planted Mangrove Forest	0.13	0.88	0.20	1.36
Plain land Sal Forest	0.12	0.81	0.12	0.81
Total	1.52	10.30	2.31	15.68
Forest not managed by FD				
Unclassed State Forest (USF)	0.73	4.95	0.02	0.14
Village forest	0.27	1.83	0.77	5.21
Grand total	2.52	17.08	3.10	21.03

Source: Shaheed & Chowdhury, 2014; BFD, 2018b

2001   **2002**   **2006**

2011   **2015**   **2017**
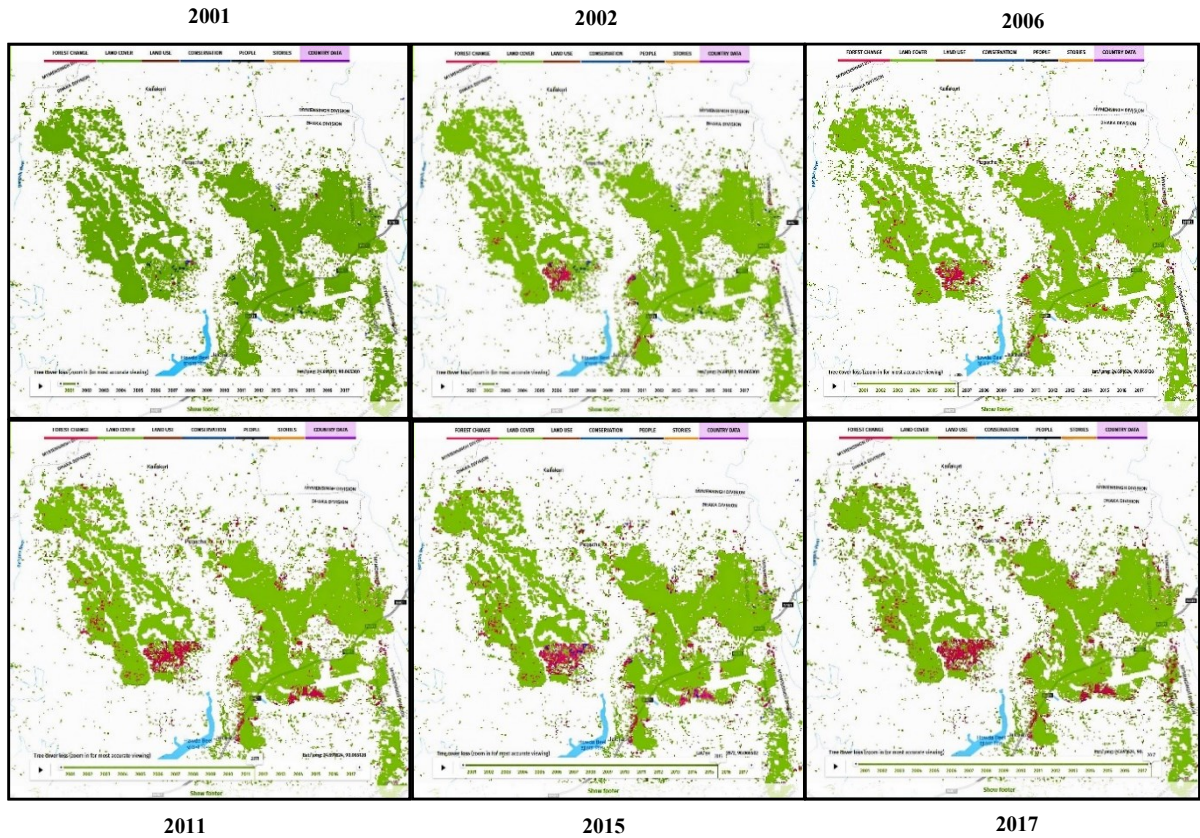
Figure 1.1 A Satellite view of Madhupur Sal forest (2001-2017).

          = tree cover loss   = tree cover exists

Source: Global Forest Watch, 2018
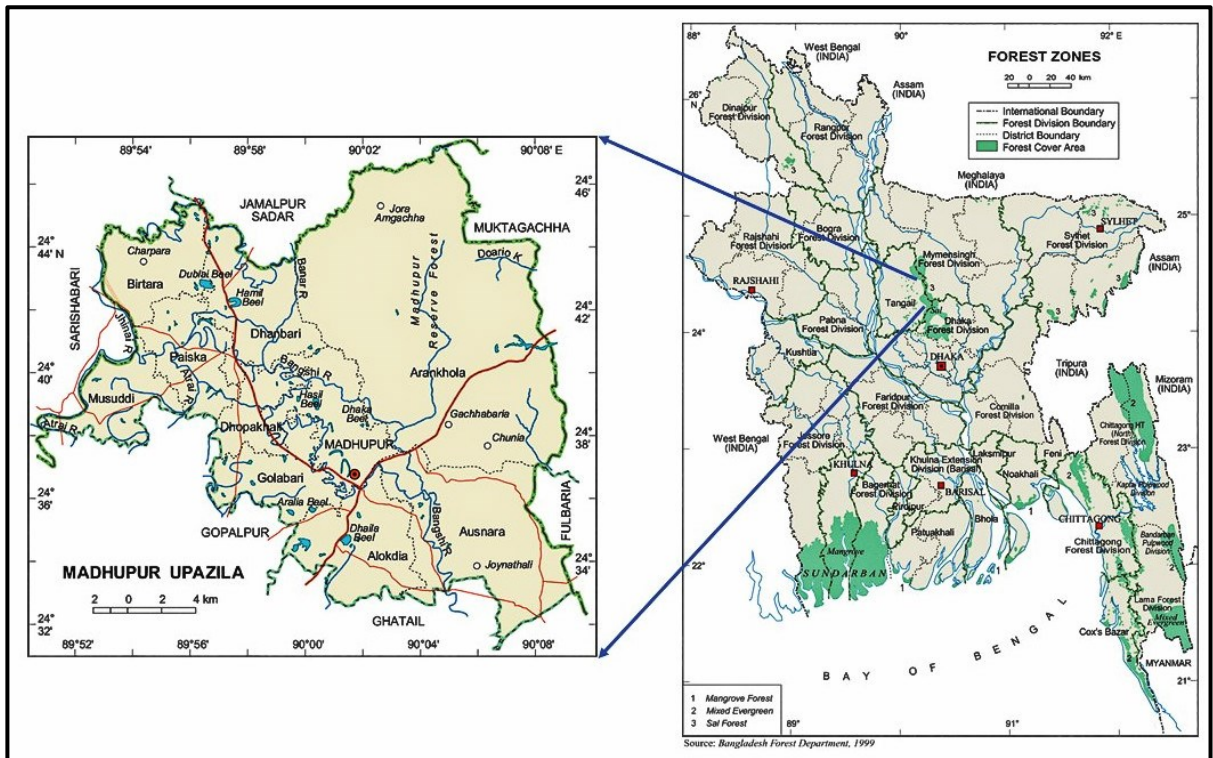
Figure 1.2 Map of Madhupur Sal Forest, Tangail, Bangladesh.

1.4.2 Description of the study population

Mainstream Bengali people and ethnic minority surround this forest area in Madhupur Sal forest. Ethnic people are customarily dependent on forest, and right now, few patches of remaining Sal forest is surrounded by ethnic villages. Among the different ethnic group, Garo (a tribal group) is the main ethnic community, and around 20,000 Garo people live in Madhupur Sal forest. This tribal community had been living in this forest area since a few centuries ago (Gain, 2002). Traditionally, Garo's follow their own customary norms and love to keep themselves in isolation due to their distinct geographic, economic, and cultural boundaries (Ahmed & Flaherty, 2014). For the livelihood, Garo people are dependent on the forest for firewood collection, hunting of wild animals and other food materials. But this customary habit of Garo people is increasingly pressured in the degradation of natural forest (Islam & Sato, 2013). There are 42 tribal villages in this study area from which only 21 villages are surrounded by the remaining forest. The Garo community remains under the extream poverty level, as development efforts have largely ignored their basic needs and rights (Bal, 2007; Dey & Sultana, 2009). Moreover, Garo people are also mostly incapable of demanding their rights from the local forest office (Rasul, Thapa & Karki, 2011). Before the initiation of any formal approach, Jhum or shifting cultivation was the primary professions of Garo households (Ahmed & Flaherty, 2014). But changes emerged due to the intervention of a participatory approach which wedges the customary rights of the Garo community. Despite the potential benefit of PFM and different programs that were implemented by the Government, things are not changing positively for this community. People from the Garo community did not perceive this participatory initiative positively, and this led to the emergence of conflicts between the FD and Garo people (Islam & Sato, 2013).

1.4.3 Overview of PFM initiatives

Government of Bangladesh has been focused the attention towards their vulnerable forest since the 1980s' through the initiation of PFM initiatives funded by Asian Development Bank (ADB) and United Nations Development Program (UNDP) in the northwestern districts in Bangladesh (Salam & Noguchi, 2005a). The plain land Sal forest came under the participatory initiatives in 1987-88 through the Thana Afforestation and Nursery development program. (Jashimuddin & Inoue, 2012). Before this initiative, local FD was the only executive body of the central government to manage this forest. The probable role of forest people along with other actors and their recognition was overlooked in state-controlled approach. Therefore, the state-controlled management initiative has failed to manage Sal forest sustainably. Then the state-controlled management initiatives were transformed into people-oriented management initiatives along with other actors (NGOs, social organizations) to integrate forest people in management practices. People-oriented approach intended to engage, educate, and encourage the forest people in long-run forest management program (Muhammed, Koike, Haque, & Miah, 2008). Local FD carried different kinds of forestry activities like agroforestry, silviculture, woodlot or Sal

coppice management practices with a benefit-sharing mechanism that involved other actors especially forest people and provided advisory services to them (Alam et al., 2008; Nath & Inoue, 2010; BFD, 2018b). On the other hand, NGOs and other social organizations also closely working with forest people about forest management and livelihood improvement issues. But these participatory management initiatives are treated as a donor-imposed program and has been criticized (Nath & Inoue, 2010).

Table 1.2 Participatory forestry extension and outreach programs in Bangladesh over time.

	Program	Period
1	Forestry Extension Service Phase I	1962-1963
2	Development of Forestry Extension Service Phase II	1980-1985
3	Community Forestry Project	1982-1987
4	Thana Afforestation and Nursery Development Project	1987-1995
5	Participatory Social Afforestation	1991-1998
6	Forest Resources Management Project: Forest Directorate Component	1992-2001
7	Extended Social Forestry Project	1995-1997
8	Forestry Sector Project	1997-2004
9	Nishorgo Support Project	1999-2008
10	Integrated protected area co-management	2004-2013
11	Char Development and Settlement Project-III (2nd Phase)	2005-2010
12	Afforestation in the Denuded Hill Areas of Chittagong North Forest Division (2nd Phase)	2008-2012
13	Participatory Social and Extension Forestry in Chittagong Hill Tracts	2008-2012
14	Community-Based Adaptation to Climate Change through Coastal Afforestation	2009-2012
15	Re-vegetation of Madhupur Forests through Rehabilitation of Forest Depended Local and Ethnic Communities	2009-2015
16	Poverty Alleviation through Social Forestry	2010-2013

Sources: Jashimuddin and Inoue, 2012, p.145; BFD, 2018b

It has been reported that these approaches have not made commendable progress in meeting the social target of public participation and conflict management (Khan, 2001; Islam & Sato, 2012). Moreover, FD mainly emphasizes agroforestry, silviculture, woodlot, or Sal coppice management practice as their main PFM activities (also known as social forestry) where forest-dependent people can get benefit through a benefit sharing mechanism. FD has the responsibilities to allocate the social forestry plot among the poor forest-dependent people for a ten (10) years basis (BFD, 2018b). During this time frame, participants of the social forestry program are allowed to grow different kinds of non-timber product that helps them to get short-term benefits. But they must take care of the perennial trees which will go through a benefit sharing mechanism. At the end of one cycle (10 years), FD auction the social forestry

plot and then share the benefit in three segments (participant gets 45%; FD 45% and tree farming fund 10%). Besides this social forestry program, the local FD also executes different participatory projects and programs with the local forest dwellers to protect the forest area (BFD, 2018b).

1.5 Methodology

This study employed both qualitative and quantitative approach for collecting empirical data. In this study, we do not use quantitative data set from any secondary sources.

For the first objective of exploring the contribution of PFM in developing the capacity of tribal forest dwellers and identifying the factors that influence the CD, we employed qualitative and quantitative method (mixed method approach). We have collected a list of 314 forest dwellers from the local forest office. Then we have selected 164 respondents for our study by using simple random sampling method. Among these respondents, 84 participated in a recent PFM program named "Re-vegetation of Madhupur Forests through Rehabilitation of Forest Dependent Local and Ethnic Communities (RMF)," and the rest of the 80 respondents did not participate in RMF program but were the usual forest dwellers from the same tribal community. Then we surveyed with a structured questionnaire. Apart from the survey, we employed focus group discussion, key informant interviews, and participatory observation. Information derived from qualitative methods helped us to formulate the structured questionnaire and also to elaborate and validate our quantitative findings. For analysis the data, we did an independent samples *t*-test to identify the change in the capacity level of the participants and a series of multiple regression analysis to determine the factors that influence the CD of tribal forest dwellers.

For the second objective of assessing the performance of organizational pluralism, we used qualitative methods of data collection. We performed widely used stakeholder's analysis to identify the advisory organizations along with their importance-influence who are working in our study area for forest management and livelihood improvement of forest dwellers. Then we performed nine semi-structured interviews with the heads/supervisors of advisory organizations to collect data about organizational characteristics. Finally, two participatory workshops were conducted with tribal forest dwellers to explore the service quality of advisory organizations. Respondents were asked to give an individual score (3-point Likert scale) on questions related to service quality of advisory organizations. All the discussion was tape-recorded with the prior permission of the participants. For analysis of data, the interviews were transcribed verbatim, coded, and included in the analysis.

For the third objective of examining the potential of the rights-based approach to create an enabling environment for collaborative action and cooperative conflict management, a case study approach was used. A participatory 'timeline' method was carried out with the leaders of tribal forest dwellers to obtain information about the conflicts, its reasons, and consequences of conflicts over social, economic, and environmental aspects. Then we performed twelve semi-structured in-depth interviews with tribal forest

dwellers who were working as 'community forest worker' (CFW) in the project named "Re-vegetation of Madhupur Forests through Rehabilitation of Forest Dependent Local and Ethnic Communities (RMF)." We used purposive snowball sampling to identify the respondents for our study. For analysis of data derived from the in-depth interview, we used a grounded theory approach by using the Atlas-ti software.

1.6 Theoretical Embedding of the study

1.6.1 Capacity development (CD): an approach to development

This thesis uses a multi-level conceptual framework of CD. Capacity is a buzzword and contextual. The notion of capacity is defined as the ability of people, organizations, and societies as a whole to manage their affairs successfully. CD is the process whereby people, organizations, and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time (OECD, 2006). There are different dimension/level in capacity, i.e., individual level, organizational level, and enabling environment. It is essential to consider the capacity issue from a system perspective, which helps to look at the bigger picture in a complex forest management context. It is argued that there might be good policy for resource management, but translating policy into development result will be a major obstacle due to lack of capacity (Armitage, 2005).
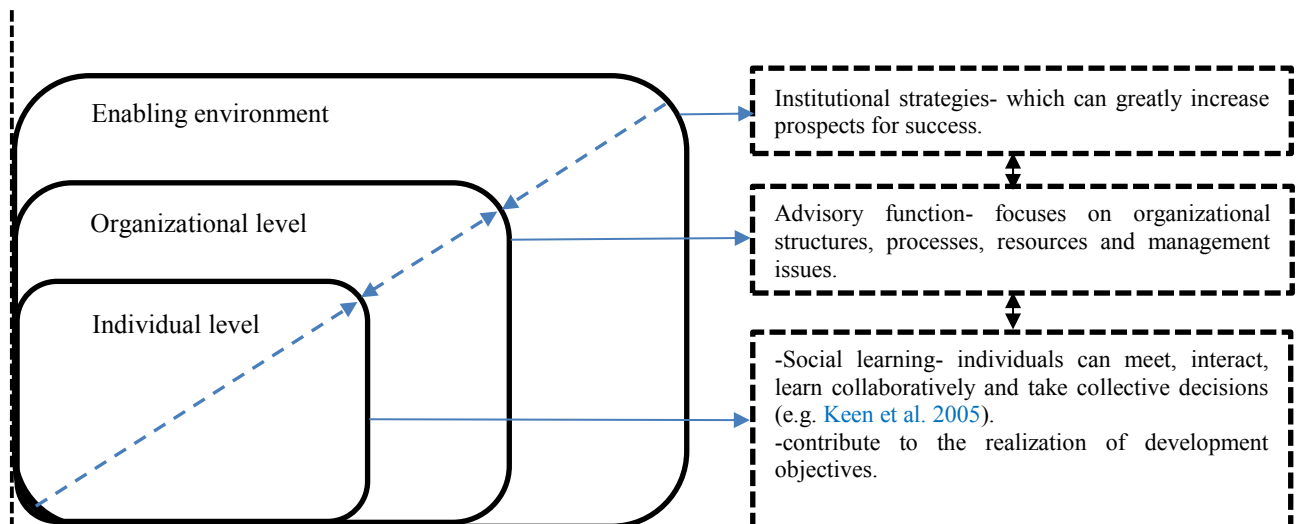
Figure 1.3 Capacity development: a multi-level conceptual framework.

Source: OECD (adapted and modified from Bolger, 2000)

CD now considers as knowledge network where the main emphasis is given on continuous learning (Blagescu & Young, 2006, p. 4). CD at an individual level refers to the acquisition of knowledge, skill, and thus change in attitude and behavior. This change in attitude and behavior helps to contribute to the realization of the wider development objective of PFM (Bolger, 2000). Considering the individual level is necessary for forest management context as issues like cooperation, participation, sustainable use of

forest resources, rights claiming and ensuring the accountability of organizations ultimately rely on the individual capacity of forest dwellers. CD at the organizational level focuses on organizational structures, processes, resources, and management issues to achieve effective and quality results within existing infrastructures (Vincent-Lancrin, 2009). An important dynamic exists between an organizational, individual, and enabling environment where organizational level affects the level of individual and enabling environment. Organizational initiative can contribute to change at individual level and enabling environment. In forest management context, organizations with their advisory function are trying to integrate forest-dependent people in the management programs and also articulate their needs and demands. Finally, the enabling environment represents a broad context where organization and individual operate. Some factors like legislation, formal and informal network, policies, universal issues like human rights influences enabling an environment in a forest management context. Human resource is central to CD in a specific context where organizations undertake their functions. Moreover, enabling environment is closely aligned with the CD. In the discourse of CD, the term 'enabling environment' is generally used to refer to policies, strategies, culture, legal and regulatory framework that can encourage forest dwellers to cooperate and participate in any forest management initiatives (Pedersen, Beck, Johansen, & Jensen, 2005).

This adopted framework provided three analytical dimensions at individual, organizational, and enabling environment level. CD is a multi-level or systematic approach, and there is interdependency in between different level (Vincent-Lancrin, 2009). Therefore, systematic consideration of these three levels can help to identify the current state of capacity and also clarify the questions raised by Armitage (2005) that 'why do some community-based natural resource management regimes perform better than others?'. In each analytical dimension, to explore the capacity and CD issue systemically and logically, we further use different theoretical and conceptual framework. For the first analytical dimension, i.e., individual level, we integrated different components of the social learning platform, e.g., social capital, social network with the key capacities from a CD framework recently promoted by the Tropical Agriculture Platform (TAP) (2016) of the Food and Agriculture Organization. This integration is helpful to assess the outcome of PFM regarding CD of resource users and related factors associated with this change process. For the second dimension, we used a framework developed by Birner et al. (2009) for assessing pluralistic advisory services, which are also known as 'best-fit framework.' This analytical framework is helpful in the analysis of the capacity of advisory organizations in a pluralistic context of service delivery. Finally, for the third dimension, we used the concept of 'rights-based approach' which focuses on basic human equality that should ensure by state and their organizations at the local level. This analytical concept is useful to get empirical evidence about how to translate the rights-based approach in order to create an enabling environment for collaborative action and cooperative conflict management.

1.7 Outline of the dissertation

This dissertation is organized into five chapters with an introductory chapter followed by three results-oriented chapters and a final chapter on the discussion of results, conclusion, and policy recommendation. The result-oriented chapters are organized in a cumulative manner (individual articles). These articles are prepared for Journal submission; the second chapter is already published in the *Journal of Sustainable Forestry*, and the rest of them (chapter 3 and 4) are in the review process. Chapter 3 is submitted to *The Journal of Agricultural Education and Extension*, and chapter 4 is submitted to *The Journal of Environmental Planning and Management*, which are currently under the review process.
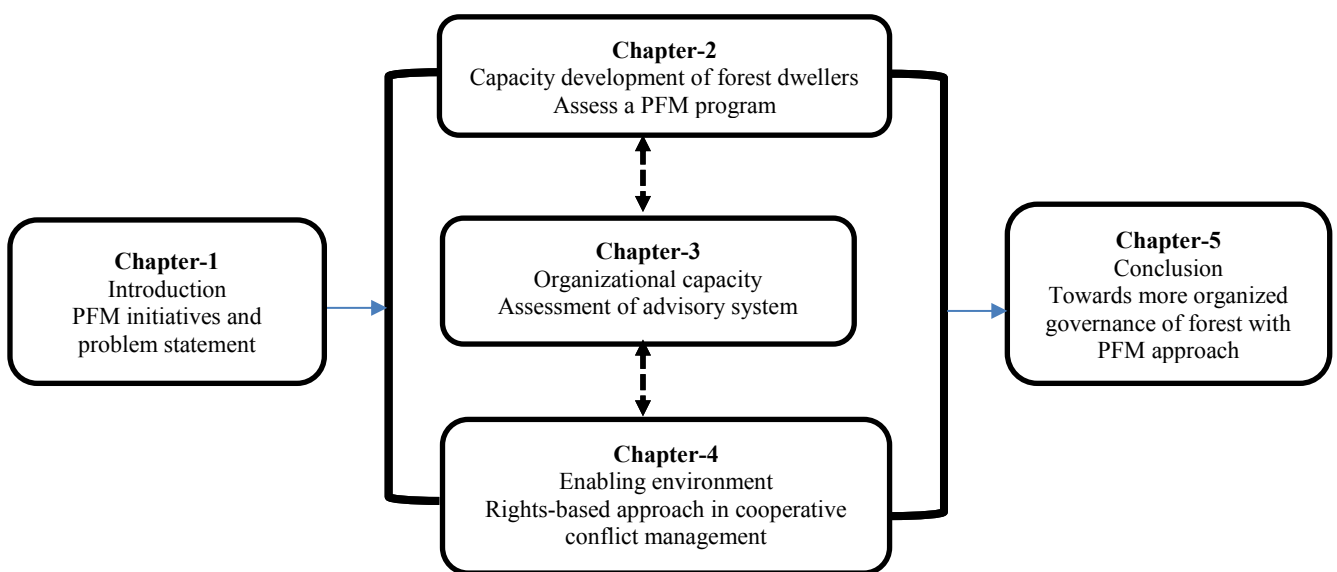
Figure 1.4 Outline of the dissertation.

The second chapter addresses the contribution of PFM initiatives regarding CD by analyzing a recent participatory program that was taken by the FD. This study also explores the factors that influence the changes in the capacity level of the forest dwellers. The third chapter assesses the organizational capacity, i.e., role and performance of different advisory service providers in a pluralistic advisory context. This assessment considered the 'best fit' framework in a micro level case of forest advisory service. The fourth chapter addresses the potential of the rights-based approach in cooperative conflict management. In this chapter, long-run conflicts between forest dwellers and duty-bearer (FD) and the consequences of such long-run conflicts address briefly. Finally, chapter 5 concluded with a summary of the main results, discussion of the results, reflections from the field experiences, limitation of the study and direction for future research, and policy implications for more organized governance of forest in Bangladesh.

1.8 References

Agrawal, A. (2007). Forests, Governance, and Sustainability: Common Property Theory and its Contributions. *International Journal of the Commons, 1*(1), 111-136. DOI: http://doi.org/10.18352/ijc.10.

Ahmed, N., & Flaherty, M. S. (2014). Opportunities for aquaculture in the ethnic Garo community of northern Bangladesh. *Water Resources and Rural Development, 3*, 14-26. https://doi.org/http://dx.doi.org/10.1016/j.wrr.2014.03.001.

Alam, M., Furukawa, Y., Sarker, S., & Ahmed, R. (2008). Sustainability of Sal (*Shorea robusta*) forest in Bangladesh: past, present and future actions. *International Forestry Review, 10*(1), 29-37. https://doi.org/10.1505/ifor.10.1.29.

Armitage, D. (2005). Adaptive capacity and community-based natural resource management. *Environmental Management, 35*(6), 703-715. https://doi.org/10.1007/s00267-004-0076-z.

Armitage, D., Marschke, M., & Plummer, R. (2008). Adaptive Co-Management and the Paradox of Learning. *Global Environmental Change, 1*, 86-98.

Ayana, A. N., Vandenabeele, N., & Arts, B. (2015). Performance of participatory forest management in Ethiopia: institutional arrangement versus local practices. *Critical Policy Studies, 11*(1), 19-38. https://doi.org/10.1080/19460171.2015.1024703.

Bal, E. (2007), Becoming the Garos of Bangladesh: policies of exclusion and the ethnicisation of a tribal minority. *South Asia, 31*, 56-75.

Berkes, F. (2009). Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management, 90*, 1692-1702. https://doi.org/10.1016/j.jenvman.2008.12.001.

BFD (Bangladesh Forest Department) (2018b). Bangladesh's forests. Ministry of Environment and Forest, Government of Bangladesh. http://www.bforest.gov.bd. (Accessed 2 July 2008).

BFD (Bangladesh Forest Department). (2018a). Bangladesh's forests. Ministry of Environment and Forest, Government of Bangladesh. Retrieved from: http://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/238fc41d_700a_489d_9758_e80b7efdb2ef/Forest%20Policy%20English%20version%20%28%20update%29.PDF. (Accessed 16 July 2018).

Birner, R., Davis, K., Pender, J., Nkonya, E., Anandajayasekeram, P., Ekboir, J., Mbabu, A., et al. (2009). From Best Practice to Best Fit: A Framework for Designing and Analyzing Pluralistic Agricultural Advisory Services Worldwide. *The Journal of Agricultural Education and Extension,* 15 (4), 341-355. doi:10.1080/13892240903309595.

~ Chapter 1 ~

Blagescu, M., & Young, J. (2006). *Capacity development for policy advocacy: Current Thinking and approaches among agencies supporting civil society organizations*. ODI Working Paper, no. 260.

Bolger, J. (2000). *Capacity development: Why, what and how*. Canadian International Development Agency (CIDA) Policy Branch, 1(1), 9.

Bradstock, A., Hovland, I., Altshul, H., Crafter, S., Irwin, B., Kaberia, B., Odhhiambo, G., Zelalem, T., & Sultan, J. (2007). From Grassroots to Government. Farm-Africa's experiences influencing policy in sub-Saharan Africa. Policy and research series No. 5. London: Farm-Africa and the Overseas Development Institute (ODI).

Brugnach, M., & Ingram, H. (2012). Ambiguity: The Challenge of Knowing and Deciding Together. *Environmental Science and Policy, 15*, 60-71.

Castro, A. P., & Nielsen, E. (2001). Indigenous People and Co-Management: Implications for Conflict Management. *Environmental Science & Policy, 4* (4-5), 229-239. https://doi.org/10.1016/S1462-9011(01)00022-3.

Charnley, S., & Poe, M. R. (2007). Community forestry in theory and practice: where are we now? [*]. *Annual Reviews of Anthropology, 36*, 301-336. https://doi.org/10.1146/annurev.anthro.35.081705.123143.

Dambala, G., & Koch, S. (2012). Welfare and Common Property Rights Forestry: Evidence from Ethiopian Villages. Working Paper 277. Pretoria: University of Pretoria.

Darr, D., Hoffmann, V., & Helmle, S. (2014). Extension services for rural development. In: Pretsch, J., D. Darr, H. Uibrig, E. Auch. (Eds.), *Forests and Rural Development*. Springer, Berlin, Heidelberg, 205-240.

Dey, S., & Sultana, S. (2009). The socio-cultural impacts of economic changes to matrilineal Garo society in Bangladesh. *International Journal of Green Economics, 3* (2), 184-198.

Food and Agriculture Organization (FAO). (2015). Global Forest Resources Assessment 2015. FAO Forestry Paper No. 1. The Food and Agricultural Organization of the United Nations (FAO). Rome.

Faure, G., Desjeux, Y., & Gasselin P. (2012). New Challenges in Agricultural Advisory Services from a Research Perspective: A Literature Review, Synthesis and Research Agenda. *The Journal of Agricultural Education and Extension,* 18(5), 461-492, doi: 10.1080/1389224X.2012.707063.

Gain, P. (2002). *The last forests of Bangladesh* (2nd ed.). Dhaka, Bangladesh: Society for Environment and Human Development (SEHD).

~ Chapter 1 ~

Gibson, C., Mckean, M. A., & Ostrom, E. (Eds.) (2000). *People and forests: communities, institutions and governance*. Cambridge University Press, New York.

Global Forest Watch. (2018). Analyze and Track forest change. Retrieved from: https://www.globalforestwatch.org/map. (Accessed 16 November 2018).

Islam, K. K., & Sato, N. (2012b). Participatory forestry in Bangladesh: Has it helped to increase the livelihoods of Sal Forests-dependent people? *Southern forests: A Journal of Forest Science, 74*,89-101. https://doi.org/10.2989/20702620.2012.701434.

Islam, K. K., & Sato, N. (2013a). Protected Sal Forest and livelihoods of ethnic minorities: Experience from Bangladesh. *Journal of Sustainable Forestry, 32*, 412-436. https://doi.org/10.1080/10549811.2013.762571.

Islam, K. K., Kimihiko, H., Tani, M., Krott, M., & Sato, N. (2014). Actors' power, livelihood assets and participatory forestry in Bangladesh: Evidence from the Sal Forests Area. *Open Journal of Forestry, 4*,1-9. DOI: 10.4236/ojf.2014.45B001.

Islam, K. K., Rahman, G. M., Fujiwara, T., & Sato, N. (2013). People's participation in forest conservation and livelihoods improvement: experience from a forestry project in Bangladesh. *International Journal of Biodiversity Science, Ecosystem Services and Management, 9*,30-43. https://doi.org/10.1080/21513732.2012.748692.

Jashimuddin, M., & Inoue, M. (2012). Community forestry for sustainable forest management: experiences from Bangladesh and policy recommendation. *FORMATH, 11*,133-166.

Khan, N. A. (2001). *Social forestry versus social reality: Patronage and community-based forestry in Bangladesh*. Gatekeeper Series no. 99. London: International Institute for Environment and Development (IIED).

Lavergne, R. & Saxby, J. (2001). *Capacity Development: Vision and Implications*. Capacity Development Occasional Series, No.3. Quebec: Canadian International Development Agency.

Ma, Z., Kittredge, D. B., & Catanzaro, P. (2012). Challenging the Traditional Forestry Extension Model: Insights from the Woods Forum Program in Massachusetts. *Small-Scale Forestry, 11*(1), 87-100. https://doi.org/10.1007/s11842-011-9170-2.

Maryudi, A., Devkota, R. R., Schusser, C., Yufanyi, C., Salla, M., Aurenhammer, H., Rotchanaphatharawit, R., & Krott, M. (2012). Back to basics: considerations in evaluating the outcomes of community forestry. Forest Policy and Economics, 14(1), 1-5. https://doi.org/10.1016/j.forpol.2011.07.017.

Miah, M. D., Akther, S., Shin, M. Y., & Koike, M. (2014). Scaling up REDD+ strategies in Bangladesh: a forest dependence study in the Chittagong Hill Tracts. *Forest Science and Technology, 10*(3), 148-156. https://doi.org/10.1080/21580103.2014.889045.

~ Chapter 1 ~

Muhammed, N., Koike, M., Haque, F., & Miah, M. D. (2008). Quantitative assessment of people-oriented forestry in Bangladesh: A case study in the Tangail forest division. *Journal of Environmental Management, 88*(1), 83-92. https://doi.org/10.1016/j.jenvman.2007.01.029.

Muhammed, N., Koike, M., Haque, F., & Miah, M. D. (2008). Quantitative assessment of people-oriented forestry in Bangladesh: A case study in the Tangail forest division. *Journal of Environmental Management, 88*(1), 83-92. https://doi.org/10.1016/j.jenvman.2007.01.029.

Nath, T. K., & Inoue, M. (2010). Impacts of Participatory Forestry on Livelihoods of Ethnic People: Experience from Bangladesh. *Society & Natural Resources, 23*(11), 1093-1107. https://doi.org/10.1080/08941920802653521.

OECD (Organization for Economic Cooperation and Development). (2006). *The challenge of capacity development: working towards good practice*. Paris: OECD.

Pedersen, J. D., Beck, S., Johansen, H. B., & Jensen, H. B. (2005). Capacity Development in Integrated Coastal Zone Management: Some Lessons Learned from Malaysia. *Coastal Management, 33*(4), 353-372. https://doi.org/10.1080/08920750500217435.

Rahman, H. M. T., Sarker, S. K., Hickey, G. M., Haque, M. M., & Das, N. (2014). Informal Institutional Responses to Government Interventions: Lessons from Madhupur National Park, Bangladesh. *Environmental Management, 54* (5), 1175-1189. https://doi.org/10.1007/s00267-014-0325-8.

Rahman, M. M., Rahman, M., Zhang, G., & Kazi, K. S. (2010). Conservation letter A review of the present threats to tropical moist deciduous Sal (*Shorea robusta*) forest ecosystem of central Bangladesh. *Tropical Conservation Science, 3*(1), 90-102.

Rai, N., Huq, S., & Huq, M. J. (2014). Climate resilient planning in Bangladesh: a review of progress and early experiences of moving from planning to implementation. *Development in Practice, 24*(4), 527-543. https://doi.org/10.1080/09614524.2014.908822.

Rana M. A, Noguchi, T., & Muhammed, N. (2007). Impact of participatory forest management (PFM) on socio-economic development in Bangladesh: a case study in the Madhupur Sal Forest. *Journal of Forest Economics, 53*(1), 46-56.

Rasul, G., Thapa, G. B., & Karki, M. B. (2011). Comparative analysis of evolution of participatory forest management institutions in South Asia. *Society & Natural Resources, 24*, 1322-1334. https://doi.org/10.1080/08941920.2010.545966.

Safa, M. S. (2004). The effect of participatory forest management on the livelihood of the settlers in a rehabilitation program of degraded forest in Bangladesh. *Small-Scale Forest Economics, Management and Policy, 3*, 223-238. https://doi.org/10.1007/s11842-004-0016-z.

~ Chapter 1 ~

Salam, M. A., & Noguchi, T. (2005a). On sustainable development of social forestry in Bangladesh: Experiences from Sal (*Shorea Robusta*) Forests. *Environment, Development and Sustainability, 7*, 209-227. https://doi.org/10.1007/s10668-005-7313-3.

Salam, M. A., & Noguchi, T. (2005b). Evaluating capacity development for participatory forest management in Bangladesh's Sal Forests Based on '4Rs' Stakeholder Analysis. *Forest Policy and Economics, 8*, 785-796. https://doi.org/10.1016/j.forpol.2004.12.004.

Salam, M. A., Noguchi, T., & Koike, M. (2005). Factors influencing the sustained participation of farmers in participatory forestry: a case study in central Sal forests in Bangladesh. *Journal of Environmental Management, 74*(1), 43-51. https://doi.org/10.1016/j.jenvman.2004.08.007.

Schreckenberg, K., & Luttrell, C. (2009). Participatory forest management: a route to poverty reduction? *International Forestry Review, 11*(2), 221-238. https://doi.org/10.1505/ifor.11.2.221.

Shaheed, M., & Chowdhury, H. (2014). *Forest conservation in protected areas of Bangladesh*. World Forests (Vol. 20). https://doi.org/10.1007/978-3-319-08147-2.

Suškevičs, M., Thomas, H., Romina, R., Biljana, M., & Claudia, P. (2018). Learning for social-ecological change: A qualitative review of outcomes across empirical literature in natural resource management. *Journal of Environmental Planning and Management, 61*, 1085-1112. https://doi.org/10.1080/09640568.2017.1339594.

Tacconi, L. (2007). Decentralization, forests and livelihoods: theory and narrative. *Global Environmental Change, 17*, 338-348.

Takahashi, R., & Y. Todo. (2012). Impact of Community-Based Forest Management on Forest Protection: Evidence from an Aid-Funded Project in Ethiopia. *Environmental Management, 50*, 396-404. https://doi.org/10.1007/s00267-012-9887-5.

Tropical Agriculture Platform (TAP). (2016). *Common framework on capacity development for agricultural innovation system: Guidance note on operationalization*. Wallingford, UK: CAB International.

Tsegaye, G., Melaku, B., Mulugeta, L., & Habtemariam, K. (2009). Participatory Forest Management and Its Impacts on Livelihoods and Forest Status: The Case of Bonga Forest in Ethiopia. *International Forestry Review, 11* (3), 346-358. https://doi.org/10.1505/ifor.11.3.346.

UN (United Nations). (2015). Resolution adopted by the General Assembly on 25 September 2015. *A/RES/70/1 Transforming our world: The 2030 Agenda for Sustainable Development*.

Vincent-Lancrin, S. (2009). The role of education in capacity development. In Blokland, M., Alaerts, G., Kaspersma, J., & Hare, M. (Ed.), *Capacity Development for Improved Water Management* (pp. 317-340). London: CRC Press.

~ Chapter 1 ~

Wild-Eck, S., Zimmermann,W., & Schmithüsen, F. (2006). Extension for private forest owners: Insights from a representative opinion poll in Switzerland. *Small-scale Forest Economics, Management and Policy, 5* (2), 161-174. https://doi.org/10.1007/s11842-006-0008-2.

World Forestry Congress. (2015). Outcome documents from the XIV World Forestry Congress, held in Durban, South Africa, 7-11 September 2015 (available at www.fao.org/ about/meetings/world-forestry-congress/en/).

2 Developing Capacity of Forest Users Through Participatory Forest Management: Evidence from Madhupur SAL Forest in Bangladesh

Khondokar H. Kabir, Andrea Knierim, Ataharul Chowdhury & Beatriz Herrera

Abstract

Participatory forest management is credited for supporting social learning processes and fostering the capacity of forest users for collaboration and collective actions. Despite more than a decade of practice, the empirical evidence substantiating the contribution of participatory management for the capacity development (CD) of forest users is scarce. This study assesses a participatory forest management program in Madhupur Sal forest, Bangladesh, by comparing the capacity of de-facto groups of participants and nonparticipants and identifies factors that influence the CD. Data were collected using a mixed method approach which combines both qualitative and quantitative methods of data collection. Results indicate that participants differed from nonparticipants significantly in terms of various capacity dimensions related to collective actions. Extension services, credit support, trust within society, information, and communication influence the level of capacities in tribal population to adapt and respond to changes. The initiatives to manage natural resources are likely to be more successful if the forest management program initiators consider several factors that influence the CD of resource users.

KEYWORDS: Social learning; capacity development; participatory forest management; Bangladesh; Sal forest

~ Chapter 2~

2.1 Introduction

Unprecedented changes, such as forest encroachments and massive deforestation, call for the action-oriented approach (Chapin et al., 2010) for developing the capacity of forest resource users based on the systemic change and social interaction processes (Fazey et al., 2007). Interactive conflict solving, and shared learning is usually seen as a direct product of effective social interaction (Fazey et al., 2010). Participatory natural resource management (PNRM) is a widely adopted approach for supporting effective social interaction (Raymond & Cleary, 2013). The principle of this approach supports a high degree of social interaction and facilitation of social learning among existing actors to change the capacity level of resource users. Increasingly, development program and projects utilize the concept of "platform for social learning" (Berkes, 2009; Rasul, Thapa, & Karki, 2011), which is usually a social space for interaction and learning not only by respective program participants but also by other actors in the wider social system (Cundill & Rodela, 2012). It is expected that individuals receive complementary benefits, such as learning about different kinds of legitimate activities (Steyaert et al., 2007; Berkes, 2009; Romina, 2014), as well as change their way of thinking and way of doing (Fazey, Fazey, & Fazey, 2005). The PNRM is an umbrella concept embracing different approaches like community forestry, or joint forest management system, or social forestry, or participatory forest management (Berkes, 2009; Rasul et al., 2011). Failure of the conventional top-down approaches caused the paradigm shift throughout the world (Tesfaye, Roos, Campbell, & Bohlin, 2012) and participatory approach to natural resource management initiated since the late 1970s. Two management features progressively change over time: firstly, the inclusion of local resource users in management practices and secondly, the improvement of knowledge, skills, attitude, and behavior for working together to achieve conservation objectives.

In Bangladesh, the participatory forest management (PFM) approach was introduced in the 1980s with an aim to enhance the capacity of forest dwellers who derive benefit from their surrounding forest in some way (known as forest-dependent people) (Salam & Noguchi, 2005b). PFM is a form of co-management and defined as policy concept which intimately involves forest dwellers in a range of participatory activities aiming at changes in their capacity level to make them responsible for sustainable forest management (Rasul et al., 2011). Thus, sustainability is the objective which could be achieved through the joint action of different stakeholders through a participatory approach. Bangladesh also adopted the action plan of the United Nations about managing their forest sustainably (UN, 1993). As early as in the 1980s, the northern part of Bangladesh marked the first stage of PFM with a social forestry program (Salam & Noguchi, 2005a) and after the completion of this project in 1989, the "Thana Afforestation and Nursery Development" project was initiated in degraded Sal forest areas (Islam & Sato, 2012b). Compared to other forests of Bangladesh, the Sal forest in Madhupur is considered to be of more environmental and economic importance (Safa, 2004; Alam et al., 2008). Dwellers from ethnic minorities surround this Sal forest area, and Garo people constitute the dominant tribal group. They

customarily depend on forest resources for their livelihood, and they prefer to live with their unique styles within the broader social and cultural fabrics (Ahmed & Flaherty, 2015). Before the initiation of PFM in this area, the governmental forest department (FD) tried to execute forest management programs alone (Islam, Rahman, Fujiwara, & Sato, 2013b), but this top-down approach failed to manage and protect the forest from degradation (Nath & Inoue, 2010). Eventually, this failure culminated in a paradigm shift from top-down management to the PFM approach in the Madhupur Sal forest area. While forest management was mainly the responsibility of the FD in the top-down approach, there are expectations that with a participatory approach involved individual forest resource users will change their way of thinking and reduce the likelihood of erroneous interpretation and noncooperation. The expectations include changes in their mindsets, attitudes, and behavior to understand the broad perspective of the management program; to be able to do better things for their alternative livelihood options and to be able to claim their rights and hold the agency accountable.

The outcomes of forest management initiatives in Madhupur Sal forest have not met the expectations despite slight improvements of the situation. A very low level of social interaction among tribal forest dwellers and FD has been reported (Islam & Sato, 2013a). They are playing the blame game, which yielded less trust and more conflicts among them (Islam & Sato, 2012b, p. 94). Different development programs that have been executed since 1989 offered little success in securing active participation and cooperation of forest-dependent tribal forest dwellers (Nath & Inoue, 2010). Despite the long-run initiatives of PFM, more than 70% of the Garo people are highly dependent on the surrounding forest for their livelihood, and around 52% of them get involved as daily wage labors with a minimal rate of income (US$ 1.6/day) (Islam & Sato, 2012a). Recent findings also indicate that Garo people are mostly incapable of demanding their rights from the FD (Rasul et al., 2011; Islam, Kimihiko, Tani, Krott, & Sato, 2014). These types of dependency, conflicts, incapability of resource-dependent people have also been reported in other parts of the world despite the outset of PFM (see, Rist, Mani, Cesar, Urs, & Anne, 2007; Rasul et al., 2011; Thondhlana, Cundill, & Kepe, 2016). The circumstances point out that most of the shortfalls or lack of realization about sustainable development existed due to lack of capacity at the individual level to adapt and respond to changes emerging throughout the system. The lack of capacity of resource-dependent people is a root cause of program failure (Ibrahim & Hegazy, 2015). The role of such development program in livelihood improvement and forest management has been widely documented (Salam & Noguchi, 2005a; Nelson & Agrawal, 2008; Tesfaye et al., 2012; Islam & Sato, 2012b, 2013a).

2.1.1 Objectives of the study

Despite more than a decade of practice, there is some evidence for the positive contribution of participatory management to the capacity development (CD) of forest resource users. Nevertheless, there is a paucity of research to assess the outcome of PFM regarding CD. To narrow this gap through

a case study, we adopted a platform approach and considered a recent participatory program named "Re-vegetation of Madhupur Sal Forest (RMF)" which has been reported as a successful initiative (Islam et al., 2013b). In this study, we considered the RMF program platform as a "social learning platform" and assumed capacity building as an important outcome (see next sections). Based on the contextual description and theoretical basis, this paper wants to determine the changes in the capacity level of the participants in RMF program and to explore the overall factors that influence the changes in capacity level of tribal forest dwellers. The insights of the paper can be beneficial for the planning of future PFM programs in Bangladesh and beyond.

2.2 Conceptual framework

In this paper, we address the PFM issue from a micro-level perspective, based on the perspectives, experiences, and judgments of individual actors involved. When referring to this actor group, we use the terms "forest resource users" or "forest dwellers" in an interchangeable way. In our case, these forest resource users mostly belong to the ethnic minorities or tribal people in Bangladesh. Further differentiation will be presented in the methods section. From the literature, we discern that social learning presumes the importance of social capital and networking along with different socio-demographic factors to understand the potential outcome of social learning platform (see, Schusler, Decker, & Pfeffer, 2003; Dolisca, Carter, McDaniel, Shannon, & Jolly, 2006; Muro & Jeffrey, 2008; Rodela, 2011; Tesfaye et al., 2012; Romina, 2014). In natural resource management literature, so far, the role of holistic learning-based approaches for "capacity" and "CD" has not been duly acknowledged. The widely accepted view of capacity is the ability of individuals and organizations to perform functions, solve problems, and set and achieve objectives in a sustainable manner (Venner, 2015). CD is the process whereby people, organizations, and society unleash, strengthen, create, adapt, and maintain capacity over time (Tropical Agriculture Platform, 2016; Venner, 2015). The present view of capacity is recognized as a multidimensional and multi-actor process (Tropical Agriculture Platform (TAP), 2016), which goes beyond the direct transfer of specific skills and knowledge. A preset standardized training is not enough for an individual to adapt and respond to changes in a complex natural resource context. It requires an approach that enables participants to capture opportunities, build trust, and networks for joint action. Most researchers agree that social learning and process-oriented approaches may allow changes in capacity at the individual level (see, Bolger, 2000; Schusler et al., 2003; Blagescu & Young, 2006; p. 4; Muro & Jeffrey, 2008; Cundill & Rodela, 2012; Pietri, Stevenson, & Christie, 2015). But there is lack of empirical evidence about this assertion that capacity is an outcome of such a process (Muro & Jeffrey, 2008; Cundill & Rodela, 2012). Moreover, Romina (2014) stated that contemporary natural resource management literature mostly emphasized the process of social learning rather than the outcome of this process.

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Although the capacity developed is considered as an ultimate outcome of social learning, few types of research integrated social learning and CD in a framework. Among them Buck, Wollengberg, and Edmunds (2001) who first claimed that social learning process enhances the capacity of different stakeholders. Pahl-Wostl et al. (2007) presumed the importance of social capital and networking to change the capacity of resource-dependent people in collaborative water resource management. More recent evidence (see, Pietri et al., 2015) shows an approach that can be useful to integrate social learning and CD in the management of Coral Reefs. According to Pietri et al. (2015), the core of the analytical framework mentioned that a development initiative could develop a learning network and provide a venue/platform where social capital strengthens and facilitates the process of social learning and consequently capacity building. However, the approach was conceptualized based on a learning network without any indication of what kind of capacity is needed as an outcome of a development program. Venner (2015) underlines the importance of such evidence for a better understanding of the process outcome of a forest management program. Furthermore, a concrete framework that draws on theories of social learning, social capital, and networks are lacking in the field of NRM.

Therefore, to understand the changes in the capacity level of the forest resource users and the factors that influence their changes, we have integrated different components of the social learning platform according to Pietri et al. (2015), with key capacities from a CD framework recently promoted by the Tropical Agriculture Platform (2016) of the Food and Agriculture Organization. The analytic frameworks consider different socio-demographic factors, access to service from learning platform, social capital, and social networking (various forms of social capital) as contributing to change in capacity level through effective social interaction among resource users and other stakeholders. Central to the framework (Figure 2.1) is the learning platform, where various forest resource users can meet and interact with each other and other actors, such as development professionals, governmental representatives.

It is noteworthy to mention that development programs and projects provide a platform for social learning (Berkes, 2009; Rasul et al., 2011), which is a space for various stakeholders to meet and interact through various forms of activities, e.g., community meeting, field days, tours, field-based activities (see, Probst, Hagmann, Fernandez, & Ashby, 2003; Muro & Jeffrey, 2008, p. 326; Gwandu et al., 2014, p. 80). In practice, the platform approach within PFM provides community people access to extension and credit support from other stakeholders, which can facilitate their learning and action. Conceptually, platform related activities have the potential to enhance resource users' understanding of their interdependences and lead to a number of social outcomes, new skills, and knowledge (Muro & Jeffrey, 2008).
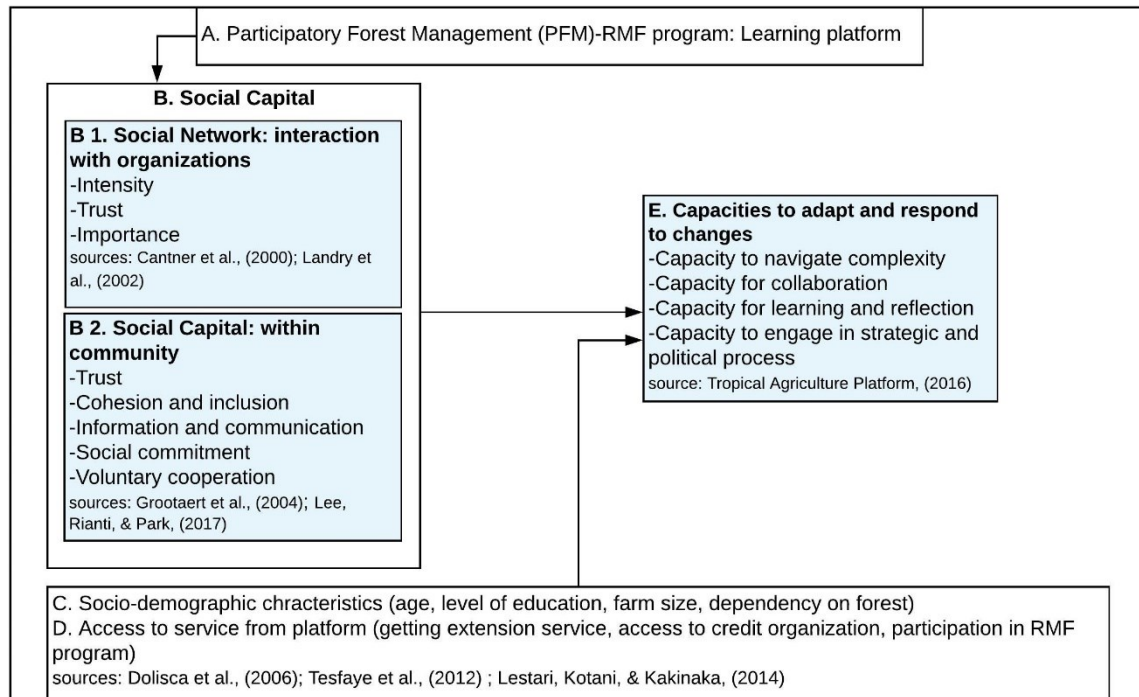
Figure 2.1 The linkage between social capital and capacities to adapt and respond to changes on tribal communities in a participatory forest management platform (adopted from Grootaert et al., 2004; Lee, Rianti, & Park, 2017; Pietri et al., 2015; Tropical Agriculture Platform (TAP), 2016).

The framework proposed by the Tropical Agriculture Platform framework provides indicators to monitor and evaluate individual requirements to adapt and respond to changes from a system perspective. Such capacities are (i) capacity to navigate complexity, which is defined as a shift in mindset, attitude, and behavior that help forest-dependent people regarding decision-making process and create an understanding of new management practice; (ii) capacity for collaboration, which is the ability to build synergetic partnership and networks that enhance the understanding to forest-dependent people about the wider perspective of forest-management program, enabling them to understand each other's perspectives and managing conflicts; (iii) capacity to learn and reflect, which is defined as the ability of forest-dependent people to interact with other stakeholders or people in a trustworthy environment that support their ability to find better solutions for their existing problems (double loop learning), or becoming better in the decision-making process; and (iv) the capacity to engage in strategic and political process, which means the process of transformation that increases the level of understanding of the forest-dependent people about their rights in a forest management system (Tropical Agriculture Platform (TAP), 2016). These capacities do not develop automatically. The necessary social learning and CD encompass aspects of social capital and networking and generate through long-term interactions (Cundill & Rodela, 2012, p. 10). However, such interaction does not always lead to changes in capacity level due to different social and cultural factors. Participatory approaches include setting up organizational structures to initiate social interaction or networking (Steyaert et al., 2007). Nevertheless,

social interaction or networking is obstructed from being functional due to different social and cultural factors, such as a long-run dispute between resource users and forest managers.

This can be explained further using the perspective of Leahy and Anderson (2010), who stressed that social capital, within a natural resource context, exists in two forms, (i) social capital within the community, and (ii) social capital with organizations and community. The resource-bounded community members usually possess a level of social capital, which guides a community member to gain a personal return. Bodin and Crona (2008) noted that when an external program is introduced, it adds a dynamic interplay between the social capital within the community and social capital with the organization and community. The interplay may limit the effective social interaction of individuals with organizational actors. The uniformity in social capital within the community can mold a new network of social relationships at the individual level. But this new form of network is not enough to create feedback loop, i.e., receiving positive responses from the individual level, an essential requirement for achieving learning outcomes, that is, a number of new capacities. Feedback loop and repeated interaction (Inkpen & Tsang, 2005; Mendoza & Prabhu, 2005) form social capital, which enables learning, enhances knowledge, and develops shared understanding. It follows that social capital is an important consideration while understanding the capacity changes from a social learning platform. If social capital differs among community members, it might prevent an individual to decide on active participation in a program to gain personal returns. Therefore, the possibilities of further networking and effective social interaction might be reduced, which could confine the possible outcome of this process.

2.3 Methodology

To explore how social capital influences the capacities of adaptation of tribal forest users in a learning platform, we conducted an empirical research approach using the RFM program at Madhupur Sal forest situated in the district of Tangail, Bangladesh, as a case. In this section, we describe the site, the process of identification, and measurement of variables according to the conceptual framework, the selection of the sample, and how the data was collected and analyzed.

2.3.1 Description of the site and the program "revegetation of Madhupur forests" (RMF)

Madhupur Sal forest is a state-owned forest (Figure 2.2). The total land surface area of Madhupur Sal forest was more than 25,000 ha in 1982 (Islam & Sato, 2013a) and less than 8000 ha in 2013 (Islam et al., 2013b). The main forest species is Sal tree (*Shorea robusta*), but at present only a few degraded patches with Sal tree exist. This area was selected because of rapid deforestation and community-agency conflicts, although long back initiatives of PFM approach were introduced in this area.
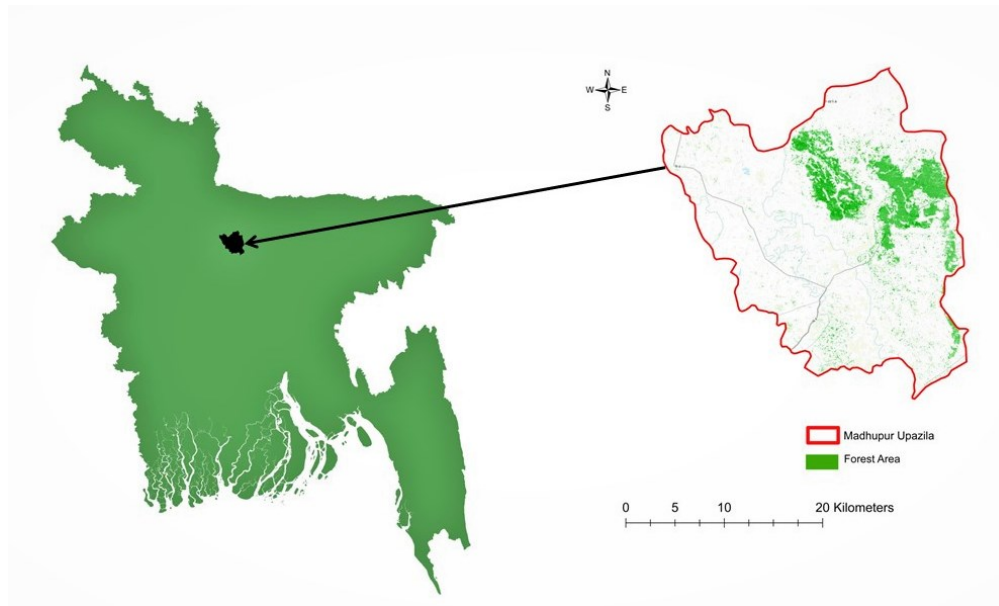
Figure 2.2 Map of the study area.

Garo tribal forest dwellers are the aboriginal dwellers of the forest; nowadays, from the existing 42 tribal villages, only 21 are still surrounded by remaining forest. According to FD, there are two types of forest dwellers living in this area, (i) forest dwellers who have a high dependency on forest resources and are known as encroachers, and (ii) those forest dwellers who also have reliance on the forest for food, medicine, and firewood. According to the FD, forest encroachers are those people who illegally cut the forest trees and seize the forest land for their purposes. Local FD also identified that activities performed by encroachers are more destructive than other forest-dependent people. FD made a list of 700 encroachers from 57 villages surrounding this forest area with the help of tribal leaders and local public representatives who know well about their community people.

The program "Re-vegetation of Madhupur Forests" (RMF) is a co-management program executed by local FD in two phases. The first phase of the program took place from June 2009 to July 2012 and the second phase from July 2012 to June 2015, involving 700 encroachers belonging to both ethnic and nonethnic minorities (e.g., Garo and Bengali people). This RMF program was mainly designed for the encroachers due to their high dependency on forest land and resources; and therefore, to be an encroacher was the main criterion of membership in this program. The state owns forest land, and therefore FD always declined the free access of forest dwellers into the forest. RMF program ensured collective rights of tribal forest dwellers to use the forest resources, but they have to inform FD about their need from the forest. During its execution, the RMF program implemented different participatory activities like the formation of Community Forest Workers (CFW), groups consisting of encroachers from the same villages that meet monthly, development activities such as afforestation, and participation in training programs on alternative livelihoods. The primary responsibilities of the CFW were to protect their surrounding forest and to conduct a monthly follow-up meeting with FD staff.

Initially, RMF was a top-down approach, which has been planned by the top authorities of the FD. Then this program primarily focused on the interactive participation of the forest dwellers to create a co-management situation. FD also invited other possible stakeholders to play their potential role in the co-management situation. Co-management situation can only be ensured based on the degree of interactive participation of different actors (Knierim, Laschewski & Boyarintseva, 2018). At the beginning of the program, local FD led several group discussions and meetings with the tribal community and their leaders to encourage, motivate, and convince the tribal forest dwellers about the long- run benefit of the program. As a result, FD created a multi-stakeholder platform where 164 tribal people actively participated with the objective to develop the capacity of the tribal forest dwellers for managing forest collectively. Once the platform turned functional, further stakeholders besides the FD (such as social organizations, NGOs) became active and interacted with tribal forest dwellers for the following six years. In this RMF program, FD invited NGOs for providing training on different livelihood improvement activities and seeking support from social organizations to motivate forest dwellers for their active participation and cooperation.

2.3.2 Selection and measurement of the variables of social capital and capacities in a learning platform

Following the conceptual framework and literature review presented in the previous section, we developed a structured questionnaire with four sections: (i) questions to capture the capacities to adapt and respond to changes; (ii) questions to explore the social capital related with organizations and within the community; (iii) socioeconomic information; and (iv) access to services in PFM platform. Four core capacities, namely the capacity to navigate complexity, to collaborate, to learn and reflect, and to engage in strategic and political process were selected for this study based on the adopted framework (see, Figure 2.1). Due to its multidimensionality, each of the capacities was measured using several questions, each of those was measured using a four-point rating scale, that is, never, sometimes, most of the time and always; these were coded as 1, 2, 3, and 4, respectively. A total score was computed for each capacity.

In our study, the term "social capital" has been conceived as "features of social life –trust, social cohesion and inclusion, social commitment, etc. – that enable participants to act together more effectively to pursue shared objective" (Putnam, 1995, p. 664). Based on the guideline of the World Bank on social capital measurement at the macro level, this study chooses indicators for five dimensions of social capital, that is, trust, social cohesion and inclusion, access to information and communication infrastructure, social commitment, and voluntary cooperation (Grootaert, Narayan, Jones, & Woolcock, 2004). Several questions were presented to participants using a five-point Likert scale (from strongly agree to strongly disagree) to measure each indicator. A total score was computed for each dimension of social capital and used in the analysis (see, Table 2.1). These features of social capital related with

the linkages of respondents with existing organizations and livelihood improvement were purposely established: intensity of contacts, trust, and degree of importance.

Table 2.1 Concepts and variables.

Indicators (number of items)	Type of indicator	Unit	Response scale of items for aggregated indicators	References
Capacities to adapt and respond to changes				
Capacity to navigate complexity (4)	Aggregated	Score between 4-16		
Capacity for collaboration (5)	Aggregated	Score between 5-20	1=never 2=sometimes 3=most of the times 4=always	TAP (2016)
Capacity for learning and reflection (4)	Aggregated	Score between 4-16		
Capacity to engage in strategic and political process (4)	Aggregated	Score between 4-16		
Social network: interaction with organizations				
Trust score (11)	Aggregated	Score between 0-11	1= yes 0=no	
Intensity score (11)	Aggregated	Score between 0-22	0= no contact 1= time to time 2= often	Cantner et al. (2000); Landry et al. (2002)
Importance score (11)	Aggregated	Score between 11-44	1=no importance 2=partially important 3=moderately important 4=highly important	
Social capital: within community				
Trust (8)	Aggregated	Score between: 8-40	5=strongly agree	Grootaert et al. (2004) Lee, Rianti, and Park (2017)
Social cohesion and inclusion (10)	Aggregated	Score between: 10-50	4= agree	
Information and communication (3)	Aggregated	Score between: 3-15	3=no-opinion	
Social commitment (6)	Aggregated	Score between: 6-30	2=disagree	
Voluntary cooperation (4)	Aggregated	Score between: 4-20	1=strongly disagree	
Socio-demographic variables				
Age	Individual	years	-	
Level of Education	Individual	0=illiterate 1-18= years of schooling	-	Dolisca et al. (2006); Tesfaye et al. (2012)
Farm Size	Individual	hectare	-	
Dependency on forest resources	Individual	1=fully 2=partially 3=not at all		
Access to services PFM platform				
Getting extension service	Individual	1=yes 0=no	-	Lee, Rianti, and Park (2017); Lestari, Kotani, and Kakinaka (2014)
Access to credit organization	Individual	1=yes 0=no	-	
Participation in RMF program	Individual	1=yes 0=no	-	

In the course of the field study, firstly, a focus group discussion was conducted with eight tribal forest dwellers (a mixed group that knew the local organizations). As a result, 11 organizations were identified as relevant and included in the questionnaire. Interviewees were asked during the survey to rate their social contact with the identified organizations using a three-point scale ranging from 0 (no contact), 1 (time to time contacts), and 2 (frequent contacts). The scores of each respondent were summed up, and the result ranged from 0 (which means the absence of social contact) to 22 (which means the highest level of social contact with different organizations). The total score is used in the analysis following

Cantner, Conti, and Meder (2010). The variable "trust in the organization" is a dichotomous variable collected from the respondents with a binary response. A total score was computed, ranging from (0–11). Finally, the third variable is the "degree of importance of each organization," which was measured on a scale range from 1 to 4, where 1 indicates not important at all, and 4 indicates extremely important. This scale is slightly modified from Landry, Amara, and Lamari (2002). A total score for the question was also computed and ranged between 11 and 44 (see, Table 2.1).

Socioeconomic information included age (years), level of education (categories), farm size (ha), and dependency on forest resources (fully, partially). Finally, variables related with the type of access to services from RMF program consist of three factors: first, if the respondent is officially a participant of the program (binary variable), second, if participants get the extension service from RMF program, and third, if participants have access to credit from RMF program.

2.3.3 Description of the sample

Our sampling resulted in two de-facto groups of similar ethnic and socio-cultural background; whose members differed regarding their participation in the RMF program. For our study, we have considered only tribal forest dwellers, although mainstream Bengali people are also living in this Sal forest area. There are two reasons behind this selection, (i) tribal people are the original dwellers of this forest, and now the remaining forest is surrounded by 21 tribal villages. (ii) These tribal people are mainly dependent on forest resources for their livelihood. Hence, change in the capacity level of tribal forest dwellers can play a significant role to ensure sustainable management of the remaining forest. Therefore, we wanted to explore the CD issue of tribal forest dwellers and considered them for our study.

A random sampling method was used to select respondents for data collection. A list of 164 tribal forest dwellers who were encroachers and participated in RMF program, and of 150 tribal forest dwellers (those who are also dependent on the forest for food, medicine, and firewood) but who were not encroachers and did not have the opportunity to join in RMF program, was obtained from local forest office. For this study, 84 respondents were selected randomly from the list of 164 tribal forest dwellers (named "participants" in the following). On the other hand, 80 respondents were selected randomly from the list of 150 tribal forest dwellers (in the following treated as "nonparticipants"). We assumed that people who participate in a co-management program would exhibit changes in their capacity level. To know the actual difference, we considered a group of nonparticipants from the same socioeconomic background, also involved in natural resource management.

2.3.4 Data collection and analysis

This study employed a mixed method approach. A face-to-face survey among 164 respondents was conducted from June to December 2016. Additionally, three focus group discussions including eight purposively selected people in each (one with participants, one with non-participants and one mixed

group) were held to collect information, which helped us to formulate questions for the structured questionnaire and to elaborate and validate our quantitative findings. Information provided by key informants (n = 6) including the local forest officers, leaders, and school teachers from the tribal community, helped to understand the overall context. The first author of this article was directly involved in participatory observation for 6 months engaging in intensive social interaction with the tribal forest dwellers that helped in the understanding and interpretations of concepts such as social capital and social life of tribal forest dwellers. The triangulation with qualitative data gave additional insights. An experienced enumerator, selected with the help of leaders of tribal community and Assistant Conservator of Forest (administrative officer of the local FD), assisted throughout the data collection and made the research activities efficient.

To test the hypothesis on the influence of social capital features on the level of capacities of tribal people, we analyzed the data in two stages. Firstly, we conducted an independent sample *t*-test to compare between participants and nonparticipants searching for differences between the two groups. Secondly, a multiple regression analysis was conducted where we tested in how far the dependent variables (capacities) are influenced by the independent variables (social capital, socio-economic characteristics, and access to services of RMF). We want to explore the overall factors that affect the capacity level of tribal forest dwellers (participants and nonparticipants). In the analysis, we included the participation in RMF program as a dummy variable. The inclusion of the dummy variable captures the variance of capacity level due to participation. Moreover, we were concerned about our small sample size in the two categories of samples. We ran the regression analysis separately for the two groups that belong to the same socio-economic and ethnic background. But the small sample size retains the issue about how well the model fits our data. Small sample size might not detect a precise estimate of the strength of the relationship among variables.

2.4 Results

2.4.1 Differences in capacity level along with social network and social capital

Findings indicate differences in capacity level between participants and nonparticipants in all capacity dimensions except the capacity to navigate complexity (Table 2.2). In general, RMF program participants have higher scores in capacities to adapt and respond to changes. Intensive training and similar activities in the RMF program empowered the tribal participants and induced their level of capacity. For example, they gained new ideas and practical knowledge about alternative livelihood activities, as one female participant stated:

> "This program gave us the opportunity to increase our level of understanding regarding the sustainable use of non-timber forest product, about agroforestry practices, e.g., how to grow pineapple and tree together, about the negative effect of

> banana on small trees in agroforestry practice, about Sal coppice generation, etc. Now we have a better understanding, and we try to integrate it into our life."

A young tribal participant stated that

> "every month we met for a group discussion meeting where personnel from different organization came, and they discussed and gave us different practical training. We came to know from the discussion about the wider importance of natural resources for our environment and also for our livelihood. We got training in nursery development and management, poultry farming, vegetable production, organic agriculture, vermicomposting, fisheries, etc. We learned several things during this program period."

During the RMF program, participants have to monitor their own forests to control the illegal logging. This activity provided an opportunity for collaboration among them and also with the FD. They developed their own group for monitoring and felt responsible for protecting the surrounding forest resources. One participant during focus group discussion mentioned that

> "if we found someone who illegally logged in the forest to collect wood or other resources, we tried to prevent these activities and informed members from the FD."

Therefore, these types of activities in the RMF program provided an opportunity for developing the capacity to collaborate and to involve in the strategic and political process for managing their own forest.

The findings (Table 2.2) show that the average mean score of participants is higher than the nonparticipants for several aspects of networking. The intensity of social contacts and degree of importance of organizations significantly differ between groups. This indicates that compared to other forest-dependent people of this community, the program participants considered the organizations more important, which might influence the higher intensity of social contact.

Table 2.2 Differences in capacities, social network, and social capital.

Indicators	Total (n=164)		Participants (n=84)		Non-participants (n=80)		t-test differences of means
	Mean	SD	Mean	SD	Mean	SD	
Capacities to adapt and respond to changes							
Capacity to navigate complexity	8.85	1.83	8.99	1.84	8.71	1.82	0.96
Capacity for collaboration	7.88	1.92	8.17	2.09	7.59	1.70	1.93**
Capacity for learning and reflection	10.40	2.16	10.68	2.37	10.11	1.89	1.68***
Capacity to engage in strategic and political process	8.01	2.17	8.49	2.32	7.50	1.89	2.97*
Social network: interaction with organizations							
Trust score	6.82	3.03	7.01	3.17	6.62	2.88	0.81
Intensity score	4.77	2.76	5.15	2.91	4.38	2.56	1.81***
Importance score	22.62	5.57	23.71	5.92	21.46	4.95	2.63*
Social capital: within the community							
Trust	29.15	5.42	29.11	5.53	29.19	5.34	0.09
Social cohesion and inclusion	28.36	5.91	28.65	6.06	28.05	5.78	0.17
Information and communication	13.04	3.63	12.96	3.54	13.16	3.69	0.34
Social commitment	22.57	3.66	22.27	3.81	22.84	3.56	1.02
Voluntary cooperation	9.49	2.76	9.70	2.85	9.28	2.67	0.98

Significance: *p <.01, **p <.05, ***p <.10

Several key informants mentioned that program participants had better realization about the importance of organizations for their CD. In general, tribal forest dwellers are strongly tied to their own organization and show skepticism about external organizations. Thus, the mean value for trust score with organization only differs slightly between the two groups (no statistical significance). This result indicates that the trust issue remains same despite the participation in RMF program by tribal forest dwellers. Concerning social networking, some key informants noted that tribal forest dwellers expected that NGO's people should visit their place for solving their problems. Therefore, tribal forest dwellers do not make use of several information service centers available in the locality. RMF program enabled the participants to seek out for networking with existing organizations actively.

Next, the findings indicate (Table 2.2) that there was no significant difference among participants and non-participants regarding indicators of social capital. The result of this study shows that mean value for trust within society is around 29, indicating that the level of trust is high within the community. Traditionally, the tribal people in Madhupur Sal forest have a trust-based culture helping them to maintain social cohesion.

Overall, community members rely on each other for information, which helps them in the decision-making process. Accordingly, the result shows that participants have a high level of access (possible score is 3–15) to information and communication infrastructure within their community. In contrast to other indicators, both groups have a low level (possible score is 4–20) of willingness for voluntary cooperation. The findings indicate that participant and non-participant of the Sal forest management did not differ regarding the level of their social capital. This indicates that participants and non-participants

groups might not face a challenge in sharing of information and communication. This was also reflected during the key-informant interview where a tribal woman stated that

> "people were scared, and the participation rate was too low when the local FD called for a community meeting to let us know about this program. Later, we discussed this program in our community in the presence of our leader, and the community took collective decision to cooperate with the FD for this program. Subsequently, we individually participated in this RMF program."

2.4.2 Factors influencing the capacity development of tribal forest dwellers

Results show that different capacities are influenced by several factors (Table 2.3). The capacity to navigate complexity is influenced by trust within the members of the tribal community; access to information and communication infrastructures; total farm size; getting extension services. The capacity of collaboration is influenced by trust with organizations; access to information and communication infrastructures; age; access to credit organizations. The capacity of learning and reflection is influenced by trust with organizations; social cohesion and inclusion; access to information and communication infrastructures; getting extension services; access to credit organizations; participation in RMF program. The capacity of strategic and political process is influenced by trust with organizations; social commitment; dependency on forest resources; getting extension services; participation in RMF program.

Overall, the findings indicate that including participation in RMF program, the various aspects of learning platforms have different effects on the development of capacities of tribal forest dwellers (both participants and nonparticipants of RMF program). Participation in forest resource management program per se significantly influences the capacity of learning and reflection and is linked with the level of understanding about different rights in forest management system. However, it is surprising that the participation in the RMF program aims to create groups of collaboration, but our findings indicate that being a participant does not influence the ability to navigate complexity and the ability for collaboration. A tribal forest dweller who actively participated in the management program had a higher capacity to learn and reflect compared to other resource users. The participants from the RMF program stated that they could realize the power relation (e.g., benefit sharing, decision making, etc.) and become aware of claiming legal rights by raising their own voice.

Having obtained extension services was a crucial factor for explaining the capacity to navigate one's complexity; to learn and reflect, and to engage in the strategic and political process without influencing the capacity of collaboration. Our result underscores the crucial role of extension service for CD. But the lack of extension service was reported as a major challenge by tribal forest dwellers, and we also found that less than 25% of people were getting up to date extension services.

Table 2.3 Regression results.

Factors	Capacities to adapt and respond to changes of tribal people (n=164)			
	Navigate complexity	Collaboration	Learning and reflection	Strategic and political process
Social network: interaction with organizations				
Trust score	0.029(0.46)	0.267(4.84) *	0.243(3.60) *	0.186(2.67) *
Intensity score	0.012(0.23)	0.057(1.20)	0.033(0.57)	0.073(1.23)
Importance score	0.014(0.52)	0.004(0.16)	0.033(1.09)	0.016(0.51)
Social capital: within the community				
Trust	0.050(2.02) **	0.016(0.72)	0.000(0.01)	0.027(0.97)
Social cohesion and inclusion	0.019(0.73)	0.032(1.43)	0.062(2.23) **	0.041(1.43)
Information and communication	0.120(3.09) *	0.129(3.71) *	0.146(3.44) *	0.057(1.29)
Social commitment	0.004(0.10)	0.007(0.24)	0.016(0.43)	0.076(1.98) **
Voluntary cooperation	0.053(1.05)	0.071(1.60)	0.038(0.70)	0.072(1.28)
Socio-demographic variables				
Age	0.120(0.59)	-0.306(-1.72) ***	-0.079(-0.364)	-0.115(-0.512)
Level of education	0.51(0.25)	0.007(0.03)	0.024(0.11)	0.304(1.34)
Farm size	0.285(1.96) **	0.043(0.334)	0.107(0.678)	0.072(0.442)
Dependency on forest resources	0.231(1.15)	-0.201(-1.12)	-0.133(-0.61)	-0.419 (-1.86) ***
Access to services in PFM platform				
Getting extension service	0.845(2.72) *	0.399(1.44)	0.709(2.10) **	0.672(1.92) ***
Access to credit organization	0.439(1.60)	0.801(3.28) *	0.972(3.26) *	0.473 (1.53)
Participation in RMF program	0.252(0.96)	0.331(1.41)	0.477(1.67) ***	0.720(2.43) **
Constant	2.42***	2.65**	5.04*	1.52***
F-value	5.19*	10.84*	7.74*	6.72*
Adjusted R²	0.292	0.491	0.398	0.360

t-values are given in parentheses; Significance: *p <.01, **p <.05, ***p <.10

Access to credit organization is another factor that influences the capacity of tribal forest dwellers to learn and reflect and to collaborate with others, although it does not affect the ability to navigate complexity and strategic and political process. According to the tribal forest dwellers, credit is generally believed an important incentive, which can help them in their current agricultural practices and start new entrepreneurship for livelihood improvement. During the open discussion, they stated that due to lack of credit, they are not able to cultivate their own land. They also explained that they have no legal documents for their land, and therefore, formal banks refused their loan application. As this is a state forest, the government denied their land ownership since 1980 (Gain, 2002). Therefore, their dependency on forest remains unchanged. One female participant stated that

> "I have learned some alternative livelihood activities (e.g., training on Jam-Jelly preparation, vegetable production, nursery management and so on) during this PFM program, but I could not apply those practically due to lack of credit and lack of access in credit organization."

Concerning social capital indicators, the results indicate that only the indicator of networking, i.e., trust on organization has a significant effect on the CD of tribal forest dwellers. If the FD fails to ensure trust and fairness of the tribal forest dwellers regarding different uncertainties like livelihood options or

property rights, then conflict arises and results in non-cooperation (Gain, 2002). In this forest area, tribal people hardly believe in unfamiliar contacts. Moreover, historically, they have a lack of trust in local FD and in their programs (Gain, 2002). The regression results show that trust had a positive effect in explaining more than one capacity dimension. At the very beginning of data collection one key informant, who is also a school teacher, refused to share any information and replied,

> "We, the community leaders, decide that without the permission of tribal leaders, no unknown person can be provided with any information."

They also suggested to their community members that they should not share any information with local forest personnel.

Other factors explaining different CD processes are trust within society, social cohesion and inclusion, access to information and communication infrastructure, and social commitment. Among all the factors, the access to information and communication infrastructure influenced more than one capacity dimension of tribal forest dwellers. This implies that with better access to communication and information infrastructure, participants gain the capacity to navigate their complexity better, to learn and reflect, and to collaborate.

2.5 Discussion

Regarding the change in the capacity level along with social network and social capital of the participants through the RMF program, we found evidence of effective change (Table 2.2). In our case, the tribal forest dwellers ensured their willingness to participate based on the promises offered by the FD during the early stage of the RMF program and efforts to convince the tribal forest dwellers. The adjusted RMF program enabled the participants' understanding of the wider objective of forest management and minimized conflicts through increased capacity to collaborate. This program brings different stakeholders together, along with participants and enables them to think critically and bring changes in their action (capacity for learning and reflection). The long-run engagement with different actors also increases the understanding of participants and keeps them up-to-date about their rights in the forest management system (capacity to engage in strategic and political processes). The management of degraded forest with other stakeholders in a sustainable manner requires such changes among forest-dependent people at the individual level. Earlier studies conceptualized that these changes at the individual level are associated with further stakeholder alliance, which enhances wider capacity beyond specific initiatives (see, Suškevičs, et al., 2018).

However, the changes in capacity level can be explained by several issues. The study suggests that natural resource management programs should consider the existing level of social capital before taking any initiatives requiring collective action and cooperation from the wider community. The level of social

capital is associated with the success of the development organizations in engaging participants in the program while securing cooperation from the wider community. The new ideas and initiatives should cater to pre-existing bonding and social cohesion and align with the needs and demands of the wider community (i.e., participants and non-participants). Bodin and Crona (2008) noted that a dynamic interplay between the social capital within the community, and social capital with organization and community could be differentiated based on any initiatives of PFM where in most cases needs and demands of the forest-dependent people were ignored. In that contrast, our results (Table 2.2) indicate that there was no difference or division among the tribal forest dwellers regarding social capital. Furthermore, RMF program ensured the trust of the tribal forest dwellers. In our case, FD worked through existing social capital within the community and took initiatives (several group discussions and repeated meetings) before the program which also brought a common consensus of the tribal forest dwellers (participants and nonparticipants) about the program and reduced the existing conflict between the FD and tribal forest dwellers. When individuals from resource-bounded community perceive the common consensus between forest managers and community, then they can make use of this community resources for their individual use. The results reinforce the suggestion of Leahy and Anderson (2010) for considering social capital within the community before any management initiatives. This common consensus among community and forest managers encourages the individuals for further networking with other actors through their participation in PFM initiatives, which enhance their capacity to collaborate, to learn and reflect, and to engage in the strategic and political process.

The result (Table 2.2) from the empirical analysis also depicts that participants of the RMF program achieved better ability for networking with existing organizations compared to nonparticipants. The participants consider the organizations more important, which might influence their intensity of social contact, and stimulate the information sharing, increase the likelihood to secure training, and to accept livelihood support from the organizations. Furthermore, it likely helped participants in realizing the broader perspective of the management program and managing conflicts in a multi-actor setting. This is in line with Pietri et al. (2015) who also observed that learning networks strengthen the capacity of participants in a large-scale marine governance effort (Coral Reefs management) among six countries (Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor Leste). Moreover, our finding is consistent with Suškevičs et al. (2018) that multi-stakeholder networks foster learning and facilitate the transformative change of the participants. Wossen, Thomas, Teferi, and Bamlaku (2013) also identified the effect of social network size in enhancing adoption of sustainable natural resource management practice.

However, the objective of participatory management intervention is not only to capacitate the specific participants on some particular forest management activities but also to make broader changes among forest-dependent people in their way of thinking and doing. Therefore, it is essential to consider factors, which enable the tribal forest dwellers to capture opportunities like getting extension services, credit

facilities, and so on, to facilitate learning and action. CD occurs over time, and no single factor can determine the CD (Tropical Agriculture Platform (TAP), 2016). The findings indicate several factors, which enhanced the different capacity of tribal forest dwellers (see, Table 2.3). Firstly, the change in cognitive level, that is, changes in knowledge, skill, attitude, and behavior towards sustainable resource use, conservation of forest resources, and new management practice, is necessary for enhancing the capacity of forest resource users. Effective extension service is needed for this type of change, which ultimately reduces the dependency of tribal forest dwellers on forest resources. This finding is supported by Ahmed and Flaherty (2015), who emphasized the necessity of extension services for enhancing the ability of the Garo community for alternative livelihood activities. Extension services not only help to learn but also motivate the tribal people to reflect their learning. Secondly, access to credit organization and getting credit support is needed for tribal forest dwellers to be able to collaborate with different organizations. As they collaborate, they get the opportunity to learn and reflect different alternative livelihood activities practically. However, the findings indicated that tribal forest dwellers had no access to formal credit institutions. Thirdly, some general issues related to human resources should be given considerations. For instance, tribal forest dwellers do not participate and show noncooperation in any government initiatives due to unawareness or passive attitude (Khan & Begum, 1997). If there is no change of such a general outlook, it can limit their CD. The findings indicate that participation in the RMF program increased the capacity of the participants for learning and reflection, and engaging in the strategic and political process. Participation in such a platform increases the probability of networking with other stakeholders and influences process of critical reflection of participants through action and change (Tropical Agriculture Platform (TAP), 2016). Fourthly, the trust issue is central to the success of any PFM. The findings echo with another study (Muro & Jeffrey, 2008) that revealed trust (emerging at an individual level as a result of networking with organizations; see, Floress, Prokopy, & Allred, 2011) as a vital factor in a social learning platform. In this RMF program platform, trust is the most important factor for facilitating a positive attitude and behavior of the participants for taking part in collaborative activities (Kempe, 2011), and subsequently moving towards strong relationships with extension service providers and other support organization. Finally, access to information and communication infrastructure play a crucial role in the decision-making process of the tribal forest dwellers by enhancing their level of knowledge about broader aspects of resource management, new technologies, and alternative livelihood option. Muro and Jeffrey (2008) also stressed the importance of various sources of information and the need for open communication in this social learning platform for developing the capacity of resource users.

This study is based on a specific program and specific context, which might not bring the same result from other programs with similar objectives. Our study only considered tribal people, though there are Bengali people who participated in the RMF program. In future, a study could compare capacity dimension in between tribal forest dwellers and Bengali people. Moreover, there might be a question of "subjectivity." Measuring social capital with variables like social commitment could be influenced by

individual subjectivity. This issue could be addressed by test-retest reliability, but unfortunately, we did not address this issue. Nevertheless, this study opens a new understanding of capacity and CD of resource users within a forest management setting and suggests a way for further research on the CD of resource users in a similar context.

2.6 Conclusions

This study aims to integrate different dimensions of capacity to explain the social learning outcomes of a forest resource management program in Bangladesh. Earlier studies mainly focused on structural and procedural issues of the learning platform without looking into the empirical evidence of the outcome of social learning platform. Keeping the success story of the RMF program in mind, we assess the development of capacities as an output of social learning platform and identify the factors (socioeconomic characteristics, access to services PFM, social networking, and social capital) that influence the CD. The modified analytical framework has proven useful for the operationalization and the tracing-back of factors affecting the CD process. Further application of this framework for the monitoring and assessment of resource users' capacities in any resource management context is recommended.

The findings of the study indicate that PFM at Madhupur Sal forest in Bangladesh was successful in developing the capacity of the program participants. Participants have a higher level of capacity to collaborate, to learn and reflect, and to engage in the strategic and political process than nonparticipants, and these differences are statistically distinct. This change can be related to several factors, for example, extension services, credit support, trust with organizations, access to information, and communication infrastructure. Further, the intensity of social contact of the participants with organizations increases the likelihood of their CD in different dimensions. While implementing participatory interventions like RMF, it is necessary to consider existing social capital within the wider community. If participants and non-participants have trusting relationships, it will encourage cooperation and collaboration among different actors, including nonparticipants and other organizations.

Change in capacity level of tribal forest dwellers is a critical issue because of its practical implication in the sustainable management of Sal forest. Human development goal is one of the principles of sustainable forest management. The change in the capacity level of the forest dwellers is part of human development and can contribute practically to achieve sustainable Sal forest management. Change in capacity at different dimensions can reduce the dependency of forest dwellers on the forest as well as make them capable of holding the FD accountable. Moreover, the evidence of changes in capacity dimensions and associated factors in this change process can inform future program and project to stay organized accordingly. The findings of this study have several important implications for future PFM program. Future PFM program in Sal forest context should consider:

- different complementary aspects of the program (extension service, credit) to develop the abilities to adapt and change. Participation itself is not enough. The support for credit should be aligned with the extension services. While extension services can provide necessary information and change knowledge and skills of sustainably using forest resources, the credit support increases the probability to take a decision and utilize the knowledge and skills for their well-being
- the relationship with the external organizations, especially the level of trust developed
- aspects of social capital such as trust between community members, the social cohesion, and access to information and communication infrastructures.

2.7 References

Ahmed, N. & Flaherty, M. S. (2015). Opportunities for Aquaculture in the Ethnic Garo Community of Northern Bangladesh. *Water Resources and Rural Development, 3,* 14–26. https://doi.org/10.1016/j.wrr.2014.03.001.

Alam, M., Furukawa, Y., Sarker, S.K., & Ahmed, R. (2008). Sustainability of Sal (*Shorea robusta*) forest in Bangladesh: past, present and future actions. *International Forestry Review, 10,* 29–37. https://doi.org/10.1505/ifor.10.1.29.

Berkes, F. (2009). Evolution of Co-Management: Role of Knowledge Generation, Bridging Organizations and Social Learning. *Journal of Environmental Management, 90,* 1692–1702. https://doi.org/10.1016/j.jenvman.2008.12.001.

Blagescu, M., & Young, J. (2006). Capacity Development for Policy Advocacy: Current Thinking and Approaches among Agencies Supporting Civil Society Organizations. *ODI Working Paper, no. 260*.

Bodin, Ö., & Crona, B. I. (2008). Management of Natural Resources at the Community Level: Exploring the Role of Social Capital and Leadership in a Rural Fishing Community. *World Development, 36,* 2763–2779. https://doi.org/10.1016/j.worlddev.2007.12.002.

Bolger, J. (2000). Capacity Development: Why, What and How. *Capacity Development Occasional Series 1, 1,* 1–8. Available at: http://portals.wi.wur.nl/files/docs/SPICAD/16. Why what and how of capacity development - CIDA.pdf (accessed on 26 December 2017).

Buck, L.E., Wollenberg, E., and Edmunds, D. (2001). Social learning in the collaborative management of community forests: lessons from the field. In: E. Wollenberg et al., eds. *Social Learning in community forest management* (pp. 1-20). Bogor Barat, Indonesia: CIFOR and the East-West Center.

~ Chapter 2~

Cantner, U., Conti, E., & Meder, A. (2010). Networks and Innovation: The Role of Social Assets in Explaining Firms' Innovative Capacity. *European Planning Studies, 18,* 1937–1956. https://doi.org/10.1080/09654313.2010.515795.

Chapin, F. S., Carpenter, S. R., Kofinas, G. P., Folke, C., Abel, N., Clark, W. C., ... Swanson, F. J. (2010). Ecosystem stewardship: sustainability strategies for a rapidly changing planet. *Trends in Ecology and Evolution, 25,* 241–249. https://doi.org/10.1016/j.tree.2009.10.008.

Cundill, G., & Rodela, R. (2012). A Review of Assertions about the Processes and Outcomes of Social Learning in Natural Resource Management. *Journal of Environmental Management, 113,* 7–14. https://doi.org/10.1016/j.jenvman.2012.08.021.

Dolisca, F., Carter, D. R., McDaniel, J. M., Shannon, D. A., & Jolly, C. M. (2006). Factors Influencing Farmers' Participation in Forestry Management Programs: A Case Study from Haiti. *Forest Ecology and Management, 236,* 324–331. https://doi.org/10.1016/j.foreco.2006.09.017.

Fazey, I., Fazey, J. A., & Fazey, D. M. A. (2005). Learning more effectively from experience. *Ecology and Society, 10,* 4. http://www.ecologyandsociety.org/vol10/iss2/art4/.

Fazey, I., Fazey, J. A., Fischer, J., Sherren, K., Warren, J., Noss, R. F., & Dovers, S. R. (2007). Adaptive capacity and learning to learn as leverage for social-ecological resilience. *Frontiers in Ecology and the Environment, 5,* 375–380. https://doi.org/10.1890/1540-9295(2007)5[375:ACALTL]2.0.CO;2.

Fazey, I., Gamarra, J. G. P., Fischer, J., Reed, M. S., Stringer, L. C., & Christie, M. (2010). Adaptation strategies for reducing vulnerability to future environmental change. *Frontiers in Ecology and the Environment, 8,* 414–422. https://doi.org/10.1890/080215.

Floress, K., Prokopy, L.S., & Allred, S. B. (2011). It's Who You Know: Social Capital, Social Networks, and Watershed Groups. *Society & Natural Resources, 24,* 871–886. https://doi.org/10.1080/08941920903493926.

Gain, P. (2002). *The last forests of Bangladesh*, 2nd Ed.; Society for Environment and Human Development (SEHD): Dhaka, Bangladesh.

Grootaert, C., Narayan, D., Jones, V. N., & Woolcock, M. (2004). *Measuring Social Capital-An Integrated Questionnaire*. World Bank Working Paper 18, Washington, D.C. (USA): World Bank. Available from: http://documents.worldbank.org/curated/en/515261468740392133/pdf/281100PAPER0Measuring0social0capital.pdf.

Gwandu, T., Mtambanengwe, F., Mapfumo, P., Mashavave, T.C., Chikowo, R., & Nezomba, H. (2014). Factors Influencing Access to Integrated Soil Fertility Management Information and Knowledge and Its Uptake among Smallholder Farmers in Zimbabwe. *The Journal of Agricultural Education and Extension, 20,* 79–93. https://doi.org/10.1080/1389224X.2012.757245.

~ Chapter 2~

Ibrahim, H. S., & Hegazy, I. (2015). Capacity Development for Integrated Coastal Zone Management in Egypt. *Coastal Management, 43,* 539–554.

Inkpen, A. C., & Tsang, E. W. K. (2005). Social Capital Networks, and Knowledge Transfer. *Academy of Management Review, 30,* 146–165.

Islam, K. K., & Sato, N. (2012a). Deforestation, Land Conversion and Illegal Logging in Bangladesh: The Case of the Sal (*Shorea Robusta*) Forests. *iForest - Biogeosciences and Forestry, 5,* 171–178. doi: 10.3832/ifor0578-005.

Islam, K. K., & Sato, N. (2012b). Participatory Forestry in Bangladesh: Has It Helped to Increase the Livelihoods of Sal Forests-Dependent People? Southern Forests: *A Journal of Forest Science, 74,* 89–101. https://doi.org/10.2989/20702620.2012.701434.

Islam, K. K., & Sato, N. (2013a). Protected Sal Forest and Livelihoods of Ethnic Minorities: Experience from Bangladesh. *Journal of Sustainable Forestry, 32,* 412–436. https://doi.org/10.1080/10549811.2013.762571.

Islam, K. K., Kimihiko, H., Tani, M., Krott M., & Sato, N. (2014). Actors' Power, Livelihood Assets and Participatory Forestry in Bangladesh: Evidence from the Sal Forests Area. *Open Journal of Forestry, 4,* 1-9. doi: 10.4236/ojf.2014.45B001.

Islam, K. K., Rahman, G. M., Fujiwara, T., & Sato, N. (2013b). People's Participation in Forest Conservation and Livelihoods Improvement: Experience from a Forestry Project in Bangladesh. *International Journal of Biodiversity Science, Ecosystem Services and Management, 9,* 30–43. https://doi.org/10.1080/21513732.2012.748692.

Kempe, R. H. (2011). Investing in Capacity Development: Towards an Implementation Framework. *Policy Studies, 32,* 59–72. https://doi.org/10.1080/01442872.2010.529273.

Khan, N.A., & Begum, S. A. (1997). Participation in social forestry re-examined: a case-study from Bangladesh. *Development in Practice, 7,* 260-266. https://doi.org/10.1080/09614529754495.

Knierim A., Laschewski L., Boyarintseva O. (2018) Inter- and Transdisciplinarity in Bioeconomy. In: Lewandowski I. (eds) *Bioeconomy* (pp. 39-72). Springer, Cham.

Landry, R., Amara, N., & Lamari, M. (2002). Does Social capital determine innovation? To What Extent? *Technological Forecasting & Social Change, 69,* 681–701. https://doi.org/10.1016/S0040-1625(01)00170-6.

Leahy, J. E., & Anderson, D. H. (2010). Cooperation Gets It Done': Social Capital in Natural Resources Management along the Kaskaskia River. *Society & Natural Resources, 23,* 224–239. https://doi.org/10.1080/08941920802378897.

~ Chapter 2~

Lee, Y., Indri P. R., & Mi S. P. (2017). Measuring social capital in Indonesian community forest management. *Forest Science and Technology, 13,* 133-141. https://doi.org/10.1080/21580103.2017.1355335.

Lestari, S., Kotani, K., & Kakinaka, M. (2015). Enhancing Voluntary Participation in Community Collaborative Forest Management: A Case of Central Java, Indonesia. *Journal of Environmental Management,150,*299-309. https://doi.org/10.1016/j.jenvman.2014.10.009.

Mendoza, G. A., & Prabhu R. (2005). Combining Participatory Modelling and Multi-Criteria Analysis for Community-Based Forest Management. *Forest Ecology and Management, 207,* 145–156. https://doi.org/10.1016/j.foreco.2004.10.024.

Muro, M., & Jeffrey, P. (2008). A Critical Review of the Theory and Application of Social Learning in Participatory Natural Resource Management Processes. *Journal of Environmental Planning and Management, 51,* 325-344. https://doi.org/10.1080/09640560801977190.

Nath, T. K., & Inoue, M. (2010). Impacts of Participatory Forestry on Livelihoods of Ethnic People: Experience from Bangladesh. *Society & Natural Resources, 23,* 1093-1107. http://dx.doi.org/10.1080/08941920802653521.

Nelson, F., & Agrawal, A. (2008). Patronage or Participation? Community-based Natural Resource Management Reform in Sub-Saharan Africa. *Development and Change, 39,* 557–585. https://doi.org/10.1111/j.1467-7660.2008.00496.x.

Pahl-wostl, C., Craps, M., Dewulf, A., Mostert, E., Tabara, D., & Taillieu, T. (2007). Social Learning and Water Resources Management. *Ecology & Society, 12,* 5. http://www.ecologyandsociety.org/vol12/iss2/art5/.

Pietri, D. M., Stevenson, T. C., & Christie, P. (2015). The Coral Triangle Initiative and Regional Exchanges: Strengthening Capacity through a Regional Learning Network. *Global Environmental Change, 33,* 165–176. http://dx.doi.org/10.1016/j.gloenvcha.2015.05.005.

Probst, K., Hagmann, J., Fernandez, M., & Ashby, A. J. (2003). Understanding Participatory Research in the Context of Natural Resource Management Paradigms, Approaches and Typologies. *AgREN Network Paper No. 130*, London: ODI.

Putnam, R. (1995). Tuning in, tuning out: the strange disappearance of social capital in America. *Political science and politics,28,* 664–683.

Rasul, G., Thapa, G.B., & Karki, M.B. (2011). Comparative Analysis of Evolution of Participatory Forest Management Institutions in South Asia. *Society & Natural Resources, 24,* 1322–1334. http://dx.doi.org/10.1080/08941920.2010.545966.

~ Chapter 2~

Raymond, C. M., & Cleary, J. (2013). A tool and process that facilitate community capacity building and social learning for natural resource management. *Ecology and Society, 18,* 25. http://dx.doi.org/10.5751/ES-05238-180125.

Rist, S., Mani, C., Cesar, E., Urs, W., & Anne, Z. (2007). Moving from Sustainable Management to Sustainable Governance of Natural Resources: The Role of Social Learning Processes in Rural India, Bolivia and Mali. *Journal of Rural Studies, 23,* 23–37. https://doi.org/10.1016/j.jrurstud.2006.02.006.

Rodela, R. (2011). Social learning and natural resource management: the emergence of three research perspectives. *Ecology and Society, 16,* 30. http://dx.doi.org/10.5751/ES-04554-160430.

Romina, R. (2014). Social Learning, Natural Resource Management, and Participatory Activities: A reflection on construct development and testing. *NJAS - Wageningen Journal of Life Sciences, 69,* 15–22. https://doi.org/10.1016/j.njas.2014.03.004.

Safa, M. S. (2014). The effect of participatory forest management on the livelihood of the settlers in a rehabilitation program of degraded forest in Bangladesh. *Small-scale Forest Economics, Management and Policy, 3,* 223–238. https://doi.org/10.1007/s11842-004-0016-z.

Salam, M. A., & Noguchi, T. (2005a). On Sustainable Development of Social Forestry in Bangladesh: Experiences from Sal (Shorea Robusta) Forests. *Environment, Development and Sustainability, 7,* 209–227. https://doi.org/10.1007/s10668-005-7313-3.

Salam, M. A., & Noguchi, T. (2005b). Evaluating Capacity Development for Participatory Forest Management in Bangladesh's Sal Forests Based on '4Rs' Stakeholder Analysis. *Forest Policy and Economics, 8,* 785–796. https://doi.org/10.1016/j.forpol.2004.12.004.

Schusler, T., Decker, D., & Pfeffer, M. (2003). Social Learning for Collaborative Natural Resource Management. *Society Natural Resources, 16,* 309–326. https://doi.org/10.1080/08941920390178874.

Steyaert, P., Barzman, M., Billaud, J-P., Brives, H., Hubert, B., Ollivier, G., & Roche, B. (2007). The Role of Knowledge and Research in Facilitating Social Learning among Stakeholders in Natural Resources Management in the French Atlantic Coastal Wetlands. *Environmental Science and Policy, 10,* 537–550. https://doi.org/10.1016/j.envsci.2007.01.012.

Suškevičs, M., Thomas, H., Romina, R., Biljana, M., & Claudia, P. (2018). Learning for social-ecological change: a qualitative review of outcomes across empirical literature in natural resource management. *Journal of Environmental Planning and Management, 61,* 1085-1112. https://doi.org/10.1080/09640568.2017.1339594.

Tesfaye, Y., Roos, A., Campbell, B. J., & Bohlin, F. (2012). Factors Associated with the Performance of User Groups in a Participatory Forest Management around Dodola Forest in the Bale Mountains,

Southern Ethiopia. *Journal of Development Studies, 48,* 1665–1682. https://doi.org/10.1080/00220388.2012.714123.

Thondhlana, G., Georgina, C., & Thembela, K. (2016). Co-Management, Land Rights, and Conflicts Around South Africa's Silaka Nature Reserve. *Society & Natural Resources, 29,* 403–417. https://doi.org/10.1080/08941920.2015.1089609.

Tropical Agriculture Platform (TAP). (2016). Common Framework on Capacity Development for Agricultural Innovation System: Guidance Note on Operationalization. CAB International, Wallingford, UK.

United Nations (UN). (1993). Agenda 21: Program of Action for Sustainable Development, Chapter 17: Protection of the Oceans, All Kinds of Seas, Including Enclosed and Semi-enclosed Seas, and Coastal Areas and the Protection, Rational Use and Development of their Living Resources. ENVIRONMENT AND DEVELOPMENT. Rio de Janeiro. New York, USA. United Nations, Department of Public Information.

Venner, M. (2015). The Concept of 'capacity' in Development Assistance: New Paradigm or More of the Same? *Global Change, Peace & Security, 27,* 85-96. https://doi.org/10.1080/14781158.2015.994488.

Wossen, T., Thomas, B., Teferi, M., & Bamlaku, A. (2013). Social Network Effects on the Adoption of Sustainable Natural Resource Management Practices in Ethiopia. *International Journal of Sustainable Development & World Ecology, 20,* 477–483. https://doi.org/10.1080/13504509.2013.856048.

3 Assessment of a pluralistic advisory system: The case of Madhupur Sal Forest in Bangladesh

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Abstract

Purpose: Participatory forest management initiatives in Madhupur Sal Forest in Bangladesh are characterized by the coexistence of diverse types of advisory service providers. Despite about a decade of implementation of forest management initiatives, an assessment of the service delivery from a pluralistic advisory service framework is not evident. This study aimed to assess the role and performance of different advisory service providers in terms of a discussion on how pluralistic advisory services contribute to the management of forest resources.

Methodology: We employed a stakeholder analysis to identify different advisory service providers, along with their power relation with forest dwellers. The quality and character of the services were studied by applying a participatory workshop format and nine semi-structured interviews. The data were coded and analyzed qualitatively, and presented as tables, a stakeholder matrix, and a bar-chart.

Findings and practical implications: The study found that most of the advisory service providers did not ensure quality of the services, and did not orient their services towards the needs and demands of the forest dwellers. The advisory service providers continued to work with a coordination gap among themselves and the forest dwellers, which ultimately hindered their collective efforts to mobilize resources and build the strong relational condition necessary for the proper management of forest resources. The assessment provides lessons for the existing advisory service providers, and urges them to consider characteristics and service quality when creating new arrangements for forest advisory service delivery.

Theoretical implications: This study applied a 'best fit' framework to the micro-level case of a forest advisory service, which helped to explore the dynamics of an advisory system linked to forest management initiatives.

Originality: This is the first attempt to assess a pluralistic advisory system for forest management in Bangladesh.

KEYWORDS**:** Participatory forest management, pluralistic advisory system, Madhupur Sal Forest, governance framework, stakeholder analysis, Bangladesh

3.1 Introduction

Advisory services are an essential means of promoting sustainable forest management (Wild-Eck et al., 2006; Darr et al., 2014); however, there is a paucity of literature related to forestry advisory services, since contemporary studies predominantly focus on advisory services for agricultural development (see, e.g., Faure et al., 2013; Österle et al., 2016; Klerkx et al., 2017; Knierim et al., 2017). Although agriculture and forestry advisory services aim to satisfy the interests and needs of their clients, forestry advisory systems deal with long timeframes of resource generation, conflicts over resource rights, power relations in play, and dynamic relationships between nature and livelihoods (Darr et al., 2014; Kandzior and Rivas, 2016). Within this distinctive and complex feature, many stakeholders (e.g., forest dwellers and advisory service providers from a state agency or non-governmental organization - NGO) are working with their self-organized capacity and voluntary cooperation to ensure sustainable forest management. In order to deal with complex features, and as part of an integrative measure, the participatory forest management (PFM) approach has become an important agenda (Szaro et al., 2000). The PFM approach encourages organizational pluralism for articulating and meeting the needs and demands of forest dwellers. Despite the organizational pluralism, many developing countries have been facing diverse challenges to fulfill the needs and demands of forest dwellers through participatory initiatives (Thondhlana et al., 2016).

In Bangladesh, the government is paying increasing attention to PFM to achieve the goal of sustainable forest management. The state agency (the Forest Department - FD) is mainly responsible for providing advisory support to improve the livelihoods of forest dwellers. The PFM initiatives were introduced in Bangladesh under the Thana Afforestation and Nursery Development Program in 1987–88 (Table 1). The PFM initiatives influenced the emergence of a pluralistic advisory system for managing forest resources. According to the present forest management policy (adopted in 1994, with a 25-year masterplan), the central concern was to enhance the capacity of the forest dwellers, and support them with alternative livelihood options through different forestry extension programs (Rana et al., 2007). In the last two decades, private sectors have started engaging in the provision of advisory services (Safa, 2006), and have contributed a new dimension to forest management. The collaboration among public agencies, NGOs, and private sectors has been highlighted in the policy guidelines (Bangladesh Gazette, 1995, p. 241–244).

Forest management practices and outcomes for the local forest users in the Madhupur Sal Forest area of Bangladesh remain contested, however (Gain, 2002; Islam and Sato, 2013). Muhammed et al., (2008) emphasized that forest dwellers need to be educated, engaged, and encouraged for their active participation. Salam and Noguchi (2005) reported that existing organizations in this forest area might not have the capacity to articulate the needs and expectations of the forest dwellers. The outcomes of the forest management initiatives cannot produce promising results because the forest area has been

reduced drastically from 35% to 10% (Islam and Sato, 2013), the livelihood conditions of the indigenous forest dwellers have become more vulnerable (Islam and Sato, 2013), and conflicts between the FD and the tribal community persist (Gain, 2002).

Table 3.1 Forestry extension programs in Bangladesh (Sources, Jashimuddin and Inoue, 2012; Islam et al., 2013).

Forestry extension program	Period
Forestry Extension Service Phase I	1962-1963
Development of Forestry Extension Service Phase II	1980–1985
Thana Afforestation and Nursery Development Project	1987–1995
Nishorgo Support Project	1999–2008
Poverty Alleviation through Social Forestry	2010–2013
Re-vegetation of Madhupur Forests through Rehabilitation of Forest Depended Local and Ethnic Communities (RMF)	2009-2015

Moreover, the contemporary performance of public sector advisory agencies in Bangladesh (Chowdhury, 2010; Chowdhury et al., 2014) and elsewhere (Landini, 2015) have been criticized, as their service delivery relies on a top-down approach, rather than facilitating collaboration among diverse actors.

Previous studies have highlighted the limited success and poor outcomes of PFM initiatives (Rahman et al., 2010; Islam and Sato, 2013) without looking into pluralistic forest advisory systems. Moreover, to our knowledge, there is only anecdotal evidence of the performance of pluralistic forestry advisory systems, as previous research has focused on agricultural advisory systems (see, e.g., Faure et al., 2013; Kelly, 2013; Ragasa et al., 2015; Österle et al., 2016; Klerkx et al., 2017). Therefore, this research aimed to investigate the existing advisory service system in forest management, considering the influence and importance of advisory service providers for managing natural resources, their organizational characteristics, and their service quality. Unlike other studies (Kelly, 2013; Ragasa et al., 2015), this research embarked on analyzing the performance of a pluralistic advisory system at the micro-level, from the perspective of forest resources users in Madhupur Sal Forest in Bangladesh. The specific research questions were:

- Who are the existing advisory service providers supporting the natural resource management of forest dwellers?
- What is their importance and influence in the forest management and community's livelihood improvement?
- To what extent are identified organizations satisfying forest dwellers' needs and demands (quality of services)?

3.2 Conceptual framework

Although the terms 'advisory service' and 'extension service' have been used interchangeably, we here use the term 'advisory service' only because it goes further in encompassing the facilitation of joint learning and action (Faure et al., 2013; Faure, Desjeux, and Gasselin, 2012). This understanding of the term was inspired by Birner et al. (2009, p. 342) who defined agricultural advisory services as "the entire set of organizations that support and facilitate people engaged to solve their problems and to obtain information, skills, and technologies to improve their livelihoods and well-being."

Natural resource management is a complex undertaking that requires building the capacity of dwellers, and meeting their needs and expectations using different actors, so that there is a change from dependency to sustainable use of resources (Szaro et al. 2000). This undertaking involves a wide range of stakeholders with an advisory function (e.g., public, private, and social organizations) to ensure the sustainable management of forest and rural development (Blomley and Ramadhani, 2006). The public sector organization is a key player in executing policies and programs, and to meet the diverse needs and expectations of the forest dwellers (Benjamin, 2008); however, public sector organizations alone cannot perform the diverse aspects of managing natural resources. Moreover, it is a common phenomenon that public sector organizations and resource-dependent local community members become engaged in conflicts over interests, access to resources, and user rights' issues (see, e.g., Castro and Nielsen, 2001; Thondhlana et al., 2016). This situation broadens the scope for other organizations (e.g., private, community-based organizations, etc.) to get involved with forest dwellers to manage the forest. Moreover, failures of the top-down approach have prepared a paradigm shift towards participatory approaches (Tesfaye et al., 2012), which have also increased the diversity of institutional options in providing advisory services. Birner et al. (2009) coined the term for the diversity of advisory organizations as a 'pluralistic advisory system,' where private and public sectors, along with non-profit groups, are involved in providing and financing advisory services to address new challenges in a certain context. Here, we consider the pluralistic advisory system to be part of a social system (Crozier and Friedberg, 1977). Therefore, the design and performance of an advisory service for a given situation also depends on the social relationship among the actors, especially the forest dwellers and service providers. Therefore, it is necessary to understand how the community perceives an approach (i.e., the dynamics of power relations) that might have a consequence for the management of natural resources. Rist et al. (2007) stressed the need to understand the power relation that governs management structures. Other authors (Agrawal and Gibson, 1999; Wollenberg, Anderson, and Lopez, 2005) recognized that an asymmetrical power relationship and the importance of organizations to the community shape the ways in which forest dwellers and advisory service providers interact. According to Grimble and Wellard (1997), resource management initiatives can fail due to inadequate attention to the characteristics of organizations involved in forest management and their power relationship with forest dwellers. Regarding the power relationship that various advisory service providers engage in for local

communities, we differentiate between their 'importance' and their 'influence' (DFID, 2003; Salam and Noguchi, 2005). Organizations might have importance based on their formal roles, i.e., duties and responsibilities in the forest management system, but they might have insufficient influence to mobilize their clients and resources to achieve a goal. Importance highlights the management responsibility of an organization to satisfy the needs and interests of their clients, whereas influence is understood to be the strategic position of a stakeholder to mobilize other committed actors towards action (DFID, 2003; Salam and Noguchi, 2005).

In general, the performance or impact evaluation of advisory services remains a challenging task due to difficulties in identifying appropriate indicators (Birner et al., 2009; Ragasa et al., 2015). Additionally, organizational pluralism in a forest management context leads to additional challenges in evaluating the performance or impact of advisory services due to the diversity of the objectives, activities, and outputs of the advisory activities. In this study, we used the framework of Birner et al. (2009) for assessing pluralistic advisory services. The framework is also known as a 'best-fit' approach, and we adopted such a framework because it covers a range of indicators that helped us to analyze and understand the conditions under which organizations can best equip their advisory services to meet the diverse needs and expectations of their clients.
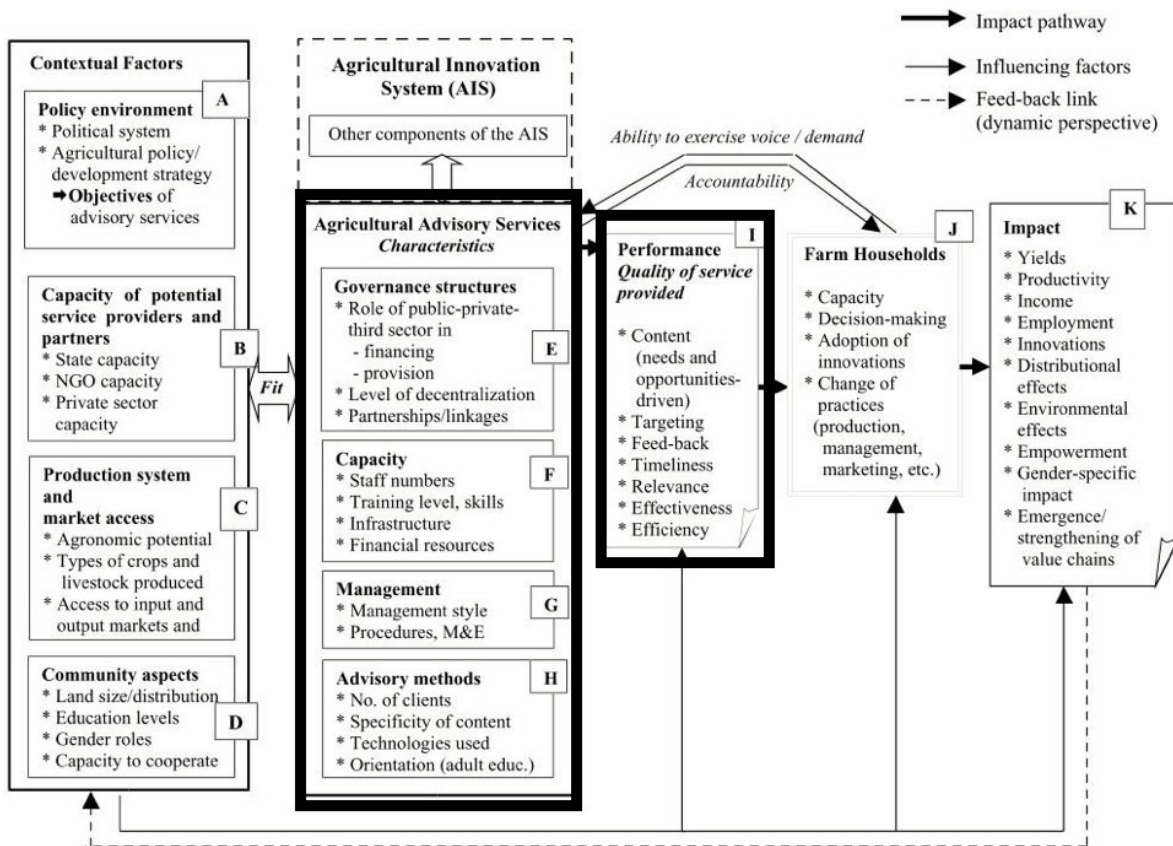

Figure 3.1 A conceptual framework for the analysis of pluralistic advisory services (Birner et al., 2009: 344).

According to the framework (Figure 3.1), one ultimate output of advisory services is a change in the capacity level of the forest dwellers, which is directly linked to the characteristics and quality of the advisory service provider. The characteristics of the advisory system are considered to be 'choice variables' which are managed by the advisory service providers for capacity development (CD) of their client, and for better impact (Birner et al., 2009). There are other variables on the left-hand side of this framework that are linked to the choice variables; these are known as 'frame conditions.' The variables of the frame conditions extend beyond the influence of the advisory service provider. Following Faure et al. (2013), Kelly (2013), and Ragasa et al. (2015), we focused on the choice variables, using the analytical categories: i) governance structures, such as partnership/linkage setup, role in service provision; ii) organizational capacity, characterized by the total number of staff and sources of funding; (iii) organizational management, understood as the presence of in-service training for their field-level advisors, and payment system for the advisory service; and iv) advisory method, characterized by the total number of clients, and the content of disseminated information and technologies to outline the main features of the advisory service. According to Birner et al. (2009), these components can act together to influence the performance of an organization. The building blocks of the framework are the characteristics and quality indicators of the advisory system.

According to the framework (Figure 3.1), the best fit can be determined and measured by considering the local context of where the advisory services need to be delivered, the characteristics of the advisory service system, and the quality of the service provided. We considered actors from three sectors, i.e., public, private, and third (community-based organizations). According to Faure, Desjeux, and Gasselin (2012), these actors are characterized and distinguished by their objectives, their relationship to other actors, and the quality of their services. In natural resource management, the provision of advisory services is shaped by the relational property between the service providers and their clients (Nuitjen, 2005). This relational property can be measured by stakeholder analysis, as proposed by DFID (2003). By 'quality of services' we mean the quality of the outputs of an advisory service, which is linked to the characteristics and objectives of the advisory organizations. All these components are responsible for the overall performance of the different actors involved in the advisory activities (Birner et al., 2009). Again, organizational pluralism does not ensure the same services, rather that different beliefs exist concerning the consequences of organizational pluralism (Knierim et al., 2017). In a pluralistic system, mixed services emerged due to the different strengths and weaknesses of the service providers. Organizations may differ, based on their governance structures, management style, and the advisory method used in service delivery. Some organizations might have a better capacity to convenience their clients, or have better content (technological option), or have a proper funding mechanism. The mixed services qualities and characteristics of an organization could be used as a basis for integration among various parts and functions of an organization for a PFM program.

3.3 Methodology, research area, and process

3.3.1 Methodology

We used a stakeholder analysis - widely applied in natural resource management (Prell, Hubacek, and Reed, 2009) - to identify the actors providing advisory services, and to outline their main characteristics, along with their importance and influence, from the perspective of community members. In our study, we defined the stakeholders on a subjective basis, i.e., based on the underlying issue of the research. We considered all the actors (at the micro-level) who were involved in the advisory activities, and had a concern in managing the forest and livelihood improvement of forest dwellers. To assess the importance and influence of the identified organizations, we used the important-influence matrix, suggested by the Department for International Development (DFID, 2003). The matrix diagram allowed us to distinguish the presence and strength of the relationship between forest dwellers and service-providing organizations. The quality of these services was assessed based on performance indicators, such as content (delivering services that are need- and opportunity-driven), accuracy and relevance of the content of the advice, timeliness and outreach to disadvantaged groups, effectiveness, efficiency, and feedback, as outlined in the best-fit framework (Birner et al., 2009).

3.3.2 Research area

The study was conducted in Madhupur Sal Forest – a deciduous forest located in Madhupur Upazila in the Tangail district of Bangladesh. Upazila is a subunit of a district that is also the local unit of administration. The total forest area of Madhupur Sal Forest was 25,495.96 ha in 1982, but at present, it is less than 8000 ha (Islam et al., 2013). The larger portion of this forest is overseen by the Tangail Forest division (18,439.57 ha), with the rest of the area (7056.39 ha) being under the jurisdiction of the Mymensingh Forest Division, which is another district of Bangladesh (Islam and Sato, 2013). The government declared this forest area as Madhupur National Park in 1962, and published a formal gazette in 1982, giving it protected forest status (Islam and Sato, 2013). Mainstream Bengali people and ethnic minorities live throughout the forest area, but at present, only a few villages of tribal minorities are surrounded by the remaining forest. The Garo tribal forest dwellers are the major minority, with around 20,000 Garo people inhabiting the forest (and since time immemorial; Gain, 2002). The Madhupur Sal Forest is state-owned, and the local FD is the only public authority that has the overall responsibility to implement the PFM program, and to protect the forest area (Bangladesh Gazette, 1995, p. 241–244). Different types of organizations, for instance, NGOs and social organizations at the local level, also implement different programs with the forest dwellers, besides the FD. According to the NGO Bureau (a coordinating authority of the NGO) of Madhupur Upazila, 53 organizations in this study area are working with both Bengali and tribal people.

3.3.3 Process of data collection and analysis

Data were collected from September to December 2016 from forest dwellers and, among them, tribal community leaders, and from organizational heads and extension agents of different intervening organizations. We followed a four-step process, starting with forming a working group, then moving on to a discussion with the participants about the objectives of the workshop, completing a list of organizations, and finally developing and validating their importance and influence in a matrix. The stakeholder analysis was conducted with 16 tribal forest dwellers, grouped into two groups. Among the 53 organizations intervening in the area, only 21 appeared to be of relevance for this study, based on their possible roles in the advisory system (i.e., by an extension or credit function) and purposes (i.e., livelihood improvement through forest management), or through the alternative income-generating initiatives of the organization. The participants in the stakeholder analysis exercise assessed the importance and influence of the identified organizations in forest resource management and CD of the tribal community. Finally, through this process, we identified nine organizations based on their possible roles, i.e., advisory function and livelihood improvement for forest dwellers. We excluded organizations that only had a credit function.

Then, nine semi-structured interviews were conducted with representatives of the previously selected organizations about the organizations' characteristics. Accordingly, questions were asked about the objectives of the organizations, the governance structure, linkages with other organizations, total number of field staff, target group, total number of clients, funding sources, in-service training for field-level advisors, and disseminated technologies and information.

Finally, two participatory workshops were conducted with 16 respondents, including forest dwellers who received services from those organizations, and leaders of the community who knew of those organizations. Questions (both positive and negative) concerning six quality indicators were inscribed on a sheet of paper against nine organizations. These indicators were rated using a Likert scale format (Oluwasusi and Akanni, 2014). The result was presented, discussed, and validated with the participants. All interviews and group discussions were tape-recorded with the consent of each participant. Each tape-recorded interview was transcribed, verbatim, manually coded, and included in the analysis, according to their relevance to the research questions (Österle et al., 2016). Then, following DFID (2003), the respondents plotted organizations into one of the four quadrants of the stakeholder matrix. Based on the frequency of responses, we weighed the importance and influence of the identified organizations. The score (on a scale of 1–3) of 16 participants on the Likert scale was converted into a percentage to allow visualization of the quality of services of the advisory organizations.

3.4 Findings

The results revealed the presence of public and private organizations in the provision of advisory services. In addition, tribal community organizations owned work for the social development. From the total of 53 organizations, nine were identified as having a service providers' role in Madhupur Sal Forest, with the FD and Co-management Committee (CMC) being public sector organizations, Caritash, World Vision, the Church of Bangladesh Social Development (CBSDP), Indigenous Peoples Development Services (IPDS), and the Achik Michik Society (AMS) being private sector organizations, and the Tribal Welfare Association (TWA) and Joyenshahi Adibasi Unnoun Parishad being community-based social organizations. The findings of the study are presented in three sections – the organizations' characteristics, their importance, and influence for PFM, and their service quality.

3.4.1 Characteristics of organizations in supporting forest resource management through advice

The characteristics of the advisory service providers in Madhupur Sal Forest are presented in Table 1. Although the organizations differed in several objectives, all had the common objective of improving forest management and the livelihoods of the local forest dwellers. Among the different actors, the FD and CMC were the crucial players because of their formalized roles in the implementation of policy and programs related to forest resource management. At the time of the study, the FD had limited linkage and partnership with the other private and social actors. A respondent from the FD stated that:

> "at the beginning of the participatory forest management initiatives around the
> 1990s, the forest department had linkage and partnership with some NGOs to
> organize and ensure the participation of the local forest dwellers. But right now, we
> do not have any linkage and partnership with any NGOs."

Regarding the lack of linkage and partnership, the respondent supposed that, now, the FD is strong enough to execute programs and policies that could edge their linkage and partnership with other actors. In contrast, most of the other organizations had linkages or a partnership with other national and international organizations, except for Caritash (an NGO) and TWA (a social organization). The CMC is a government-supported public organization, which acts as a platform to create a link between the FD and the local people. The CMC was formed in 2009 to minimize mistrust and conflict between the FD and the local forest dwellers. It has 21 members who represent different tiers of this society (i.e., people from both organizations and the community). The CMC is the key actor, comprising 38 village conservation fora. In each forum, two people are assigned as field advisors, totaling the highest number of advisors working with other organizations in the area (see, Table 3.2). These field advisors were selected from the community, and do not have any professional training or mandate, like advisors working in other organizations. Moreover, the CMC is responsible for developing

Table 3.2 Characteristics of Support services in Madhupur Sal Forest for Tribal people and forest management related issues.

Name of the Organization	Types of Organizations	Main objectives	Characteristics of advisory services							Nature of payment
			Linkage and partnership	Total number of field advisors	Presence of in-service training	Source of Funding	Total number/Main target client	Important technologies/information dissemination		
Organizations having high importance and high influence										
World Vision	NGO	Wellbeing of community	CBO; local govt. administration	08	yes	World Vision Switzerland	35,000	Solar Drip; Solar irrigation Dryer, improved mango variety		Free of cost
Caritash	NGO	Improvement of the living standards of indigenous peoples.	-	30	yes	Caritash French and Switzerland	4,771	ICT center; Organic farming; Rice breeding; Small entrepreneurship		Free of cost
Tribal Welfare Association (TWA)	Social organization	To protect and promote development for indigenous people	-	21	no	own-source	all indigenous people	Computer training; Tube well for irrigation		Free of cost
Joyenshahi Adibasi Unnoun Parishad	Social organization	To work on the land and forest rights of indigenous people	World Vision; Caritash and other NGOs	15	no	OXFAM; own-source	all indigenous people	Information about land rights		Free of cost
Organizations having high importance and low influence										
Forest Department (FD)	Government and government supported	Forest management and conservation	With other govt. and NGOs; with forest research institutes	10	Inadequate	Govt.	All forest depended on people	provide advanced stove; formulate CMC		Free of cost
Co-management Committee (CMC)		Making linkage between FD and local people	FD, Winrock International	76	Inadequate	Winrock International Bangladesh	38 villages/380 household	climate change risk; the importance of biodiversity; different medicinal and fruit trees		Free of cost
CBSDP	Church-based NGO	Social development of poor tribal people	Winrock International Bangladesh	28	yes	"Bread for the World", German	5,521	Vermicomposting; Mushroom cultivation		Free of cost
IPDS	NGO	Education and awareness building	Joyenshahi; Acik Michik Society	3	no	EU	all indigenous people	Human rights issue; Right to forest		Free of cost
Achik Michik Society (AMS)	NGO	Awareness and capacity building	Action Aid Bangladesh; OXFAM GB	3	yes	MJF-Manusher Jonno Foundation	all indigenous women	Handicrafts, women empowerment		Free of cost

projects and programs for the development of the forest and forest dwellers; however, this organization must liaise with the FD before making any decisions regarding forest management, which hinders its smooth operation.

In this organizational pluralism, there are considerable differences among organizations regarding the number of field advisors and their in-service training facilities. The findings indicate that the CMC had the highest number of advisors among all organizations; however, they had inadequate training facilities for their advisors, who worked on a temporary basis without a specific salary scheme. As a government organization, the FD had a limited number of advisors and in-service training facilities for their staff. Similarly, TWA and Joyenshahi Adibasi Unnoun Parishad (community-based social organizations) had limited in-service training facilities, despite being important and influential actors in this system. The limited availability of in-service training facilities in these organizations might affect the performance of their advisors. Another interesting aspect is apparent from Table 3.2, the private sector and social organizations provided information and services related to different technologies and information, which can contribute to forest management and the livelihood improvement of the forest dwellers, whilst the public organizations had a limited advisory function with regard to technology and information dissemination. Compared to the other organizations, the degree of diversity of content offered by the FD was limited. Where other organizations provided a range of information and technologies, the FD only offered advanced stoves for cooking and formulated the CMC. All the organizations involved with Madhupur Sal Forest offered advisory services free of charge to their client. Apparently, forest advisory services in this area are mainly considered to be a public good.

In conclusion, the findings indicate that certain private and social organizations are better equipped than the public service providers to disseminate information and technologies. Moreover, a coordination gap exists among advisory service providers. Although the organizations were coordinated with other national and international organizations, they did not have any partnerships and linkages or coordination activities, such as mutual adjustment or group problem-solving meetings with other advisory service providers in Madhupur Sal Forest. The FD, as a primary responsible organization, had the opportunity to take a more proactive role in integrating the roles of the other organizations to achieve the forest management goal, but this opportunity was not being exploited.

3.4.2 Importance and influence of organizations

The importance-influence matrix (Figure 3.2) indicates that all the organizations had high importance. On the other hand, organizations such as the FD and the CMC had a low influence on forest management and community livelihood improvement, which means that they had low capacities to motivate and mobilize forest users for sustainable forest management. The findings are in line with those of Salam and Noguchi (2005) who identified the FD as an important player in the same study area. The discussion in the validation stage revealed that the participants considered the FD and the CMC to be important

players because of their roles in the implementation of policy and programs related to forest resource management.

High Importance and Low Influence	High Importance and High Influence
• Forest Department (FD) • Co-management Committee (CMC) • Church of Bangladesh Social Development Program (CBSDP) • Indigenous Peoples Development Services (IPDS) • Acik-Micik Society (AMS)	• World Vision • Caritash • Tribal Welfare Association (TWA) • Jayenshahi Adibasi Unnoun Parishod
-	-
Low Importance and High Influence	Low Importance and Low Influence

Figure 3.2 Matrix diagram showing the importance-influence of existing organizations.

Despite this, the participants did not perceive these two organizations as being influential players, and one participant conveyed during the validation stage that:

> "we do not see any promising program and cooperation from the FD, which can support our livelihood. Besides that, FD always brings trouble for us, and they never have a good relationship with the community."

In contrast, NGOs like World Vision and Caritash, and social organizations like TWA and Jayenshahi Adibasi Unnoun Parishad, had high importance and high influence. These organizations worked towards building relationships with the tribal community, as explained by a participant:

> "these NGOs and our social organizations are always working for the community and make prior consultation, which created a sense of goodwill among the community members."

The group discussion revealed that these two NGOs have been working with the tribal community to respond to their different needs and demands by providing alternative livelihood options, training, a healthcare system, credit support, an ICT center, and so on. Respondents further reported that the social organizations constituted by the tribal people also provided legal information and support. Moreover, the organizations took care of human rights-based issues, and provided useful information so that people could claim their rights. So, the findings largely confirm that the relationship between the social organizations and the tribal community was perceived as positive. For example, a participant stated:

> "the community does not accept any instruction, or participate in any government program, until we get instructions from our social organizations."

Another important result is that some NGOs also had a low influence on the community. This might be due to their limited or targeted efforts, and their group-based activities in the community. NGOs such as IPDS and the CBSDP are church-based or politically-centered organizations, working with members while endorsing a particular faith system and ideology. Nevertheless, the participants highlighted that the efforts of the private and social organizations were not enough without coordinated support from the government organizations for ensuring sustainable management of the forest and improvement of their livelihoods.

In summary, the results depict the importance and influence value of the existing advisory service providers, and the relative location of the service providers mostly depends on their relationship with the community and their wider efforts towards the well-being of the community people.

3.4.3 Quality of the services

In this section, we explore the quality of the advisory services from the perspective of their clients, by considering different performance indicators, as proposed by Birner et al. (2009). Besides the characteristics of the advisory services, the primary outcomes of the advisory services depend on the quality of their services.

The findings indicate that the quality of the services varied among different organizations. Not all quality indicators were captured by all organizations (Figure 3.3 A–F). Although organizations with high importance-influence value were supposed to provide quality services, only Caritash and World Vision received high proportions of scores in most of the quality indicators. Other organizations, such as Joyenshahi and TWA, performed poorly regarding appropriate need-based technological content for the forest dwellers. In explaining this point, participants mentioned:

"these two organizations are our mother organizations and work on a voluntary basis. They have no proper sources of funding. Moreover, these two organizations have an information function rather than technology dissemination."

In this statement, 'mother organizations' mean their own organizations that are governed by their cultural value system. Although these organizations performed poorly regarding needs-based technological content, they performed exceptionally well in other areas, such as accuracy and relevancy (around 60% agreed), timeliness (around 55% agreed), effectiveness (around 55% agreed), and feedback system (around 60% agreed). It is noteworthy that all organizations showed similar performance regarding the efficiency of their field-level advisors (Figure 3.3 E). Only around 40% of the respondents agreed that field-level advisors from the organizations with high importance and high influence had efficiency regarding their fieldwork.
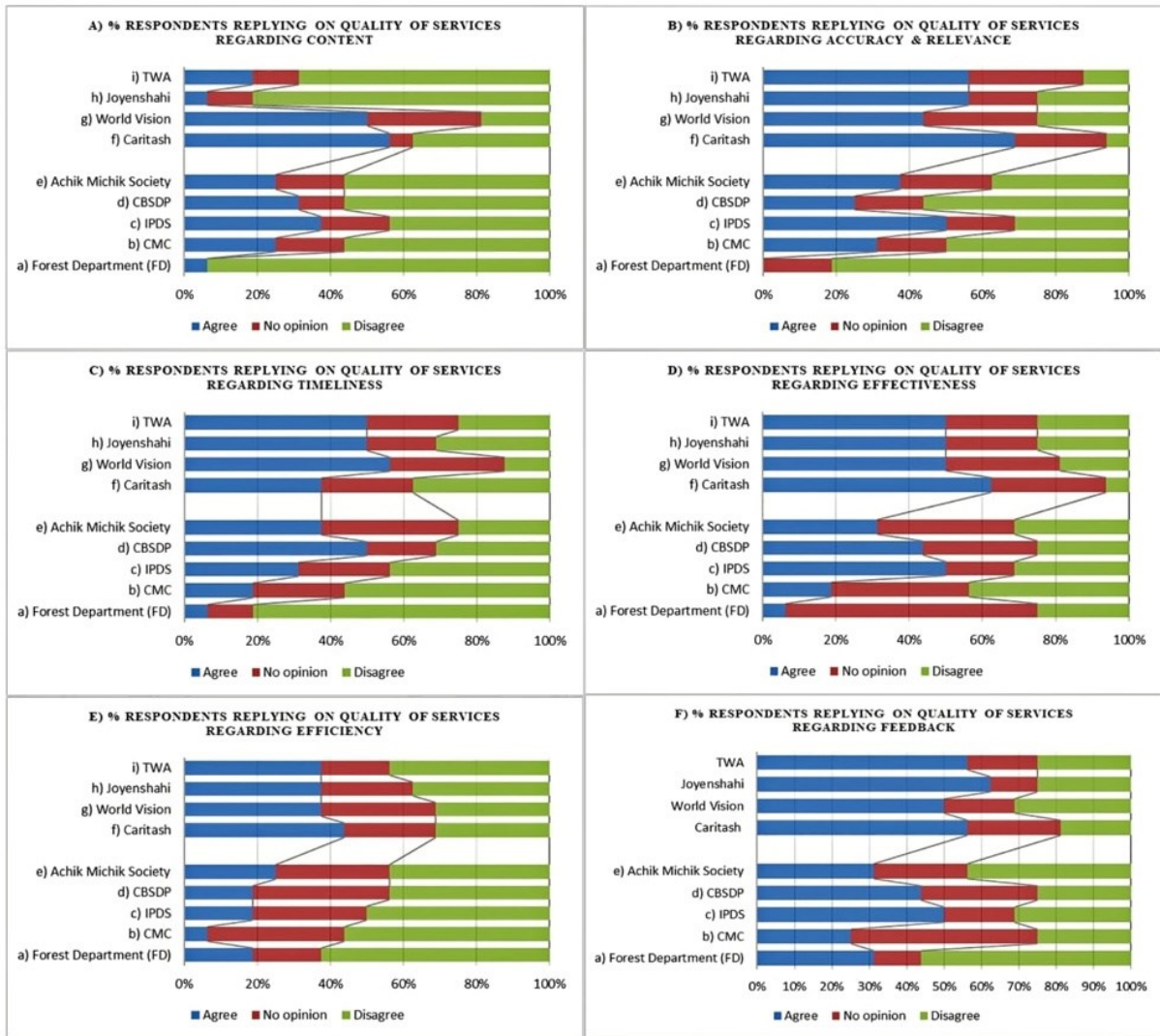
Figure 3.3 Showing the quality of advisory services (%) with regard to selected indicators.

This % is weighted by the number of responses of participants (n=16) in Likert scale on 1-3.

Note: Organizations numbered with a; b; c; d; e, are the organizations with high importance and low influence and f; g; h; i, are the organizations with high importance and high influence.

Respondents were asked six questions as i) provided technology with information according to the need and opportunity of the forest dwellers ii) provided information is accurate, and relevant to the need of the forest dwellers iii) services provides in timely manner iv) provided information and technologies are effective v) Field level advisors have efficiency regarding their field works vi) organizations have a feedback or evaluation system

On the contrary, organizations with high importance and low influence also performed poorly. Participants considered the FD and CMC to be important service providers, but only 5% and 25% of respondents, respectively, agreed that these two organizations provided technology and information

related to the needs and opportunities of the forest dwellers. Moreover, the respondents were skeptical about the information provided by these organizations. They also performed poorly in providing their services promptly (only 5% agreed), and they had a limited feedback system (30% agreed) (Figure 3.3 B, C, F). While validating the findings of the community assessment with the local FD office and Bangladesh Forest Research Institute (BFRI), it was revealed that these key service providers had an inadequate information and technology dissemination function. According to a respondent from the BFRI, the organization did not have any technology and information functions for the livelihood improvement of the forest dwellers in Madhupur Sal Forest. A participant referred to this issue thus:

> "it is unthinkable that the Forest Department could give us necessary information and technology that can improve our livelihood. They just introduce a theory that the forest needs to be managed. Rather than that, they are not trying to understand the norms, values, and culture of the local people. They might get different training, but they don't know how to get involved with the resource user's problems."

The overall situation of the public service providers is associated with their capacity to provide quality services. On the other hand, some NGOs, such as IPDS, the CBSDP, and the AMS, were slightly better than the FD and CMC regarding the quality of service provision (Figure 3.3 A–F); however, they had a low influence on the community. In explaining this issue during the validation stage, the participants mentioned their nature of working. All these organizations generally worked with a particular group of participants; for instance, the CBSDP was working with members associated with their church, Achik Michik worked only with women. IPDS aimed to include different resource user groups, but due to their involvement with local tribal organizations (mostly political), they did not get full cooperation from the forest dwellers. The results also showed that, on average, only 18% of the respondents agreed that field-level advisors from the organizations with high importance and low influence were efficient regarding their fieldwork, and thus derived a common point for both types of organizations relating to the efficiency of their field-level advisor.

The findings indicate that there are diverse types of advisory organizations, but that their quality of services does not meet the needs and demands of the forest dwellers. Some organizations provided services following certain quality indicators proposed by Birner et al. (2009), but most of them did not fully ensure the quality of the services, and therefore the forest dwellers did not get any overall benefit. Moreover, this inadequate service quality may not ensure the wider forest management objectives.

3.5 Discussion

According to our results, around 50% of the participants agreed that two organizations provided high-quality content (NGOs; Figure 3.3A), four organizations' services were relevant (NGOs and social organizations; Figure 3.3B), three organizations provided timely information (NGOs and social

organizations; Figure 3.3C), five organizations' services were effective (NGOs and social organizations; Figure 3.3D), and five organizations had a feedback and evaluation system (NGOs and social organizations; Figure 3.3F). On the other hand, only around 40% of the respondents agreed that the field advisors of four organizations were efficient regarding their field activities (NGOs and social organizations; Figure 3.3E). The findings indicate that advisory services in Madhupur Sal Forest do not lead to a better response to the needs and demands of the forest dwellers, despite the organizational pluralism. As our practical case of PFM revealed, the coordination challenge persists among the existing advisory service providers. The study substantiates that capacity gaps exist in these organizations with regard to their institutional setup, service quality, and role-position in the forest resource-dependent community. These are some of the reasons why organizational coordination remains a major problem in Madhupur Sal Forest.

Sustainability-oriented management of the forest resources must tackle the diverse needs and demands of the forest dwellers. The forest user's knowledge, skill, attitude, and behavior need to be aligned with, and grounded in, the wider objective of natural resource management. According to our results, the FD has several deficiencies, including a small number of field-level advisors and inadequate in-service training facilities, a lack of linkage or coordinated activities, such as mutual adjustments, group meetings or problem-solving meetings with other local service providers, and a lack of influence within the tribal community. Despite being a central coordinating and executing agency for furthering forest policies and programs, it remains challenging for the FD to address the complexity of forest management due to proper institutional setup. Lockwood et al. (2016) confirmed that it is difficult for a single actor to respond to the complexity of forest management due to the lack of financial and human resources. As an organizational answer, the CMC was initiated by the actor to transfer management rights and empower the local forest dwellers by including them in this organizational tier. This is similar to other initiatives in the region; for example, the government of Nepal recognized forest dwellers as a Community Forest Users Group (CFUS), and assigned FD staff as extension service providers and advisors for this CFUS (Rasul, Thapa, and Karki, 2011). This CFUS is a self-governing body that has the responsibility to manage the forest; however, the CMC in our case had to cope with two challenges: (i) they did not have full rights over the resource management; and (ii) although the CMC had a higher number of field-level advisors compared to the others, they did not have adequate in-service training facilities for their field service advisors. The lack of training facilities might be a major problem that could limit the technical capacity of the field-level advisors to provide advisory services (Ragasa et al., 2015).

When government policies and programs do not provide promising options for the forest dwellers, the deficit creates a void and broadens the scope for other organizations to engage with the forest dwellers. It has been argued that the pluralistic advisory system is a flexible and client-oriented approach that allows different actors in the advisory services to play roles in meeting the various demands of the clients

(Faure et al., 2003; Chowa, Garforth, and Cardey, 2012). Analysis of the organizational pluralism in this forest management context highlights that some NGOs (Caritash and World Vision) and social organizations have a more important and influential role than the public sector. Safa (2006) also underlined that the private sector in Bangladesh has added a new dimension to forest management. In the current study area, NGOs and social organizations mainly worked for the livelihood improvement of the forest dwellers, and provided information about the rights of forest dwellers, which linked with the forest management issue. The findings are in line with those of Kelly (2013), who underlined the importance of NGOs in providing a range of relative advantages; however, the results also clearly indicate that both NGOs and social organizations have linkages and partnerships with other national and international organizations, but that they do not work in a coordinated way with each other. This lack of coordination, or poor linkages and partnerships, can create serious inconsistencies, conflicting message sharing, and duplication of effort (Ragasa et al., 2015).

The results further indicate that social organizations and two NGOs (Caritash, World Vision) are influential players for the forest dwellers, but these organizations do not have a mandate for implementing national policy or legal responsibilities in managing forest resources. This could stop them from integrating their different parts and functions, such as mutual adjustment and problem-solving meetings with state organizations. In many cases, social organizations become interested in managing forest resources due to new opportunities (e.g., funding support) and informal relationships with communities (Salam and Noguchi, 2005). Thus, considering their social influence, they could act as mediators to minimize conflicts between the FD and tribal forest dwellers. Similarly, Agrawal and Gibson (1999) observed that community-based organizations could mediate the expectations of forest dwellers by establishing a dialogue with other actors. On the other hand, other private service providers (e.g., IPDS, the CBSDP, and Achik Michik) had inferior performance and low influence. These organizations had specific client-oriented services that might have made them less influential actors in the overall context of the advisory system. Knierim et al. (2017) underlined the importance of private organizations regarding demand-driven services, as well as highlighting the negligence of other members due to their specific client-oriented services. On the contrary, public sector organizations have a poor relationship (Salam, and Noguchi 2005) and less influence with the local people. This might be due to the organizational culture and a rigid mandate towards advisory functions enacted by the bureaucratic system (Salam and Noguchi, 2005). Moreover, Wollenberg, Anderson, and Lopez (2005) indicated that organizations, in a certain context, could not perform better to address local needs and demands due to their inability to tackle divergent interests and asymmetrical power relations among various actors.

Finally, it is essential to deliver quality services to ensure sustainable forest management, and to meet the needs and demands of forest dwellers. According to the findings, advisory service providers have mixed service quality. Some NGOs and social organizations provide services that achieve good quality

indicators, but, in the case of the FD and the CMC, the respondents were skeptical about their service quality. The result further indicates that the field advisors of all organizations have a limited capacity to implement their field activities (Figure 3.3 E). Taking this into account, it could be argued that the lack of efficiency of field-level advisors could affect their professional activities, and deteriorate the quality of their services. Future research should focus on identifying the factors that affect the performance of advisors in this context of organizational pluralism.

In conclusion, it is evident that organizational pluralism offers increased opportunities for the client (Chowa, Garforth, and Cardey, 2012; Knierim et al., 2017), but there remains a discussion about why coordination is still the major problem in every country and every context (Nettle et al., 2017). Moreover, some researchers have argued that organizational pluralism cannot be sufficient to meet the various demands of the client if there is no inter-organizational coordination (Hermans, Klerkx, and Roep, 2015; Österle et al., 2016). Our findings and discussion have shed further light on the challenging task for an organization to influence other organizations due to mixed service quality, mixed influence, and the nature of their services. On the other hand, the coordinating organization - the FD - could take the mixed service and influence as an opportunity for managing a holistic subsystem, as mentioned by Klerkx et al. (2017), in which various needs and demands can be accommodated by inter-organizational coordination, and with a better advisory service. Theoretically and practically, the idea of a holistic subsystem is connected to better service provision and the public concern of the service providers. This could facilitate a new arrangement in the context of Madhupur Sal Forest management.

3.6 Conclusions

This study attempted to contribute to the emerging quest for the assessment of pluralistic advisory systems (Nettle et al., 2017). The major contribution of our research was to assess the pluralistic advisory system in the least studied topic of forest management. This paper highlights the crucial role of NGOs and social organizations compared to public organizations in the provision of advice for forest dwellers. The findings indicate that there is a lack of coordination and collaboration between the local FD – the public sector organization responsible for the implementation of forest policies and programs – and other advisory service providers. In contrast, tribal forest dwellers have good relationships with other social- and community-based organizations.

The study urges that public sector organizations take more proactive roles in integrating the important services and relational elements of NGOs and other social organizations with forest dwellers within the pluralistic system. The study highlights that coordination and collaboration among different organizations are inevitable for managing the forest and improving the livelihoods of the forest dwellers. A coordinated service would increase the availability of needs-based information and technologies for the forest dwellers. Finally, we agree with the conclusion of Faure et al. (2013) that there is no unique solution to improve the advisory system, but by considering the facts and factors, it is possible to develop

a more collaborative advisory system among the existing actors. Although this study was conducted in a specific forest area in Bangladesh, the findings might be relevant to other regions of the country, and to other south Asian countries.

3.7 References

Agrawal, A., and C. C. Gibson. (1999). "Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation." *World Development* 27 (4): 629-649. doi:10.1016/S0305-750X(98)00161-2.

Benjamin, C. E. (2008). "Legal Pluralism and Decentralization: Natural Resource Management in Mali." *World Development* 36 (11). 2255-2276. doi:10.1016/j.worlddev.2008.03.005.

Birner, R., K. Davis, J. Pender, E. Nkonya, P. Anandajayasekeram, J. Ekboir, A. Mbabu, et al. (2009). "From Best Practice to Best Fit: A Framework for Designing and Analyzing Pluralistic Agricultural Advisory Services Worldwide." *The Journal of Agricultural Education and Extension* 15 (4): 341-355. doi:10.1080/13892240903309595.

Blomley, T., and H Ramadhani. (2006). "Going to Scale with Participatory Forest Management: Early Lessons from Tanzania." *International Forestry Review* 8 (1): 93-100. doi:10.1505/ifor.8.1.93.

Castro, A. P., and E. Nielsen. (2001). "Indigenous People and Co-Management: Implications for Conflict Management." *Environmental Science and Policy* 4 (4–5): 229-239. doi:10.1016/S1462-9011(01)00022-3.

Chowa, C., C. Garforth and S. Cardey. (2013). "Farmer Experience of Pluralistic Agricultural Extension, Malawi." *The Journal of Agricultural Education and Extension* 19(2): 147-166. doi:10.1080/1389224X.2012.735620.

Chowdhury, A. (2010). Having a system does not make a home of it: A case study on the institutions building process of an agricultural development project. Germany: VDM Verlag.

Chowdhury, A. H., H. H. Odame, and C. Leeuwis. (2014). "Transforming the Roles of a Public Extension Agency to Strengthen Innovation: Lessons from the National Agricultural Extension Project in Bangladesh." *The Journal of agricultural education and extension* 20(1):7-25. doi: 10.1080/1389224x.2013.803990.

Crozier, M., and E. Friedberg. (1977). *L'acteur et le système*. Paris: Ed. du Seuil.

~ Chapter 3 ~

Darr, D., V. Hoffmann, and S. Helmle. (2014). Extension services for rural development. In: Pretsch, J., D. Darr, H. Uibrig, E. Auch. (Eds.), *Forests and Rural Development*. Springer, Berlin, Heidelberg, 205-240.

DFID. (2003). Tools for Development - A handbook for those engaged in development activity. Department for International Development, UK. Retrieved from: http://www.mspguide.org/sites/default/files/tool/dfid_toolsfordevelopment.pdf.

Faure, G., E. Penot, J. C. Rakotondravelo, H. A. Ramahatoraka, P. Dugué, and A. Toillier. (2013). "Which Advisory System to Support Innovation in Conservation Agriculture? The Case of Madagascar's Lake Alaotra." *The Journal of Agricultural Education and Extension* 19 (3): 257–270. doi:10.1080/1389224X.2013.782169.

Faure, G., Y. Desjeux, and P. Gasselin. (2012). "New Challenges in Agricultural Advisory Services from a Research Perspective: A Literature Review, Synthesis and Research Agenda." *The Journal of Agricultural Education and Extension* 18(5): 461-492, doi: 10.1080/1389224X.2012.707063.

Gain, P. (2002). The last forests of Bangladesh, 2nd Ed.; Society for Environment and Human Development (SEHD): Dhaka, Bangladesh.

GOB. (1995). Forest Policy of 1994. *Bangladesh Gazette*, 6 July 1995, 241-244, Dhaka.

Grimble, R. and K. Wellard. (1997). "Stakeholder Methodologies in Natural Resource Management: A Review of Concepts, Contexts, Experiences, and Opportunities." *Agric. Systems* 55:173-193.

Hermans, F., L. Klerkx, and D. Roep. (2015). "Structural Conditions for Collaboration and Learning in Innovation Networks: Using an Innovation System Performance Lens to Analyze Agricultural Knowledge Systems." *The Journal of Agricultural Education and Extension* 21 (1): 35–54. https://doi.org/10.1080/1389224X.2014.991113.

Islam, K. K., and N. Sato. (2013). "Protected Sal Forest and Livelihoods of Ethnic Minorities: Experience from Bangladesh." *Journal of Sustainable Forestry* 32 (4): 412-436. doi:10.1080/10549811.2013.762571.

Islam, K. K., G. M. Rahman, T. Fujiwara, and N. Sato. (2013). "People's participation in forest conservation and livelihoods improvement: experience from a forestry project in Bangladesh." *International Journal of Biodiversity Science, Ecosystem Services and Management* 9: 30–43. doi:10.1080/21513732.2012.748692.

~ Chapter 3 ~

Jashimuddin M., M. Inoue. (2012). "Community forestry for sustainable forest management: experiences from Bangladesh and policy recommendation." *FORMATH* 11:133–166.

Kandzior A., E. Rivas. (2016). Forestry Extension as a Work Approach for Forestry Programs and Projects. In: Pancel L., M. Köhl. (eds) *Tropical Forestry Handbook*. Springer, Berlin, Heidelberg.

Kelly, M. (2013). "NGOs, Pluralism and Advisory Services-Timor Leste." *The Journal of Agricultural Education and Extension* 19 (2): 167–181. doi:10.1080/1389224X.2012.741527.

Klerkx, L., E. P. Stræte, G. Kvam, E. Ystad, and R. M. B. Hårstad. (2017). "Achieving Best-Fit Configurations through Advisory Subsystems in AKIS: Case Studies of Advisory Service Provisioning for Diverse Types of Farmers in Norway." *The Journal of Agricultural Education and Extension* 23 (3): 213-229. doi.org/10.1080/1389224X.2017.1320640.

Knierim, A., P. Labarthe, C. Laurent, K. Prager, J. Kania, L. Madureira, and T. H. Ndah. (2017). "Pluralism of agricultural advisory service providers-Facts and insights from Europe." *Journal of Rural Studies* 55, 45–58. http://doi.org/10.1016/j.jrurstud.2017.07.018.

Landini, F. (2015). "Different Argentine Rural Extensionists' Mindsets and Their Practical Implications." *The Journal of agricultural education and extension* 21(3): 219-234. doi: 10.1080/1389224X.2014.927375.

Lockwood, M., J. Davidson, A. Curtis, E. Stratford, and R. Griffith. (2010). "Governance Principles for Natural Resource Management." *Society & Natural Resources* 23(10):986-1001. doi: 10.1080/08941920802178214.

Muhammed, N., M. Koike, F. Haque, and M. D. Miah. (2008). "Quantitative Assessment of People-Oriented Forestry in Bangladesh: A Case Study in the Tangail Forest Division." *Journal of Environmental Management* 88 (1): 83–92. doi:10.1016/j.jenvman.2007.01.029.

Nettle, R., L. Klerkx, G. Faure, and A. Koutsouris. (2017). "Governance Dynamics and the Quest for Coordination in Pluralistic Agricultural Advisory Systems." *The Journal of Agricultural Education and Extension* 23(3): 189-195. doi: 10.1080/1389224X.2017.1320638.

Nuijten, M. (2005). "Power in practice: A force field approach to natural resource management." *The Journal of Transdisciplinary Environmental Studies* 4 (2).

Oluwasusi, J. O., and Y. O. Akanni. (2014). "Effectiveness of Extension Services Among Food Crop Farmers in Ekiti State, Nigeria." *Journal of Agricultural & Food Information* 15(4): 324-341. http://doi.org/10.1080/10496505.2014.952175.

~ Chapter 3 ~

Österle, N., A. Koutsouris, Y. Livieratos, and E. Kabourakis. (2016). "Extension for Organic Agriculture: A Comparative Study between Baden-Württemberg, Germany, and Crete, Greece." *The Journal of Agricultural Education and Extension* 22 (4):345–362. doi:10.1080/1389224X.2016.1165711.

Prell, C., K. Hubacek and M. Reed. (2009). "Stakeholder analysis and social network analysis in natural resource management." *Society and Natural Resources* 22(6): 501-518.

Ragasa, C., J. Ulimwengu, J. Randriamamonjy, and T. Badibanga. (2015). "Factors Affecting Performance of Agricultural Extension: Evidence from Democratic Republic of Congo." *The Journal of Agricultural Education and Extension* 22 (2): 113–143. doi:10.1080/1389224X.2015.1026363.

Rahman, M. M., M. Rahman, G. Zhang, and K. S. Kazi. (2010). "Conservation Letter A Review of the Present Threats to Tropical Moist Deciduous Sal *(Shorea Robusta*) Forest Ecosystem of Central Bangladesh." *Tropical Conservation Science* 3 (1): 90–102.

Rana, M. A., T. Noguchi, N. Muhammed. (2007). "Impact of participatory forest management (PFM) on socio-economic development in Bangladesh: a case study in the Madhupur Sal Forest." *Journal of Forest Economics* 53(1):46–56.

Rasul, G., G. B. Thapa, and M. B. Karki. (2011). "Comparative Analysis of Evolution of Participatory Forest Management Institutions in South Asia." *Society & Natural Resources* 24 (12): 1322-1334. doi:10.1080/08941920.2010.545966.

Rist, S., M. Chidambaranathan, C. Escobar, U. Wiesmann, and A. Zimmermann. (2007). "Moving from Sustainable Management to Sustainable Governance of Natural Resources: The Role of Social Learning Processes in Rural India, Bolivia, and Mali." *Journal of Rural Studies* 23 (1): 23–37. doi:10.1016/j.jrurstud.2006.02.006.

Safa, M. S. (2006). "The Role of NGOs in Improving Social Forestry Practice: Do They Promote Livelihood, Sustainability and Optimal Land Use in Bangladesh?" *Small-Scale Forest Economics, Management and Policy* 5 (2): 207–229. doi:10.1007/s11842-006-0011-7.

Salam, M. A., and T. Noguchi. (2005). "Evaluating Capacity Development for Participatory Forest Management in Bangladesh's Sal Forests Based on '4Rs' Stakeholder Analysis." *Forest Policy and Economics* 8 (8): 785–796. doi:10.1016/j.forpol.2004.12.004.

Szaro, R. C., D. Langor, and A. M. Yapi. (2000). "Sustainable Forest Management in the Developing World: Science Challenges and Contributions." *Landscape and Urban Planning* 47 (3–4): 135–142. doi:10.1016/S0169-2046(99)00082-1.

~ Chapter 3 ~

Tesfaye, Y., A. Roos, and F. Bohlin. (2012). "Attitudes of local people towards collective action for forest management: the case of participatory forest management in Dodola area in the Bale Mountains, Southern Ethiopia." *Biodiversity and Conservation* 21(1): 245-265. https://doi.org/10.1007/s10531-011-0181-2.

Thondhlana, G., G. Cundill, and T. Kepe. (2016). "Co-Management, Land Rights, and Conflicts Around South Africa's Silaka Nature Reserve." *Society & Natural Resources* 29 (4): 403–417. doi:10.1080/08941920.2015.1089609.

Wild-Eck, S., W. Zimmermann, and F. Schmithüsen. (2006). "Extension for private forest owners: Insights from a representative opinion poll in Switzerland." *Small-scale Forest Economics, Management and Policy* 5 (2): 161-174. https://doi.org/10.1007/s11842-006-0008-2.

Wollenberg, E., Anderson, J., and Lopez, C. (2005). Though all things differ: Pluralism as a basis for cooperation in forests. Bogor, Indonesia: CIFOR.

4 No forest, no dispute: The rights-based approach to creating an enabling environment for participatory forest management based on a case from Madhupur Sal Forest, Bangladesh

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Abstract

Managing conflicts over natural resources in Madhupur Sal Forest, Bangladesh is one of the major challenges in creating conditions favorable for collective actions and facilitating management of the forest resources. Although the rights-based approach (RBA) has been suggested for minimizing conflicts, development experts and practitioners often miss opportunities to apply the approach in a participatory forest management (PFM) program. This study aimed to explore whether and how the duty-bearer applied an RBA in the context of long-running disputes in Madhupur Sal Forest to transform conflicts into solutions for collaboration and the collective management of forest resources. Using a case study design, we applied a timeline method and semi-structured in-depth interviews to collect data. The grounded theory approach was used to reconstruct the experiences of tribal forest dwellers, and identify the common themes of the RBA. The study revealed that neglecting the rights of the forest dwellers led to ineffective policies and programs and, subsequently, to long-running conflicts. An RBA is an effective means of turning conflicts into collaborative actions and creating an enabling environment for PFM. In order to sustain collaboration, it is necessary to integrate rights-based discussions with the desired recognition, promises, instruction, and welfare provision, considering freedom, security, the need for information, and delegating responsibilities. The study provides insights into how forest duty-bearers should consider the broader perspective of the RBA in order to sustain their initiatives and achieve the conservation goal.

KEYWORDS: Rights-based approach; resource management conflicts; enabling environment; grounded theory; Bangladesh

~ Chapter 4 ~

4.1 Introduction

Participatory forest management (PFM) is a widely adopted approach in conserving natural resources where state agencies and other actors offer substantial promises to resource users (Castro & Nielsen, 2001; Kepe, 2008). The goal of PFM is to empower resource users through developing their capacity, shifting management responsibilities to them, and making them accountable. Therefore, user participation is indispensable for ensuring the management and sustainability of natural resources (Leskinen, 2004); however, the participation of natural resource users in management programs remains a major challenge, as the rights of resource users tend to be undermined by other actors, mainly the state agencies. There are various reasons why conflicts escalate in managing natural resources, including the rejection of cultural values and the attachment to traditions, as seen in South Africa's Silaka Nature Reserve (Thondhlana, Cundill, & Kepe, 2016), economic and physical displacement, as reported from southern Africa (Agrawal & Redford, 2007), and insufficient livelihood support for resource users, as observed in Bangladesh (Nath & Inoue, 2010).

As a common phenomenon in natural resource management, conflict has both positive and negative effects. Conflicts, if appropriately managed, can be transformed into solutions, such as minimizing unequal access to resources and holding forest managers accountable. A lack of support for managing conflicts can lead to aggression and non-cooperative behavior among different actors and, ultimately, to poor management outcomes (Castro & Nielsen, 2001). Conflict may arise due to inequitable benefit sharing by the actors, imposing new practices or development activities without the prior notification of community members, introducing new rules and regulations without providing alternative livelihood options for forest dwellers. A common reason for conflict is negligence of the rights of forest dwellers. The promises (e.g., freedom, education, health, security, equity, inclusion, non-discrimination) that are agreed on by the state, or another form of authority, for their citizens are known as rights (Moser & Norton, 2001). Therefore, it is essential to employ a rights-based approach (RBA) with resource users, bringing their interests into the development agenda; however, even PFM programs pay little attention to advocating for the different rights of resource users (Laban 2007, p. 358), and fail to integrate rights into management practices (Tacconi, 2007; Ribot & Larson, 2011). The failure to integrate or advocate for rights can obstruct the process of creating an enabling environment in which different actors can work together (Campese et al., 2009). Forest management initiatives create certain rules and norms (e.g., access to fuelwood and land use for plantations, etc.), which might congest access and create overuse of non-excludable forest resources by the forest dwellers. Therefore, it is crucial, in creating an environment that can facilitate a sense of belonging among forest dwellers, to ensure their cooperation and participation. The enabling environment underlines institutional, legal, fiscal, and cultural factors impacting the capacity development (CD) of individuals and organizations (Tropical Agriculture Platform, 2016). The front-line service providers encounter forest dwellers in their daily lives and,

therefore, need to play an active role in engaging them in order to foster an enabling environment and successfully manage the natural resources (Laban, 2007).

In this regard, the RBA has received increasing recognition in development programs and policies (Johnson & Forsyth, 2002; Sikor & Stahl, 2011; Pawar, 2012; Wyatt, Kessels, & van Laerhoven, 2015) to minimize conflicts, and thus to enable an environment for collaboration and collective management. An RBA is generally associated with a universal system of rights, in which minimum standards of well-being are extended to the widest possible constituency (Johnson & Forsyth, 2002). In the field of natural resource management, RBAs are understood to be a process of integrating norms, standards, and principles into policy, planning, implementation, and outcome assessments to ensure that conservation practices respect rights in all cases (Campese et al., 2009). The working principle of the RBA considers ethical and moral dimensions (Cornwall & Nyamu-Musembi, 2004). The adoption of RBAs by duty-bearers has been very slow due to political unwillingness (Greiber et al., 2009). The political unwillingness stems from the lack of clarity about what types of rights need to be addressed in a conservation project (Campese et al., 2009). This lack of clarity has led to the unwillingness of the government to adopt different rights for forest dwellers (for example, the property rights issue) within the context of forest management. While a growing body of literature highlights the importance of RBAs, and justifies their adoption in development programs (Cornwall & Nyamu-Musembi, 2004; Uvin, 2007; Pawar, 2012; Vandenhole & Gready, 2014; Baer, 2015; Ensor, Park, Hoddy, & Ratner, 2015), there remains a dearth of research and empirical evidence to guide the local actors in practicing the RBA in forest management programs (Campese et al., 2009, pp. 16–19). Moreover, recent literature on natural resource management has mainly underlined the causes of conflicts (Thondhlana, Cundill, & Kepe, 2016) instead of focussing on how they can be solved.

In this study, we provide insights into the RBA in managing conflicts over forest resources in Madhupur Sal Forest, Bangladesh. We chose the case of a PFM program in Bangladesh, known as 'Revegetation of Madhupur Forests through the Rehabilitation of Forest-Dependent Local and Ethnic Communities' (RMF), because there were long-running conflicts between tribal forest dwellers and the management agency (Islam et al., 2013; Rahman, Deb, Hickey, & Kayes, 2014; Rahman, Sarker, Hickey, et al., 2014). Before the RMF initiative, Madhupur Sal Forest's indigenous tribal forest dwellers have struggled with forest department (FD) representatives in intense conflicts, and several indigenous people have lost their lives (Gain, 2002). Moreover, the state refused to accept indigenous rights to forest resources, and restricted their access to the forest. It is argued that states should realize, recognize, and enforce rights that they have stipulated, with international agreement, are necessary for 'survival and dignified living' (Overseas Development Institute, 1999). The RMF program aims to enhance participation, and develop the capacity of the forest-dependent people for managing forest resources sustainably. Although the planning and implementation of the RMF program were not explicitly informed by the RBA, it was chosen because an earlier study substantiated that some successes in minimizing conflicts were related

to the recognition of rights by the state agency during the implementation of the program (Islam & Sato, 2013). Moreover, RMF was selected as the case for this study because this will help us to understand the reasons for conflict between the tribal community and the public agency, despite a long-lived PFM initiative (27 years; Islam & Sato, 2012) in this area, and whether and how the public agency addressed rights when dealing with issues related to the conflicts.

Using the conceptual lens of the RBA, this study explored the experiences of forest dwellers and offers insights into the causes of conflicts, and whether and how elements of the RBA might be used to minimize conflicts and foster collaboration for managing forest resources. The specific research questions are as follows:

1. What are the causes of forest resource conflicts over time, as perceived by the tribal forest dwellers?
2. How do conflicts have an impact on the economic, social, and environmental situation of tribal forest dwellers in Madhupur Sal Forest?
3. How are different rights addressed to diminish long-running conflicts and ensure an enabling environment for collaboration?

4.2 Conceptual discussion

The discourse on human rights 'went global' in the post-World War II period. The RBA has shaped development discourses and became more popular after the Copenhagen summit on social development in 1995 (Cornwall & Nyamu-Musembi, 2004). Non-governmental organization activism, shifts in aid delivery, and reframing participation in development have contributed and advanced the discourse on RBA in development (Cornwall & Nyamu-Musembi, 2004). The RBA is defined as an 'empowering approach' that is embedded in the discourse on human rights (Miller, 2010; Pawar, 2012). It has also received increased interest from the practitioners working in natural resource management (Johnson & Forsyth, 2002; Pawar, 2012). In forest management, the RBA is conceptualized as devolution of rights to forest dwellers (Kashwan, 2013) so that they can gain social, economic, and environmental outcomes from PFM initiatives. In this regard, the service agency needs to act as the main duty-bearer during the implementation of participatory management initiatives; however, various research findings (Scurrah, 1998; Bellamy et al., 2001; Islam & Sato, 2012; Thondhlana, Cundill, & Kepe, 2016) have indicated that management initiatives have failed due to the escalation of conflicts. In particular, long-running disputes can limit the participation of forest dwellers in initiatives or programs undertaken by local state agencies.

It is necessary to create an enabling environment to support the collaboration and participation of forest dwellers in PFM initiatives. Gready (2008) stated that the RBA, in this regard, has an excellent opportunity to transform conflicts into collaborative solutions and ensure the participation of forest

dwellers. There are various forms and expressions of the RBA (Miller, 2010). For instance, Cornwall and Nyamu-Musembi (2004) reduced the RBA to five core principles – participation, accountability, transparency, equity and non-discrimination, and empowerment. Similarly, Hamm (2001) mentioned four factors to explain the utility of the RBA – non-discrimination, participation and empowerment, good governance, and human rights discourse into development practice. On the other hand, international conservation groups, such as the International Union for Conservation Nature and the World Wide Fund for Nature, have proposed a bundle of rights, including rights to participate in decision-making, acquire information, personal security, health, an appropriate standard of living, and non-discrimination, etc. Campese et al. (2009) grouped these into procedural (decision-making, acquiring information, and access to justice) and substantive (personal security, health, standard of living) rights. Again, according to United Nations Development Program (2000) and Amnesty International (2005), certain issues, such as respecting, protecting, and fulfilling rights, are key to creating an enabling environment. In the context of water resource management, Laban (2007) highlighted certain other issues, related to partnerships, social exclusion, and the rights of local people to water resources. The declaration of the Rights of Indigenous Peoples (United Nations Documents, 2007 and International Labor Organization Convention No. 169) proclaimed the rights of indigenous people to their indigenous resources, including land, water, and culture. The declaration highlighted an inclusive approach that the "state or local agency of the resource management must undertake any initiative based on the consultation with indigenous people" (Phillips, 2015, p. 121), and that indigenous people must feel empowered and safe.

The diverse expressions and fluidity of the RBA require greater clarity about the types of rights to be addressed in a conservation project (Campese et al., 2009). Moreover, a second critical stance towards the RBA is that it reflects western cultural traditions, which are difficult to match with other cultural traditions (Campese et al., 2009). It follows that the RBA should be considered to be a context-specific approach that caters to the wider picture, as well as local experiences and expectations; however, a minimal set of specific rights are necessary for effective and equitable conservation outcomes (Kashwan, 2013). In light of the discussion above, we have explored whether and how local-level agencies have fulfilled the rights of the resources users when dealing with conflicting situations in Madhupur Sal Forest. By doing so, the study intended to empirically contribute to how RBAs might be used to transform conflicts into collaborative actions for managing forest resources in Bangladesh.

4.3 Methodology

4.3.1 Case study area

This research was carried out in Madhupur Sal Forest, a centrally located deciduous forested region in Bangladesh. Different ethnic minorities, especially the Garo people, have been using this forest area for their living since the distant past (Gain, 2002). It is important to note that, traditionally, the tribal people

have a trust-based culture, and community members follow the direction of their leaders regarding forest issues (Gain, 2002). In the forest area, there are around 42 tribal villages, 21 being surrounded by the remaining forest. On the outskirts of the forest, there are settlements of Bengali people, who are the mainstream population of Bangladesh. The forest was declared as a reserve (i.e., a protected area) in 1962, under the Forest Act 1927 (Section 4), and was formally ratified as Madhupur National Park in 1982 through a gazette notification (Islam & Sato, 2013; Rahman, Sarker, Hickey, et al., 2014). These initiatives restricted the access of local people, who resided and collected different resources for their livelihood there, to this protected area (Khan & Samadder, 2012). The initiatives became a locus of conflict between government agencies and the local Garo people. The total area of this forest was 25,495.96 ha in 1982, but today, due to rapid and ongoing deforestation, there remains only around 8,000 ha (Islam et al., 2013).

For this case study, the RMF project was purposely selected. The project was executed by the FD in two phases, from 2009 to 2015, to ensure full cooperation from the tribal forest dwellers and to implement different CD activities to manage the forest collectively and improve the livelihoods of the forest dwellers. The RMF project was funded by the Bangladesh Climate Change Trust, with 1.54 billion taka allocated in the first phase and 9.42 billion taka in the second (73 taka = 1 US$; Bangladesh Forest Department, 2012). According to the FD office, the total number of participants in the RMF project was 700 (including both ethnic minority and Bengali people). The FD had identified these 700 people as encroachers (highly dependent on forest resources, illegally entering the forest, cutting down trees and appropriating, or helping to, the land) and assigned them to the category 'community forest worker' (CFW). For our sampling, we made use of this list of 700 people. Among the total participants, 164 belonged to the tribal community. As for the CFWs, they had the responsibility to protect their surrounding forest, together with the other members of the RMF program. Additionally, they had to participate in forest development activities.

4.3.2 Selection of respondents and data collection process

A case study approach was used to explore and structure the resource users' experiences throughout the implementation phase of the RMF. At first, a workshop was conducted with 12 leaders of the tribal community. A participatory 'timeline' method was carried out to obtain information about conflicts and reasons over time. The workshop was conducted with the following steps: (i) formation of the group; (ii) facilitation and encouragement of participants in discussion; (iii) visualization of information and comments as a vertical column on a long sheet of paper through the researcher; and (iv) presentation of the timeline for further discussion and validation among the participating tribal leaders. As a consequence, the social, economic, and environmental effects of those conflicts were revealed during the validation stage. Furthermore, secondary sources – for example, previous literature (Islam & Sato, 2013; Rahman, Sarker, Hickey, et al., 2014), books (Gain, 2002), newspaper articles from archives –

were used to validate the collected information. The first author facilitated the workshop with the help of two faculty members of the Bangladesh Agricultural University.

Then, a purposive snowball sampling (Minato, Curtis, & Allan, 2010) was used to identify the forest-dependent people (encroachers) from the tribal community who were involved as CFWs in the RMF program. A total of 12 semi-structured interviews (open-ended questions and face-to-face situations) were conducted with CFWs from the tribal community. These interviewees were selected based on their willingness to participate in the study. Informal interviews with tribal forest dwellers, their leaders, and personnel from the FD were also performed (during a six-month stay in the area, from June to December 2016) to obtain information about on-going conflicts and the RMF project, which also helped us to understand the overall sociopolitical situation of the Madhupur Sal Forest. In this RMF program, the number of mainstream Bengali people was much higher than tribal forest dwellers. Note that this study did not consider the CFWs from the Bengali community; it has not yet been reported that the FD has conflicts with the mainstream Bengali people, whereas issues of non-cooperation, lack of participation, and conflicts between tribal forest dwellers and the FD were informed by the previous study. Moreover, the remaining forest is now only surrounded by tribal villages. Therefore, it is crucial to minimize conflicts between the FD and the tribal forest dwellers to conserve the remaining forest collaboratively.

4.3.3 Interview process and data processing

Data was collected to capture the experiences of resource users, and to identify the reasons behind their cooperation during this project period, despite the long-running conflict. The interview questions embraced five important topics: i) their dependency on the forest; ii) their involvement in the RMF project; iii) their activities during this project period; iv) their observations about related change; and v) their evaluation about the project. With prior consent, each interview was tape-recorded, and typically lasted for 30 to 60 minutes. All interviews were transcribed (Leahy & Anderson, 2010).

During the workshop, we used a large sheet of paper on which to draw the timeline table (see, Table 4.2). Data derived from the validation and discussion steps were tape-recorded, then transcribed verbatim, and the topics and statements were manually coded and included in the results section, according to their relevance in answering the research question. Data from the discussion and secondary sources also helped to refine the information on the timeline table. For the processing of data from the face-to-face interviews with the CFWs, we followed the grounded theory approach (Corbin & Strauss, 2008), which is a systematic and flexible method for collecting and analyzing qualitative data in order to construct theories grounded in the data themselves (Charmaz, 2006). It should be noted that our aim to use a grounded theory approach was only to analyze the data, not to develop any theories. The logic behind choosing a grounded theory approach was that we did not have any preconceived categories or codes to analyze our data against, so we developed our code based on the meanings entailed in our data. Following Charmaz (2006), we used two reduction phases of coding – an initial phase involving line-

by-line and in-vivo coding, and a second phase involving focused and axial coding for data processing. In the initial phase, 143 codes emerged. We used Atlas-ti software to code the transcript.

Table 4.1 Major categories/themes and related code groups.

Major themes/categories	Description of categories	Code groups
Interventions of the FD and underprivileged situations prior to the RMF (17)	Lack of rights or advantages that are expected by the poor forest dwellers to get the desired benefits from the intervention of FD.	Lack of Communication (3) Lack of Cooperation (5) Lack of security (3) Uncertainty in daily life (6)
Changes in attitudes and intervention style during the RMF (33)	More planned programmatic activities that consider the voices along with the needs and demand of forest dwellers to ensure their full co-operation and participation.	Providing facilities (5) Considering tribal people for discussion (8) Getting information and instruction (14) Providing hope for better life (3) Showing respect (3)
Welfare provision for tribal participants according to their needs and expectations during the RMF (24)	Different course of action which can assist poor forest dwellers to live independently and ensure their social security.	Providing health service (1) Providing livelihood support through ensuring job and salary (5) Providing accessories for working in the forest (5) Providing financial support (5) Providing sapling (1) Providing social forestry plot (2) Providing technological support (2) Providing training for skill development (2) Providing wood for construction purpose (1)
Considering freedom, security, and information needs (34)	A right to freedom and security emphasizes personal autonomy and self-determination. It is also considered as a person bodily integrity. A right to information understands as the right to know and access to necessary information which is valuable to reduce the uncertainty in the daily life of poor forest dwellers.	Making continuous communication for working together (7) Ensuring security (2) Keeping promises (2) Providing equal opportunity (4) Providing freedom to move into the forest (2) Providing freedom to take a decision (5) Providing need-based information (6) Providing an opportunity for group work (2) Taking steps to stop harassment (4)
Delegating responsibilities (16)	Transfer of forest management responsibilities (top-down to bottom-up approach) to community (forest dwellers) people based on mutual respect and understanding.	Developing Mutual understanding (2) Shifting responsibility (2) Showing mutual respect (12)
Desired changes over time (16)	Different rights-based activities with forest dwellers make desire changes in attitude, behavior, and skill of the forest dwellers and increase their expectation to live a better life.	Expecting a better life (4) Deciding to cooperate (2) Changing situation (10)

*Parenthesis indicates the number of codes per code group

In the second phase, the emerging codes (143) were categorized into 33 categories based on their similar conceptual basis. Then, axial coding was performed to describe each category's properties and dimensions through developing subcategories, and the emerging 33 categories were classified and

labeled as six main categories. As per Corbin and Strauss (2008), we used three analytical scientific terms: a) *conditions* to answer the 'why, when, where, and how' questions that present the situation that forms the structure of the study phenomena; b) *actions/interaction* to answer the 'by whom and how' questions that present the strategic responses of the participants; and c) *consequences* to answer the questions of what happens because of this action or interactions, to find relationships between the categories and make more sense of the data. For instance, we used the following questions to reassemble the emerging code from the initial phase into code groups and categories: i) what were the perceived reasons for conflict (conditions)?; ii) what were the activities taken to overcome conflict situations (*actions/interaction*)?; and iii) what were the perceived outcomes of conflict mediation activities (*consequences*)?. This process helped us to describe the experience of the RMF project participants by linking categories with subcategories.

4.4 Results

The results are presented in two subsections. The first reports on the different incidents that gave rise to the long-running conflicts between the tribal forest dwellers and the FD. These incidents are related to conflicts around the economic, social, and environmental conditions of the community. The second subsection outlines the experiences of the tribal forest dwellers during the rehabilitation project period. This section focuses on the potential of the RBA for collaborative action and cooperative conflict management.

4.4.1 Long-running conflicts and their consequences (prior to the RMF program)

The history of Sal Madhupur Forest management is marked by a long line of conflicts between the forest dwellers and the forest management agency since the British colonial period.

In 1982, the government declared, through a gazette notification, that an 8,436-ha area (out of 25,495.96 ha) of Madhupur Sal Forest was to become a state forest (Rahman, Sarker, Hickey, et al., 2014). The government sent a notice to evacuate the houses and cultivable lands of many tribal people. This initiative restricted their access to the forest area, as the government had also declared this forest to be 'reserved' for wildlife protection (Bangladesh Forest Department, 2018). This was the first incident after the liberation of Bangladesh to introduce conflict between the tribal forest dwellers and the forest management agency. This incitement was also seen as the initiator of the mass deforestation of Madhupur Sal Forest; the reasons are discussed, in detail, in a subsequent section. It is evident that the declining trend in forested area started during this period, with a reduction of 36 percent in forest coverage in 1984 to only 10 percent in 2010 (Islam & Sato, 2013).

As part of the reduction, in 1986–87, a total of 3,561.23 ha of forest land was transformed into a rubber plantation and a base for the air force, which played a significant role in the deforestation (Gain, 2002,

). According to the workshop participants, the establishment of the rubber plantation and rubber processing factory did not provide them with any job opportunities because the authorities hired mainstream Bengali people for the daily latex collection. Moreover, educated and technically skilled persons were given priority in hiring staff for the production and maintenance of the factory. Members of the Garo community did not have required technical and educational backgrounds; however, the workshop participants did mention that all of these development initiatives were implemented in the forest without any prior discussion with the tribal community. In retrospect, the situation impelled dissatisfaction among community members.

Table 4.2 Timeline of conflictive incidences and their consequences.

Year of incidents	Notable incidents	Consequences of conflicts		
		Social effect	Economic effect	Environmental effect
1982	▪ Gazettes notification	Frustration	Loss of cultivable land	Increase in deforestation rate
1986-87	▪ Establishment of rubber garden and factory ▪ Establishment of ranges for Air Forces	Fear of misfiring and accidental risk	No job opportunity & diminution of income	-Slowdown of natural breeding -Sound pollution
1990	▪ Initiation of Social Forestry	-Poor participation of tribal people -Conflicts with the FD and with outsiders	-Fuel crisis -Loss of lands -Fewer bees and honey	-Destruction of natural forest -Depletion of soil organic matter -Loss of wildlife
1999-2000	▪ Death of Odhir Dhofo and Gidita Rekha (a tribal man and woman)	-Political influence increased -Conflicts between tribal and Bengali -No forest, no dispute	-Evacuation of houses by many tribal people due to false police cases	Mass destruction of forest due to social distraction
2003-04	▪ Eco-park establishment ▪ Death of Piren (a tribal man) and several injured	-Increase in social movement -Conflicts, diminution of trust -Non-cooperation	-Land grabbing -Less economic activities	-Rise in encroachment and deforestation of natural forest
2006	▪ Death of Sishiliya (a tribal woman)	-Social movement -Notice of eviction	-Curtailment of regular economic activities	- Rise in encroachment and deforestation of natural forest
2007	▪ Destruction of banana garden ▪ Dead of Chalesh (a tribal man)	-Social movement -Increase in frustration	-Huge economic loss	-Continuous deforestation
2016	▪ Declaration of reserve forest	-social movement and frustration with the slogan -**say "NO" to reserve forest**	-	-

Source: Author's compilation based on the information of participatory workshops

Similarly, the government undertook a social forestry program in 1990, and established an ecopark in 2003, without any prior discussion with the tribal community. The tribal people considered the social forestry initiative to amount to destruction of the natural forest because it encouraged the planting of

different native and exotic plant species (e.g., *Acacia, Eucalyptus*). The workshop participants mentioned that these exotic plants promoted different environmental crises, such as depletion of soil organic matter in the soil, poor soil water retention, and a reduction in the number of bees, which limited honey production and interfered with the natural pollination of crops surrounding the forest. They also stated that only a few of the poor tribal people were given a social forestry plot due to a lack of diligence and possibly involvement of the FD in taking measures that were not in line with the actual goal of the program.

In 2003, the FD tried to build a brick wall around 1,214.06 ha of forest land to section off the ecopark, which undermined the rights of access and mobility of the tribal people. Consequently, the tribal people started a social movement and, due to a clash with the police, a tribal community member died, and several were injured. This incident escalated conflict in the area. The tribal community became frustrated and uncooperative when four other community members were killed in a similar fashion between 1999 and 2007. In 2005, the members of the tribal community started to convert their home gardens into banana plantations because this allowed them to receive rapid payment for their crops, but then the FD identified banana cultivation as an illegal activity on forest land, and they wanted to convert all the banana plantations into a social forestry program. In 2007, the FD and the responsible law enforcement agency chopped down 1,000 ha of banana plants without giving notice (Gain, 2002, p. 137). This incident became known as the 'banana war'. The workshop participants said that they had asked for time so that they could just harvest the bananas before the destruction of the plants, but the agencies refused their request.

In addition, it was reported that the FD filed false claims with the police against the poor tribal people, having some of them put in prison, and so many of them ran away from their homes to avoid police harassment. The participants also described how the FD's forest guard would openly shoot if they found any tribal forest dwellers in the forest reserve area (Gain, 2002). These findings indicate that the government tried to initiate some programs, such as social forestry and ecopark establishment, for the betterment of the forest and the forest-dependent people (Table 4.2); however, those initiatives promoted and escalated conflict because the FD ignored the rights of the tribal people, which subsequently initiated ill will between the two players. The respondents highlighted that they had the right to know about any initiative related to the forest. Unfortunately, these initiatives were taken without prior consultation with the tribal community. The tribal community developed a sense of betrayal, and the above incidents created depression and anger among the community members. One tribal leader stated:

> These types of incidents started to ruin the harmony of the tribal people with the FD and other actors. A kind of unrest had been created in our society, which subsequently converted into suppressed anger – if there were no forest, there would be no dispute.

The findings indicate that different incidents heightened tensions and uncertainty among the community members. The subsequent incidents resulted in social frustration and fear, which were then connected to contemporary social and political movements, and finally resulted in an extensive social movement, conflict, and non-cooperation. As a result of this hostile situation, the tribal forest dwellers lost their daily livelihoods, along with their cultivable lands. Moreover, many tribal people could not engage in their daily economic activities due to police harassment. Finally, these factors resulted in deep-seated conflict due to the failure of the FD to take the desires and concerns of the community members into account in planning and managing the different projects.

4.4.2 Experiences of tribal forest dwellers during the RMF program

In 2009, the FD started the RMF program. Below, the experiences of the tribal forest dwellers with the RMF program are presented.

4.4.2.1 Interventions of the FD and underprivileged situations prior to the RMF

Generally, the interviewees experienced top-down, uncooperative, and even aggressive interventions from the FD. Examples given comprise a lack of communication, a lack of cooperation, a lack of security, and an uncertainty in daily life that deterred the tribal forest dwellers from participating in forest management activities. These deficiencies are associated with the rights of the forest dwellers. One interviewee said:

> We do not have security as forest dwellers. I have been injured, shot by a forest guard while walking into the forest. I grew up here, collected necessary food, and firewood from the forest. But now I am scared all the time. (P5)

Another interviewee described the uncertainty in his daily life and the uncooperative behavior of the forest personnel.

> I have 52 police cases against me related to the forest. Yes, I will not deny that I was involved in encroachment (illegally entering the forest), but the FD never tried to help me. Instead, they filed cases against me for harassment. On one hand, I need income for my family; on the other hand, for every litigation, I need extra money. So, I usually cut down a tree and sell it at the local market to finance my court-cases. (P10)

The FD had executed a number of programs and projects (Bangladesh Forest Department, 2018; Jashimuddin & Inoue, 2012) before initiation of the RMF project, but the respondents conveyed on-going ignorance of the FD towards the tribal forest dwellers. An interviewee stated that:

The FD never paid heed to us; instead, they did whatever they wanted to do. They never felt the necessity for discussion and communication. They had a good relationship with the influential people (who were mainly outsiders), but not with us. This created a distance between us. The government declared that, as poor forest dwellers, we would get social forestry plots, but the FD provided the plots to the influential people and deprived us [of these]. (P7)

4.4.2.2 Changes in attitudes and intervention style during the RMF

The FD, with their RMF project, established a connection with the tribal forest dwellers, tried to recognize them as important players, made promises, and provided them with necessary instruction. Most importantly, the findings indicate that the FD made efforts to promote a sense of security among the tribal forest dwellers during the implementation of the RMF. The FD called for a general meeting with the tribal forest dwellers. Initially, the tribal community members were skeptical about this request. An interviewee explained:

Honestly speaking, when I heard about this project, I could not believe them, their initiative. Even I was not convinced to attend the general meeting called by the FD. But the local forest officer personally contacted me and tried to convince me to participate in the meeting. Afterward, our tribal leaders also provided their consensus about the meeting, and then I decided to attend the meeting, but have not decided to participate in the RMF program yet. (P4)

Interviewees mentioned that the FD discussed the withdrawal of the police cases against them, and promised to provide jobs to secure their livelihoods. One respondent talked about what the FD explained in their first meeting:

Without your [tribal forest dwellers] cooperation, it is not possible for the FD to protect this forest. We want your kind cooperation. So, please help us. We will help you, and the FD will provide you with jobs, monthly salaries, and also want to withdraw the police cases. But you have to help us so that we can protect this forest together. (P3)

Ultimately, a personal tone and approachable attitude influenced the members of the tribal community to cooperate on the project. Another interviewee said:

What was new to us was their direct approach to us, not through our leader. Previously, the FD would communicate with our leader regarding any issue, and also use this channel for the dissemination of necessary information. But right before this project initiation, they made direct contact with us and listened to our problems,

needs, and expectations. I strongly believe that this prompted the general people to open a continuing dialogue with the FD. (P9)

4.4.2.3 Welfare provision for tribal participants according to their needs and expectations during the RMF

After the general meeting, the FD considered the issues raised by the tribal forest dwellers for inclusion in the RMF project. This project was carefully designed to ensure the rights of the tribal forest dwellers, as promised, and also to protect the forest through CD and alternative livelihood initiatives.

> We were deprived ... but after the initiation of this project, a forestry plot was allocated to me. I got the freedom to move into the forest freely, and during the entire period of this project, no one got shot by the forest guards. (P3)

The role of the FD during the project implementation period was described by an interviewee as follows:

> The FD kept their promises; I got a job as a CFW, got a monthly salary, got so much training, new clothes, health card, and required information. I could contact them any time over the mobile phone and get my required information (P12)

In this case, the FD identified the basic needs and expectations of the tribal forest dwellers and, accordingly, tried to bring them together for the protection of the degraded forest. Welfare provision, such as providing financial support, jobs, training, social forestry plots, health cards, and so on, caused an attitudinal change among the tribal forest dwellers, such that they started to think positively about the FD.

> It was a rare experience for me that the FD kept most of their promises that they stated before the project initiation. I got so much training related to alternative livelihood options. I reared rabbits and earned money, met my family's demands. In addition, I got a monthly salary for doing the job of a CFW. As the FD kept their promises, I also kept mine. (P1)

4.4.2.4 Considering freedom, security, and information needs

The results from the section above indicate that a lack of freedom and security were two of the main reasons for conflict between the FD and the tribal forest dwellers. The FD thus paid attention to the multiple rights of the tribal forest dwellers, such as mobility rights in the forest, the right to make autonomous decisions, the right to live a harassment-free life, the right to a secure working environment, and so on. During this project implementation phase, the FD provided all of these privileges, with all necessary need-based information, to the tribal forest dwellers. For instance, an interviewee stated how these privileges were ensured and practiced:

> The FD took care of our overall security. They told us to be careful and not to engage in any kind of conflicts with illegal loggers (encroachers) during our duties as CFWs. In such a situation, we were instructed to inform them. (P9)

Another respondent said about the same issue:

> Before this project, we were not safe. The police harassed us. So, we started up a social movement to protect our rights, but during the six years of the program, there was no police harassment or shootings by forest guards. Even we didn't have to start social movement for claiming our rights. (P2)

Because the targeted participants of this project were entirely dependent on forest resources, the project executor had to consider the ongoing basic needs and welfare of the participants. All the participants in this project received a small amount of monetary support and sapling as a means of rehabilitation. One respondent said:

> I received cash support from this project as part of rehabilitation, and also received the freedom to use this money. At the same time, they provided additional information [e.g., rearing cattle], so that we could make the best use of the financial support. They also provided different kinds of saplings, so that, in the future, we could meet our energy needs and earn some additional money. (P8)

4.4.2.5 Delegating responsibilities

For the participants in the project, the core values of the project were mutual respect, understanding, and a shift in responsibility that drove the tribal forest dwellers into a new relational arrangement. The forest managers shifted the management responsibilities to the tribal forest dwellers, and provided all necessary logistic support to them. The delegation of responsibilities, involving mutual respect and understanding, changed the lives of these resource-dependent people. One interviewee explained how the delegation of responsibilities changed his life: "I got appreciation from the FD that changed my thinking and life" (P4). Another interviewee said:

> From the beginning of this project, the FD discussed various issues with us and told us, 'this is your forest, and you have to protect it, from today the responsibility is yours'. They assigned us as CFWs, provided monthly salaries, and all [necessary] logistical support, and our primary duty was to protect the forest from tree plunderers. They not only assigned us to preserve our forest, but I think they gave back our right to protect our forest. (P4)

As forest dwellers, the participants in this project were given full responsibility to protect their forest by their own means. They had the full rights to do their own planning, as this interviewee stated:

> As CFWs, we had the full responsibility to protect our surrounding forest. We made our own plan and also executed it. The FD never interfered with our planning and way of execution, but they were always on our side when we needed security and other logistical support from them. (P2)

There was mutual understanding, respect, and admiration between the forest managers and the tribal forest dwellers. The majority of the tribal interviewees acknowledged that they should also respect and understand the situation of the forest officers. One interviewee, who never went to the forest office before the project, said:

> Before this project, the FD and their officers did not want to understand us, our surroundings. Also, maybe, from our side, we did not want to understand their obligations as government officers. I never got the chance to know them personally, but this project gave me the opportunity to know them, to know their duties and responsibilities. I think they have many limitations on working independently, and we should try to understand their limitations. (P7)

4.4.2.6 Desired changes over time

Nearly all the interviewees in our study expressed satisfaction at some desired changes that they experienced during this six-year initiative. The project participants were wholly dependent on the forest, but this project enhanced their capacity in the face of external and internal changes. An interviewee expressed his view as:

> This project helped me out to bring back my normal life. It gave me a job, salary, hassle-free life and, most importantly, reduced my dependency on the forest. (P3)

Another interviewee stated:

> I was the leader of my CFW group; our primary responsibility was to protect the forest collectively. We all planned on how to perform our duties, and we tried to solve all obstacles conjointly. I felt empowered… (P8)

The changes also created a sense of cooperation and professionalism in the participants. An interviewee explained how he experienced the change:

> I never visited the FD office before the initiation of the project. We did not have an adequate reliance on the FD, but during this project, an intertwining reliance was

> developed. I observed their cooperation and professional behavior. I think this was
> perhaps the most important change I observed during this project period. (P4)

While some described their personal or interpersonal changes, others described the change as being linked to the wider perspective of forest management:

> The forest that I saw 20 years ago was different from now. One thing I realize now
> is, if deforestation continues in the same way, our next generation will not see
> anything. At least, for our next generation, we need to work together. (P4)

4.5 Discussion

The findings indicate that the poor conservation outcomes of the early FD initiatives were linked to the violation of human rights (e.g., the deaths of tribal people) and to the neglect of tribal forest dwellers' concerns. The initiatives, such as the establishment of rubber plantations and industry, the initiation of social forestry, and the establishment of an ecopark, were perceived negatively, since the participation of, and consultation with, tribal forest dwellers were not ensured in the early stages of the projects. The long-running conflict generated a negative attitude of the tribal forest dwellers towards the FD. As a result, the FD received continuous non-cooperation from the tribal forest dwellers, and so poor participation in forest management initiatives became a major problem in this area (Islam & Sato, 2013). Previous literature has identified that the reasons for such poor involvement of the tribal forest dwellers included a lack of transparency in a benefit-sharing mechanism and agroforestry plot distribution (Salam, Noguchi, & Koike, 2005). In addition, this study further confirmed that, apart from the issue of benefit sharing, the causes of conflict were linked to the violation of rights, such as those associated with decision-making, mobility, and access to information. These findings are in line with the findings of Thondhlana, Cundill, and Kepe (2016), who also found that issues related to rights can give rise to various conflicts and disputes over forest resources.

As a duty-bearer, the local FD should create an enabling environment for the forest dwellers so that they can engage in management practices. The findings indicate that the FD failed to do this before the initiation of the RMF. They ignored the voices of the tribal forest dwellers and introduced new management initiatives without prior consultation with the tribal communities. Consequently, the situation led to conflict and negative consequences in the social, economic, and environmental lives of the tribal forest dwellers. According to Wyatt, Kessels, and van Laerhoven (2015), the failure to deliver the basic expectations of the forest dwellers raises questions about the legitimacy of the duty-bearers, and shifts blame to them for the spread of conflict. The findings of this study substantiate that the tribal forest dwellers condemned the FD for depriving them of their rights, and failing to take legitimate actions for forest conservation.

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Taking an integrative or open communication approach with resource users before initiating a development can help the duty-bearers to gain a better understanding of the expectations of forest dwellers, and can help them to minimize possible conflicts. According to Laban (2007), rights-based discussions before initiation of the development program was also a right of the forest dwellers, and a meaningful way to help them realize the importance of the development program. In many developed countries, for instance in Canada, the government has to consult and accommodate the needs and expectations of indigenous forest dwellers before initiating any management programs (Newman, 2009; Isaac, 2012); and, as part of the reform process in India, the government secured the participation of forest dwellers in a joint forest management program by embracing the RBA (Kumar, Singh, & Kerr, 2015).

In a multi-stakeholder situation, trust-building is an essential step for obtaining the cooperation and sustained collaboration among various partners (Coleman & Stern, 2017); however, trust-forming initiatives were absent prior to the RMF initiatives due to ignorance on the part of duty-bearers (the FD) about the rights of tribal forest dwellers. The long-running conflict created social frustration, forest destruction, and activities related to a social movement. The management of such a long conflict turned out to be a challenging task. The results revealed that the FD addressed this task by opting out of their dominating behavior and holding off on the issue of rights-based discussions prior to the PFM initiatives (RMF). The results revealed that the recognition of various rights, kept promises, and information sharing were key mechanisms in initiating a rights-based discussion and forging a relationship between the tribal forest dwellers and the FD.

The findings suggest that the FD ultimately considered the role of local leaders and their informal institutions in this process of trust formation (also see, Derkyi et al., 2014, p. 295). The agency also used a personal tone and approach with the members of the tribal community. The process of rights-based discussions in natural resource management can help the duty-bearer to identify the issues that are important in order to limit conflict and empower the forest dwellers; however, as Derkyi et al. (2014) noted, rights-based discussions alone may not align the duty-bearers and forest dwellers with a collective goal. Moreover, the meaning of rights can differ from person to person, and have various forms and expressions (Miller, 2010). The findings indicate that rights-based discussions were a starting point for getting positive responses from the forest dwellers; however, these may not guarantee full cooperation when implementing conservation measures. It is evident that both parties transformed their conflicting relationships into cooperation when the FD integrated their promises with welfare provision. The measures for welfare provision, such as financial incentives (e.g., monthly salaries), health services, social forestry plots, regular training, and technological support, helped to reduce the dependency of the tribal forest dwellers on the forest and created harmony among them. Campese et al. (2009) defined welfare provision as a 'substantive right', which is a basic right of a resource-dependent people. This is

a fundamental consideration, that state duty-bearers must ensure alternative means of livelihood for the forest dwellers before the initiation of any management approach (Mohammed & Inoue, 2012).

In addition to welfare provision, the FD considered other essential rights of the tribal forest dwellers, such as mobility in the forest, the freedom to make decisions as a CFW, individual and social security, a harassment-free life, access to information, and regular communication. Islam et al. (2013) stated (based on the first phase of this project) that this project had established 'a sense of security' among the tribal forest dwellers. Moreover, mutual understanding, respect, and shifting the responsibilities of forest management, gained the desired cooperation over time. It has been reported that the realization of mutual respect and understanding among partners during development programs facilitates collaboration and collective management (United Nations Development Program, 1998; Sengupta, 2000; Department for International Development, 2000). In addition, the process of shifting the responsibility of forest management to the forest dwellers contributed to empowering the forest dwellers and gaining control over the forest resources. The FD facilitated the necessary logistical support and management practices to achieve this. According to Islam et al. (2013), this RMF project had already proved to be a model example of how to improve the livelihood conditions of forest dwellers, at a time when our study was exploring the experiences of the tribal forest dwellers (participants of this RMF project with the FD). Our results suggest that the realization of the forest dwellers' rights by the state duty-bearer (the FD), followed by rights-based discussions, the desired recognition, kept promises, adequate instruction, welfare provision, the consideration of freedoms, security, the satisfying of information needs, and delegation of responsibility were all crucial factors in creating an enabling environment for achieving collective conservation objectives in Madhupur Sal Forest. PFM is a conflict-laden process (Castro & Nielsen, 2001), therefore, the management of conflict is an essential part of the process. These findings substantiate that rights-based discussions, integrated with the factors listed above, is an effective means of creating an enabling environment for embracing PFM initiatives and achieving the desired management outcomes.

4.6 Conclusions

This study aimed to explore the potential of the RBA based on the experiences of tribal forest dweller CFWs in an RMF program who were engaged in a long-running conflict with the duty bearer (the FD). The case study in Madhupur Sal Forest provided key insights into how the RBA can be used to transform conflicts into collaboration with the FD. The RBA provided a better understanding of the expectations of the community members, and helped the forest managers to align several undertakings in order to fulfill the different needs of the forest dwellers. In order to create an enabling environment for PFM, and sustain collaborative actions, it is necessary to integrate welfare provision into the RBA. Furthermore, the duty-bearer should continuously use the RBA in order to identify substantive rights and welfare provisions, and integrate them as the initiative unfolds. These findings recommend that

government interventions be aligned with an RBA to empower forest dwellers and make them accountable for achieving conservation objectives. Although our research might not be generalizable to another context, resource managers might consider the findings in their particular areas where conflict exists between the duty-bearer and forest dwellers. More empirical findings are needed to develop a robust framework that could guide policymakers during policy design, and prompt local-level actors to exercise the RBA. Therefore, it will be necessary to repeat a similar study in order to understand how the RBA can be applied in minimizing conflict and making forest dwellers accountable for managing forest resources in other areas of Bangladesh, and elsewhere. The Madhupur Sal Forest context provides one example of how the RBA can create an enabling environment for the collective management of forest resources.

This study analyzed tribal forest dwellers' experiences of the RMF program, and explored whether the RBA could be used for facilitating conflict management in Madhupur Sal Forest. While the findings may be relevant to similar study areas, it cannot be generalized to the overall PFM program in Bangladesh, or elsewhere. On the other hand, data triangulation could provide more insights into whether and how to expand the results more generally. Further studies should be undertaken to include the experiences of other stakeholders concerning the RBA and to validate these findings.

4.7 References

Agrawal, A., & Redford, K. (2007). Conservation and displacement: An overview. In: Redford, K. and Fearn, E. (eds.) *Protected areas and human displacement: A conservation perspective*. World Conservation Society Working Paper No. 29.

Amnesty International. (2005). *Human rights for human dignity: A primer on economic, social and cultural rights*. Amnesty International Publications, International Secretariat, London, UK.

Baer, M. (2015). From Water Wars to Water Rights: Implementing the Human Right to Water in Bolivia. *Journal of Human Rights, 14*(3), 353–376. http://doi.org/10.1080/14754835.2014.988782.

Bellamy, J. A., Walker, D. H., McDonald, G. T., & Syme, G. J. (2001). A Systems Approach to the Evaluation of Natural Resource Management Initiatives. *Journal of Environmental Management, 63*(4), 407-423. https://doi.org/10.1006/jema.2001.0493.

BFD (Bangladesh Forest Department). (2012). Land and forest area of Bangladesh. Bangladesh Forest Department. Availabe from: http://www.bforest.gov.bd/act.php (Accessed: 20 September 2018).

BFD (Bangladesh Forest Department). (2018). Bangladesh's forests. Ministry of Environment and Forest, Government of Bangladesh. http://www.bforest.gov.bd. Accessed 2 July 2018.

~ Chapter 4 ~

Campese, J., Sunderland, T.C.H., Greiber, T., Oviedo, G. (Eds.). (2009). Rights-based approaches: Exploring issues and opportunities for conservation. Center for International Forestry Research (CIFOR) and The International Union for Conservation of Nature (IUCN). Bogor, Indonesia.

Castro, A. P., & Nielsen, E. (2001). Indigenous People and Co-Management: Implications for Conflict Management. *Environmental Science & Policy, 4* (4-5), 229-239. https://doi.org/10.1016/S1462-9011(01)00022-3.

Charmaz, K. (2006). *Constructing grounded theory:A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.

Coleman, K., & Stern, M. J. (2017). Exploring the Functions of Different Forms of Trust in Collaborative Natural Resource Management. *Society & Natural Resources, 31* (1), 21-38. https://doi.org/10.1080/08941920.2017.1364452.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, CA: Sage.

Cornwall, A., & Nyamu-Musembi, C. (2004). Putting the 'Rights-Based Approach' to Development into Perspective. *Third World Quarterly, 25* (8), 1415-1437. https://doi.org/10.1080/0143659042000308447.

Department for International Development (DFID). (2000). *Realizing Human Rights for Poor People*, Strategy Paper, London: DFID.

Derkyi, M., Ros-Tonen, M. A. F., Kyereh, B., & Dietz, T. (2014). Fighting Over Forest: Toward a Shared Analysis of Livelihood Conflicts and Conflict Management in Ghana. *Society & Natural Resources, 27* (3), 281-298. https://doi.org/10.1080/08941920.2013.861550.

Ensor, J. E., Park, S. E., Hoddy, E. T., & Ratner, B. D. (2015). A rights-based perspective on adaptive capacity. *Global Environmental Change, 31*, 38–49. http://doi.org/10.1016/j.gloenvcha.2014.12.005.

Gain, P. (2002). *The last forests of Bangladesh* (2nd ed.). Dhaka, Bangladesh: Society for Environment and Human Development (SEHD).

Gready, P. (2008). Rights-Based Approaches to development: What Is the Value Added?. *Development in Practice, 18* (6), 735-747. https://doi.org/10.1080/09614520802386454.

Greiber, T., Janki, M., Orellana, M. A., & Shelton, D. (2009). *Conservation With Justice: A Rights-based Approach*. World Conservation Union and IUCN Environmental Law Centre, Bonn.

~ Chapter 4 ~

Hamm, B. L. (2001). A Human Rights Approach to Development. *Human Rights Quarterly, 23*(4),1005.

Isaac, T. (2012). *Aboriginal law: Commentary and Analysis*. Saskatoon, SK, Canada: Purich Publishing.

Islam, K. K., & Sato, N. (2012). Participatory Forestry in Bangladesh: Has It Helped to Increase the Livelihoods of Sal Forests-Dependent People?. *Southern Forests: A Journal of Forest Science 74* (2), 89-101. https://doi.org/10.2989/20702620.2012.701434.

Islam, K. K., & Sato, N. (2013). Protected Sal Forest and Livelihoods of Ethnic Minorities: Experience From Bangladesh. *Journal of Sustainable Forestry, 32* (4), 412-436. https://doi.org/10.1080/10549811.2013.762571.

Islam, K. K., Rahman, G. M., Fujiwara, T., & Sato, N. (2013). People's Participation in Forest Conservation and Livelihoods Improvement: Experience from a Forestry Project in Bangladesh. *International Journal of Biodiversity Science, Ecosystem Services & Management, 9* (1), 30-43. https://doi.org/10.1080/21513732.2012.748692.

Jashimuddin, M., & Inoue, M. (2012). Community forestry for sustainable forest management: experiences from Bangladesh and policy recommendation. *FORMATH, 11*,133-166.

Johnson, C., & Forsyth, T. (2002). In the eyes of the state: Negotiating a "Rights-based approach" to forest conservation in Thailand. *World Development, 30* (9), 1591-1605. https://doi.org/10.1016/S0305-750X(02)00057-8.

Kashwan, P. (2013). The Politics of Rights-Based Approaches in Conservation. *Land Use Policy 31*, 613-626. https://doi.org/10.1016/j.landusepol.2012.09.009.

Kepe, T. (2008). Land claims and co-management of protected areas in South Africa: Exploring the challenges. *Environmental Management, 41* (3), 311-321. https://doi.org/10.1007/s00267-007-9034-x.

Khan, A., & Samadder, M. (2012). Weeping of the Forest: Unheard Voices of Garo Adivasi in Bangladesh. *International Journal on Minority and Group Rights, 19*, 317-326.

Kumar, K., Singh, N. M., & Kerr, J. M. (2015). Decentralisation and Democratic Forest Reforms in India: Moving to a Rights-Based Approach. *Forest Policy and Economics 51*, 1-8. https://doi.org/10.1016/j.forpol.2014.09.018.

Laban, P. (2007). Accountability and Rights in Right-Based Approaches for Local Water Governance. *International Journal of Water Resources Development, 23* (2), 355-367. https://doi.org/10.1080/07900620601183008.

~ Chapter 4 ~

Leahy, J. E., & Anderson, D. H. (2010). Cooperation Gets It Done': Social Capital in Natural Resources Management along the Kaskaskia River. *Society & Natural Resources, 23* (3), 224-239. https://doi.org/10.1080/08941920802378897.

Leskinen, L. A. (2004). Purposes and challenges of public participation in regional and local forestry in Finland. *Forest Policy and Economics, 6* (6), 605-618. https://doi.org/10.1016/S1389-9341(03)00009-1.

Miller, H. (2010). From 'Rights-Based' to 'Rights-Framed' Approaches: A Social Constructionist View of Human Rights Practice. *The International Journal of Human Rights, 14* (6), 915-931. https://doi.org/10.1080/13642987.2010.512136.

Minato, W., Curtis, A., & Allan, C. (2010). Social Norms and Natural Resource Management in a Changing Rural Community. *Journal of Environmental Policy & Planning, 12* (4), 381-403. https://doi.org/10.1080/1523908X.2010.531084.

Mohammed, A. J., & Inoue, M. (2012). Explaining Disparity in Outcome from Community-Based Natural Resource Management (CBNRM): A Case Study in Chilimo Forest, Ethiopia. *Journal of Environmental Planning and Management, 55* (9), 1248-1267. https://doi.org/10.1080/09640568.2011.640171.

Moser, C., & Norton, A. (2001). To Claim Our Rights: Livelihood Security, Human Rights and Sustainable Development. Paper prepared for the Workshop on Human Rights, Assets and Livelihood Security, and Sustainable Development. Overseas Development Institute, London, June 19–20.

Nath, T. K., & Inoue, M. (2010). Impacts of Participatory Forestry on Livelihoods of Ethnic People: Experience from Bangladesh. *Society and Natural Resources, 23* (11), 1093-1107. https://doi.org/10.1080/08941920802653521.

Newman, D. G. (2009). *The duty to consult: New relationships with Aboriginal peoples*. Purich's Aboriginal Issues Series. Saskatoon, SK, Canada: Purich Publishing.

Overseas Development Institute (ODI). (1999). What can we do with a rights-based approach to development? we do with a rights-based approach to development? ODI Briefing Paper 1999 (3), September.

Pawar, M. (2012). The Adoption of a Rights-Based Approach to Welfare in India. *Journal of Comparative Social Welfare, 28* (1), 35-47. https://doi.org/10.1080/17486831.2012.636253.

~ Chapter 4 ~

Phillips, J. S. (2015). The Rights of Indigenous Peoples under International Law. *Global Bioethics, 26* (2), 120-127. https://doi.org/10.1080/11287462.2015.1036514.

Rahman, H. M. T., Deb, J. C., Hickey, G. M., & Kayes, I. (2014). Contrasting the Financial Efficiency of Agroforestry Practices in Buffer Zone Management of Madhupur National Park, Bangladesh. *Journal of Forest Research, 19* (1), 12-21. https://doi.org/10.1007/s10310-013-0392-3.

Rahman, H. M. T., Sarker, S. K., Hickey, G. M., Haque, M. M., & Das, N. (2014). Informal Institutional Responses to Government Interventions: Lessons from Madhupur National Park, Bangladesh. *Environmental Management, 54* (5), 1175-1189. https://doi.org/10.1007/s00267-014-0325-8.

Ribot, J., & Larson, A. (2011). Affirmative policy on an uneven playing field: Implications for REDD. In: Sikor, T., Stahl, J. (Eds.), *Forests and People: Property, Governance, and Human Rights* (pp. 33-46). New York, NY: Earthscan.

Salam, M. A., & Noguchi, T. (2005). Evaluating Capacity Development for Participatory Forest Management in Bangladesh's Sal Forests Based on '4Rs' Stakeholder Analysis. *Forest Policy and Economics, 8* (8), 785-796. https://doi.org/10.1016/j.forpol.2004.12.004.

Salam, M. A., Noguchi, T., & Koike, M. (2005). Factors influencing the sustained participation of farmers in participatory forestry: a case study in central Sal forests in Bangladesh. *Journal of Environmental Management, 74*(1), 43-51. https://doi.org/10.1016/j.jenvman.2004.08.007.

Scurrah, M. J. (1998). Forest conservation and human rights in Peru: The conflict over the Chaupe forest. *Journal of Iberian and Latin American Research, 4*(1), 37-64. https://doi.org/10.1080/13260219.1998.10429944.

Sengupta, A. (2000). Realizing the Right to Development. *Development and Change, 31* (3), 553-578. https://doi.org/10.1111/1467-7660.00167.

Sikor, T., & Stahl, J. (2011). *Forests and People: Property, Governance, and Human Rights*. New York, NY: Earthscan.

Tacconi, L. (2007). Decentralization, forests and livelihoods: theory and narrative. *Global Environmental Change, 17* (3-4), 338-348. https://doi.org/10.1016/j.gloenvcha.2007.01.002.

Thondhlana, G., Cundill, G., & Kepe, T. (2016). Co-Management, Land Rights, and Conflicts Around South Africa's Silaka Nature Reserve. *Society & Natural Resources, 29* (4), 403-417. https://doi.org/10.1080/08941920.2015.1089609.

~ Chapter 4 ~

Tropical Agriculture Platform (TAP). (2016). *Common framework on capacity development for agricultural innovation system: Guidance note on operationalization*. Wallingford, UK: CAB International.

United Nations Development Program (UNDP). (1998). Integrating Human Rights with Sustainable Development. *UNDP Policy Document 2*, New York, NY: UNDP.

United Nations Development Program (UNDP). (2000). *Human development report 2000: Human rights and human development*. New York: Oxford University Press.

United Nations Documents. (2007). A 161 PV. 107, pp. 10-28 and A 161 1PV 108, pp. 1-11. http://www.un.org/en/ga/71/resolutions.shtml (accessed 15 August 2018).

Uvin, P. (2007). From the right to development to the rights-based approach: how 'human rights' entered development. *Development in Practice, 17*(4-5), 597-606. http://doi.org/10.1080/09614520701469617.

Vandenhole, W., & Gready, P. (2014). Failures and Successes of Human Rights-Based Approaches to Development: Towards a Change Perspective. *Nordic Journal of Human Rights, 32*(4), 291-311. http://doi.org/10.1080/18918131.2015.957458.

Wyatt, S., Kessels, M., & Laerhoven, F. V. (2015). Indigenous Peoples' Expectations for Forestry in New Brunswick: Are Rights Enough?. *Society & Natural Resources, 28* (6), 625-640. https://doi.org/10.1080/08941920.2014.970735.

5 Discussion and conclusion

PFM is the primary strategy and policy instrument for Bangladesh's government over the last two decades to improve the condition of forest and forest dwellers. The management objective of forests in Bangladesh lies in-between two parameters, i) forest conservation and ii) improvement of local livelihood (Islam et al., 2013). Realizing the drawback of traditional top-down forest management approach in Bangladesh, Government introduced and implemented PFM approach for better management of its shrinking forest area. However, despite the long back initiatives, PFM could not ensure the active participation of forest dwellers, minimize their dependency on forest resources, and improve the forest condition. This dissertation aims to assess and understand the present PFM program and context from a holistic perspective to understand why PFM cannot produce more promising results. This dissertation adopted the multi-level framework of capacity development (CD) which comprises three dimensions, i.e., individual, organizational, and enabling environment from a system perspective. The three key research questions focus on: (1) outcomes of PFM in terms of CD and factors influencing the change in the capacity level of tribal forest dwellers, (2) assess the performance of the pluralistic advisory system, and (3) examine the potential use of the rights-based approach to creating an enabling environment.

This concluding chapter presents a summary of the main results, discussion of the results, reflections from the field experiences, limitations and future direction for research, and policy recommendations for new arrangements of future PFM program.

5.1 Summary of the main results

Chapter 2 used a modified analytical framework which integrates different dimensions of capacity as an anticipated outcome of the PFM program. In the past, the outcome of PFM had been seen as a mechanism for a change in income level, food security, and livelihood improvement. However, the current approach suggests going beyond the previous criteria and considers including a learning-based approach and their possible broader implication (Suškevičs et al., 2017; Nath & Inoue, 2010). In the context of Bangladesh, the existing literature mainly evaluates PFM initiatives based on a change in income level or livelihood improvement (Rahman et al., 2014; Islam et al., 2013; Islam & Sato, 2012). In addition to those changes, it is important to know whether the PFM initiatives also make changes at the capacity level of forest-dependent people. This is the first study that assesses the outcome of PFM considering the assertions of Muro and Jeffrey (2008) and Cundill and Rodela (2012) who argued that process-oriented approaches (like the PFM) might enable changes in the capacity level of an individual. This study also looks at the overall factors that support the changes in capacity level. For this study, a recent PFM program named 're-vegetation of Madhupur Sal forest'(RMF) was studied. The results revealed that participants of RMF program gained higher capacity (capacity for collaboration; capacity

for learning and reflection, and capacity to engage in the strategic and political process) to adapt and respond to changes. This RMF program targeted those forest dwellers who illegally cut the natural forest and seize the forest land. Participants of the RMF program were assigned as community forest worker (CFW) and engaged in different participatory activities. The project acted as a platform and provided a social space for interaction and learning among different actors, including both participants and non-participants in the broader social system of Madhupur Sal forest. According to previous research (Leahy & Anderson, 2010), social capital within the community can guide a community member to gain personal return by forming a new network of social relationships with organizations. The results indicate that participants and non-participants tribal forest dwellers had no significant differences regarding indicators of social capital. This social relations support individual forest dwellers to engage in a new network of social relations within the RMF platform. Different participatory activities in RMF platform provided an opportunity for participants to realize the importance of organizations for their CD. This awareness influenced their intensity of social contact with different actors in Madhupur Sal forest. However, our result also revealed that similarities exist among participants and non-participants tribal forest dwellers regarding the trust issue, although the participants had a higher awareness of the importance of organizations and the intensity of social contact with organizations. Based on the above findings, it can be concluded that social capital within the community and social capital between organizations and community is an important consideration to boost the possible outcome from a social learning platform.

The objective of any participatory initiative is to make broader changes among the forest-dependent people, and therefore, it is essential to consider a range of factors that impact on governments initiating any PFM program in the future. The result from the empirical analysis revealed factors, which enhanced the capacity level of tribal forest dwellers (see, Table 2.3). The factors include effective extension service, credit support, participation in the PFM program, trust and access to information and communication infrastructures. The government should ensure complementary support and work for creating such an environment that facilitates the active participation of tribal forest dwellers.

Chapter 3 assess the role and performance of a pluralistic advisory system where several types of organizations are working with local forest dwellers for sustainable forest management. This chapter used the 'best-fit' framework proposed by Birner et al. (2009) for assessing the role and performance of the existing pluralistic advisory system from a micro-level context at Madhupur Sal forest in Bangladesh. To best our knowledge, this is the first attempt to assess the advisory system in a forest management context in Bangladesh. First, the stakeholder analysis was conducted to identify the actors and their importance-influence (from the perspective of forest dwellers) who have an advisory function to improve the livelihood condition of forest dwellers and to involve them in different forest management activities. A range of organizations (GO, NGOs and Social Organizations) were engaged with forest dwellers. FD is the local executive body of Government who has the overall responsibilities

to execute national policy and program. The study shows that the FD had limited functional interaction with other organizations at the local level. The government introduced the Co-management Committee (CMC) to reduce the operational gap with the intention to lessen the ongoing conflicts between FD and local forest Dwellers. This study conducted nine semi-structured interviews with decision makers of engaged organizations to collect data about their characteristics. Result revealed that CMC had the highest number of advisors working with tribal forest dwellers. However, our result from the importance-influence matrix showed that most of the organizations, including FD and CMC, did not have enough influence to mobilize the local forest dwellers towards action. Compared to the other organizations, the degree of diversity of content offered by FD and CMC was limited. From the perspective of participants, all existing organizations have a vital role and responsibilities to protect the Madhupur Sal forest. But only two social organizations (TWA and Joyenshahi Adibasi Unnoun Parishad) and two NGOs (Caritash and World Vision) had high importance and high influence upon the tribal forest dwellers. These four organizations were working with tribal forest dwellers considering the relational perspective. The two NGOs provided a range of information and technologies that support the need and demand for forest dwellers. The results also disclosed the service quality of existing organizations which assorted from one organization to another. According to the findings derived from two participatory workshops, most of the organizations did not adequately ensure the quality of services except Caritash and World Vision. Less than 40% of participants agreed that field advisor in all types of organizations had adequate efficiency in performing their field-based activities. Additionally, both the government and government supported organizations (FD and CMC) had considerable deficits in technologies and information provision. In conclusion, this study assesses the pluralistic advisory system based on some design elements of advisory services, which helps to identify the current state, strength, and weakness of advisory services in a forest management context. This valuation will help to develop a more accountable and better coordinated advisory system in Madhupur Sal forest context.

Chapter 4 examines the potentials of the rights-based approach in managing forest resources sustainably. In order to understand how the rights-based approach can create an enabling environment for collaborative action and cooperative conflict management, this study first highlighted the causes and impact of conflicts that have been going on for a long time in Madhupur Sal forest. Then this study explored the experience of tribal forest dwellers who worked as a Community Forest Worker (CFW) in a recently executed PFM program entitled "Re-vegetation of Madhupur Forests through Rehabilitation of Forest Dependent Local and Ethnic Communities (RMF)." A participatory 'timeline' method was used to explore the causes and impacts of conflicts that were ensuing over time. The findings indicated that FD had implemented different development program without any prior concern of tribal forest dwellers. The participants of this study also stated the corruption of FD who has the responsibilities to distribute plots for social forestry in a fair way. According to the participants, only a few tribal forest dwellers got the social forestry plot. Result also showed that many tribal forest dwellers got the notice to evacuate their homes. Moreover, it was reported that FD filed false police cases against tribal forest

dwellers. This study also showed how FD failed to make the tribal forest dwellers intelligible about their development programs. Therefore, development programs like social forestry, eco-park, and rubber garden establishment became the subject to conflicts. The overall situation elevated uncertainty among tribal forest dwellers, which made them frustrated and non-cooperative.

Before the initiation of this particular RMF program, tribal forest dwellers experienced top-down, non-cooperative, and even aggressive interventions from FD representatives. Participants of this study reported that lack of communication, lack of cooperation, lack of security, and uncertainty in their daily life were common phenomena before the RMF program. It was through the RMF program that the FD established a new connection with tribal forest dwellers and recognized them as an important player. FD did several meetings with common tribal people and their leaders to know about the needs and expectations. FD made promises to provide welfare provision like financial support, job, training, social forestry plots, healthcare card, and so on. Our findings revealed further that FD considered the freedom, security, and information need of tribal forest dwellers during the project execution phase. Participants of the RMF program reported that FD assigned them as CFW and relocated the forest management responsibilities. The results also revealed that different nonmaterialistic issues like mutual respects, mobility in the forest, freedom to make decisions as a community forest worker, individual and social security, harassment-free life, access to information and regular communication were acknowledged beside the welfare provision. All these materialistic and nonmaterialistic issues fostered some desired changes among the participants and created a sense of cooperation and professionalism. Chapter 4 provides empirical evidence of how a rights-based approach can transform the long-run conflicts towards collaborative action. This experience could orient policymakers during a process of policy design and guide the grass-root level actors to plan their future action.

5.2 Discussion of the results

The PFM program has been executed over the last two decades in Madhupur Sal forest. From the discussion in the problem statement (see section 1.2), result and discussion throughout this dissertation, it seems very rational to look at PFM context with a holistic perspective. In the past, most studies linked the failure of forest management intervention to the narrow perspective of lack of 'knowledge or skills' or 'empowerment' of forest dwellers without a systemic consideration of forest development agencies, and other actors.

Current participatory approaches of forest management are mainly focusing on livelihood improvement and poverty reduction of forest dwellers. However, researchers and practitioners increasingly express the need to adjust the current forest management approach and emphasize to establish learning-based platforms from where individuals may enhance their capacity to adapt and respond to changes and this would eventually affect forest management outcome (Muro & Jeffrey, 2008; Cundill & Rodela, 2012; Suškevičs et al., 2017). In contrast to the assumption that learning based PFM initiatives may enhance

broader capacity, this study provides empirical evidence that PFM approach brings desired changes in different dimensions of capacities (i.e., capacity to collaborate; capacity to learn and reflect, and capacity to engage in the strategic and political process). In the context of Bangladesh, PFM initiatives mostly address the livelihood improvement of the forest dwellers by providing social forestry plots, which is essential but not necessarily leads to any perceivable learning outcomes like changes in the capacity level of forest dwellers. According to Keen et al., (2005), it is important to introduce such participatory initiatives where individuals can meet, interact and learn collaboratively with other actors about different issues connected to forest management and livelihood improvement. The RMF program considered different learning-based activities and assigned resource dependent forest dwellers in different participatory activities. This engagement was not so smooth and not enough to allow for meaningful management outcomes. According to the findings, social capital within the community and social capital with organizations support the individual forest dwellers to engage in the RMF program and facilitate further alliance with other stakeholders in the social learning platform. Leahy and Anderson (2010) also highlighted the importance of considering social capital within the community before any management initiatives. Additionally, it is also important to consider several factors like effective extension service, credit support, the participation of forest dwellers in PFM program, trust and access to information and communication infrastructures which will also support the enhancement of the capacity of forest dwellers.

Bockstael (2017, p. 342) stated that governments mostly develop their programs and policies based on the assumption that forest dwellers have lack of capacities to manage their resources, and this assumption is one of the major causes of management failure. However, researchers refute the hypothesis, for example, Pomeroy and Rivera-Guieb (2006, p. 144) stated that within the CD approach, i.e., individual, organizational and system or enabling environment are nested within each other to form a whole. Organizational initiatives and services must play a crucial role to develop capacity at the individual level and to create an enabling environment. Thus, the PFM approach has significant potential for long-lasting change in behavior/action of forest-dependent people. In forest management context, advisory services are concerned with the CD of individual forest dwellers; thereby organizations should support and facilitate people engaged to solve their problems and to obtain information, skills, and technologies to improve their livelihood and well-being (Birner et al., 2009). Nevertheless, the findings indicate that advisory services in Madhupur Sal Forest do not lead to a better response to the needs and demands of the forest dwellers, despite the organizational pluralism. FD, as a governmental organization, has the responsibilities to execute national policy and program. However, they failed to ensure their executive role and cannot secure an enabling environment where different actors can work together collectively for forest management. It is difficult to ensure sustainable forest management without a coordinated effort among different actors. Different researchers highlighted the importance of inter-organizational coordination to get tangible outcomes from forest management initiatives (Hermans, Klerkx, & Roep, 2015; Österle et al., 2016). Organizations within the existing context of

Madhupur Sal forest must fashion their advisory function to establish a participatory learning environment for achieving the learning-based outcome. Therefore, service providers should strongly consider the coordination issues among each other and maintain the problems of social capital (especially the trust) with the tribal forest dwellers.

CD perspective (Figure 1.3) suggest that organizations should consider the issues that affect an enabling environment where the development process takes place. The empirical findings from the chapter 4 reflect that the FD failed to ensure such a situation where tribal forest dwellers can show their willingness to cooperate and participate in forest management programs. Furthermore, the tribal forest dwellers plugged by many constraints due to different management intervention. The result indicates that conflicts on different issues spread over in Madhupur Sal forest from the beginning of the PFM initiative (see, Table 4.2). In general, this situation raised questions about the capacity of organizations in the creation of an enabling environment that encourages forest-dependent people for collaborative action. Therefore, it is essential to ensure such an environment where both organizations and forest dwellers can work for collaborative conflict management. The empirical evidence from chapter 4 already showed that rights-based discussion before the participatory program could broaden the possibilities of engagement of forest dwellers into the program. This process can support the long-term interaction, which is crucial to get a tangible outcome from the learning-based platform (also see, Suškevičs et al., 2018). During this process of consensus building, a bundle of rights should be addressed by the Government, and they should also 'opt out' their dominating behavior. Most importantly, the local state agency (FD) must consult with forest dwellers before taking any initiatives which will make forest dwellers feel empowered and thus enhance their cooperation and participation. Scholtens and Bavinck (2018) highlighted the importance of creating ownership, participation, and collaboration with resource dependent community members to transform conflicts. This transformation of conflicts into collaboration is possible when the duty-bearers respect the rights of forest dwellers and plays a fair rule of the game. Ros-Tonen and Derkyi (2018) made a similar observation in conflict management with community members in Ghana's off-reserve forest area. They explore the factors that determine whether interactions resulted in conflict or cooperation and reported that the timber-dependent community member showed their willingness to work with those timber operators who respect their rights.

5.3 Reflections as a researcher and the limitations of this study

In this section, the field experiences and observation from the field are presented. During my field visit from July to December 2016, I resided in Madhupur Sal forest area. Local tribal organizations named 'Joyenshahi Adibasi Unnoun Parishad' and their leaders assisted me in finding out a place for staying and also familiarized me with this Garo tribal community. Here, I will reflect my overall experienced and observation covering three aspects, i.e., experiences with the tribal forest dwellers and different

organizations (especially with FD), experiences while employing different data collection techniques, and observation about contemporary forest management practice regarding the finding of this study.

I can remember my first day when I visited the divisional forest office, Tangail, Bangladesh, to get official permission for working in this forest area. After this successful visit, I came back to the forest area and made contact with the local FD. I admired the full cooperation of the Assistant Conservator of Forest (ACF) from the local FD who helped me in every aspect of field research. Then I tried to communicate with local tribal forest dwellers but became surprised due to their anxiety about unknown contact. Tribal forest dwellers showed their unwillingness to share information about forest management issues, but they proposed me to contact their leaders. Then I made contact with the leader of 'Joyenshahi Adibasi Unnoun Parishad' who explained this distrust issue and helped me to make acquaintance with the local tribal forest dwellers. Nevertheless, I observed 'distrust' of the tribal forest dwellers when I strived to talk about forest management. It took time to establish a trustworthy relationship with them, and for that, I devoted time with tribal peoples (from their leaders to general tribal forest dwellers). Every day I made an effort to spent time in their villages. However, everything went off smoothly due to the contact with the tribal leaders and for the frequent visit in the tribal villages. These Garo tribal forest dwellers were so welcoming and supportive during my data collection period. I had to face a common question from the general tribal forest dwellers during the time of face to face interview. They questioned me why they should provide information, and how could this research help them. They further explained the reason for such questioning that many people like me came to their villages and gathered information from them, but they did not see any change in their lives and forest. Instead, they had a perception that many difficulties came in their life because of sharing information. I also observed their pessimistic attitude towards FD and their development program. Besides this, I spotted their misperception about the development program as they were always afraid of eviction due to any development intervention.

During the field data collection, I expended a range of data collection method. I did the survey (face-to-face), semi-structured interview, focus group discussion, key informant interview, participatory techniques, workshop, and informal discussion. The use of different methods helped me to explore the forest management context from a holistic perspective. I found the participatory approach and activities most exciting that actively involve tribal forest dwellers in exploring their real-life events. On the other hand, an informal discussion was beneficial to get insight from tribal forest dwellers about forest management issue. Conducting a survey was a challenging task for me due to lack of proper communication and transportation system. I had to travel on foot to reach many remote villages in the forest, and many times; I had to visit tribal household twice as the respondents were absent. However, local people were appointed who helped me to organize my field activities and sometimes worked as a translator.

Finally, I always tried to know about distrust issue in between FD and tribal forest dwellers during my six-months stay in Madhupur Sal forest. Because of distrust, tribal forest dwellers missed the opportunity to engage in different development activities where they could enhance their capacity. Currently, Social forestry program, an integral part of the participatory approach has been practiced by the local FD to support the livelihood of tribal forest dwellers. According to the social forestry rules in Bangladesh, FD is responsible authority to allocate social forestry plot to local poor forest-dependent people for ten-year basis where they do agroforestry practices. These agroforestry practices certainly bring economic benefit as poor forest dwellers can grow the non-timber product, and they also get 45% of the total benefit from timber product at the end of the ten-year cycle. Despite this benefit sharing mechanism, forest coverage of Madhupur Sal forest reduced significantly, forest dwellers still have a high dependency on forest resources, and they are incapable of demanding their rights. During the informal discussion, I observed most of the tribal forest dwellers accused FD because of their lack of legitimacy. Chapter four of this study reflects that how FD failed to mitigate conflicts and to convince the tribal forest dwellers for collaborative forest management. Moreover, I noticed that the tribal forest dwellers perceived social forestry as a benefit-sharing approach from where they can get immediate profit. This mechanism forms the issue of pseudo-participation (see, Rasul, Thapa & Karki, 2011) which might not bring the desired changes (to develop capacity and to realize the broader forest management objectives) among the tribal forest dwellers. Therefore, the PFM approach needs to design with a range of participatory activities (besides social forestry), which will enhance the capacity of forest dwellers.

This study has several limitations which are given below-

- For the first and third objective, we considered a recent PFM program. We could not highlight facts from some previously completed programs/projects due to lack of secondary data/information.

- In this RMF program, the number of mainstream Bengali people was much higher than the tribal forest dwellers. But we did not consider the Bengali people for our study. Including the Bengali people could add different understanding of CD aspect (at a different level) in between these two groups. But we only focused on the tribal people due to resource restrictions during the field work. Moreover, this choice was made due to several reasons. Firstly, it had not been yet reported that FD had conflicts with mainstream Bengali people. However, issues like non-cooperation, lack of participation, and conflicts between tribal forest dwellers and FD had been informed by the previous study. Therefore, FD doesn't need to consider the conflict management strategies for getting more extensive cooperation from Bengali people while they must dwell on the dispute mitigation tactics with tribal communities. Secondly, neither the Bengali people are living inside the forest area nor they are the original forest dwellers. They are living outskirt of the forest and involved with other livelihood activities. Therefore, including tribal forest dwellers in PFM and developing their capacity still remain the best

possible way to conserve the remaining forest. The tribal forest dwellers were considered for this study based on the facts mentioned above, but future research could consider both tribal and Bengali people to get more cross-cutting insights about FPM and CD issue in this forest area.

▪ This study examined a micro-level perspective and ignored the role of funding organizations (both national and international) or other potential stakeholder's role in the CD process. Therefore, future research could investigate the CD issue considering the stakeholders from a macro-level perspective.

▪ In chapter 2, we developed a modified analytical framework where we integrate the different dimension of capacity along with social capital and other socio-demographic factors. Measurement of social capital variables might raise the question of subjectivity. This issue can be addressed by test-retest reliability, but unfortunately, we did not conduct this reliability test, because we were able to collect only one dataset.

▪ In chapter 3, we assess the pluralistic advisory system where a range of organizations are working with tribal forest dwellers to improve the livelihood and forest condition by developing their capacity. In forest management context, advisors can play a critical role in developing the capacity of forest dwellers through joint learning and action. They are the front level worker and their performance also associated with organizational effectiveness. Unfortunately, this study did not consider the role of advisors and the factors that affect their performance due to time constraints and limited resources. Therefore, it is recommended to undertake further study to assess the factors that can affect the performance of advisors in a forest management context.

▪ In chapter 3, we found the evidence of coordination gap among existing advisory organizations, especially, coordinating role of FD with other local organizations were missing. In the context of forest management, it is always recommended that organizations should work together to meet the needs and expectation of forest-dependent people. We also recommend that the government organization should work for inter-organizational coordination. But the vital question remains unanswered about how to integrate the parts and functions of organizations. This requires further investigation.

5.4 Significance and contribution of the study

This research has significance and contribution for the following reasons.

▪ First, there are many scientific works on PFM, and in those research, the outcome of PFM in forest management has seen in-term of a change in income level, food security level, and livelihood improvement. But the current approach suggests going beyond the previous criteria and consider including learning based approach and their possible broader consequence (for instance, development of capacity) (Suškevičs et al., 2017; Nath & Inoue, 2010). In the context of Bangladesh, PFM is the primary policy instrument to manage its state forest. Although the

contribution of this participatory initiatives has been assessed or evaluated in the current literature based on the dimensions of change in income level, food security level, and livelihood improvement but no study assess the PFM approach considering the change in the capacity level of the forest dwellers which assumes as the learning outcome. This study empirically investigates the contribution of a PFM in developing the capacity of forest dwellers and explore the factors that affect the CD. This contribution will inform the future project and program for better governance of the forest.

- Second, advisory services are an essential means for organizations to work with forest dwellers for achieving sustainable forest management in Bangladesh. PFM creates a new dimension of forest management by engaging a range of organizations (public, private, and social organizations). Despite the organizational pluralism, it is well acknowledged that PFM initiatives in our study area have poor management outcome (Rahman et al., 2010; Islam & Sato, 2013). To the best of our knowledge, there is no previous study which assesses the organizational pluralism in a forest management context. This study is the first attempt to evaluate this pluralistic advisory system in forest management in Bangladesh. The findings of this study will provide useful information to the policy maker to reform the existing system into the more collaborative advisory system.

- Finally, creating an enabling environment for collaborative forest management remains a challenging task for state organizations in Bangladesh. Existing literature reported that most forest management initiatives defeated due to conflicts and therefore, the lack of cooperation and participation from the tribal forest dwellers remained a major problem. Regarding this, the rights-based approach has received increasing recognition in development programs and policies, but it has not been adopted in a forest management context in Bangladesh due to the political unwillingness of government. This study uses a case study approach to explore and structure the forest dwellers experiences in a forest management program. The specific contribution of this study is to provide empirical evidence about how the rights-based approach can create an enabling environment for collaborative action and cooperative conflict management.

5.5 Policy recommendations

PFM in Bangladesh has a great potential to improve the livelihood condition of forest-dependent people and to engage them in different forest management activities through developing their capacity. In addition to livelihood improvement, capacity development at individual, organizational, and enabling environment dimensions need serious consideration by the government. To get tangibles outcomes from PFM and to ensure sustainable forest management, the following policy recommendations are proposed:

- Enabling environment must be established, and therefore, it must be reflected at the policy level how to guide the local level duty-bearers for establishing an enabling environment. The evidence available shows that how ignoring the rights of tribal forest dwellers create 'disabling environment' with further negative consequences and how considering the rights of tribal forest dwellers can create 'an enabling environment' with many positive consequences. There should be real devolution of power from the top down authority to local forest dwellers. Responsibilities to protect the forest from outsiders should be transferred to local forest dwellers and government should cater this process through ensuring a bundle of rights like the right of freedom, the right of security, the right of decision-making, etc. Therefore, it is recommended that the government should integrate the rights-based approach in policy development as this approach can minimize long-run disputes into collaborative action.

- Advisory services are identified as a crucial factor for developing the capacity of tribal forest dwellers, but this concept of 'advisory service and system' remains deserted in both practice and policy. The management of forest resources with forest dwellers has remained under the responsibilities of the local FD. FD, through their advisory services, is trying to support the needs and demands of the forest dwellers. But according to the findings- they remain less influential actors to mobilize the tribal forest dwellers towards collaborative action. On the other hand, several NGOs and social organizations are working closely with tribal forest dwellers and provide necessary advisory services to manage the forest and improve their livelihood. But according to the available evidence, the FD does not have coordination with other actors at the local level. Therefore, more attention needs to be paid by FD for the establishment of coordinated advisory services with other advisory service provider considering the importance-influence, characteristics, and service quality of the existing organizations.

- The FD has always been facing strong resistance and non-cooperation by the tribal forest dwellers. Obviously, FD still fails to translate the policy into action, and the forest coverage declined day by day. According to the findings, social organizations have a high influence to mobilize forest dwellers into action. Therefore, the importance and influence of social organizations to mobilize the tribal forest dwellers towards cooperation and action should be acknowledged by FD.

- The learning-based outcome is essential for sustainable forest management. Forest management policy and initiatives in Bangladesh mainly paid more attention to livelihood improvement of forest dwellers, which is critical but not necessarily bring changes among forest dwellers for long-run management intervention. PFM programs like RMF can provide a learning-based platform where forest dwellers can get involved in a range of participatory activities that bring desired changes in different dimensions of capacities (i.e., capacity to collaborate; capacity to learn and reflect, and capacity to engage in the strategic and political process). Therefore, any

PFM intervention in the future should be designed in such a way that can cause changes in the capacity level of the forest-dependent people.

▪ The findings of this thesis also indicate that the potential capacity of the private sector in supporting sustainable forest management should be tapped. The study reveals that some key NGOs were working closely with tribal forest dwellers and have an advantage in the provision of advisory service compared to the public sector. Private sector engagement in forest management will also enhance the opportunity to meet the needs and expectations of forest dwellers. Therefore, FD should integrate private sector organizations in the provision of advisory services, and the Government should move away from 'one-size-fits-all' thinking to a 'best fit' thinking.

5.6 References

Birner, R., Davis, K., Pender, J., Nkonya, E., Anandajayasekeram, P., Ekboir, J., Mbabu, A., et al. (2009). From Best Practice to Best Fit: A Framework for Designing and Analyzing Pluralistic Agricultural Advisory Services Worldwide. *The Journal of Agricultural Education and Extension,* 15 (4), 341-355. doi:10.1080/13892240903309595.

Bockstael, E. (2017). Critical Capacity Development: An Action Research Approach in Coastal Brazil. *World Development, 94*, 336-345. https://doi.org/10.1016/j.worlddev.2017.01.017.

Cundill, G., & Rodela, R. (2012). A review of assertions about the processes and outcomes of social learning in natural resource management. *Journal of Environmental Management, 113*,7-14. https://doi.org/10.1016/j.jenvman.2012.08.021.

Hermans, F., Klerkx, L. & Roep, D. (2015). Structural Conditions for Collaboration and Learning in Innovation Networks: Using an Innovation System Performance Lens to Analyse Agricultural Knowledge Systems. *The Journal of Agricultural Education and Extension, 21* (1), 35-54. https://doi.org/10.1080/1389224X.2017.1320640.

Islam, K. K., & Sato, N. (2012). Participatory forestry in Bangladesh: Has it helped to increase the livelihoods of Sal Forests-dependent people? *Southern forests: A Journal of Forest Science, 74*,89-101. https://doi.org/10.2989/20702620.2012.701434.

Islam, K. K., & Sato, N. (2013). Protected Sal Forest and livelihoods of ethnic minorities: Experience from Bangladesh. *Journal of Sustainable Forestry, 32*, 412-436. https://doi.org/10.1080/10549811.2013.762571.

Islam, K. K., Rahman, G. M., Fujiwara, T., & Sato, N. (2013). People's participation in forest conservation and livelihoods improvement: experience from a forestry project in Bangladesh.

International Journal of Biodiversity Science, Ecosystem Services and Management, 9,30-43. https://doi.org/10.1080/21513732.2012.748692.

Keen, M., Brown, V.A., & Dyball, R. (2005). *Social learning in environmental management: towards a sustainable future*. London: Earthscan.

Leahy, J. E., & Anderson, D. H. (2010). Cooperation gets it done': Social capital in natural resources management along the Kaskaskia River. *Society & Natural Resources, 23*, 224-239. https://doi.org/10.1080/08941920802378897.

Muro, M., & Jeffrey, P. (2008). A critical review of the theory and application of social learning in participatory natural resource management processes. *Journal of Environmental Planning and Management, 51*, 325-344. https://doi.org/10.1080/09640560801977190.

Nath, T. K., & Inoue, M. (2010). Impacts of Participatory Forestry on Livelihoods of Ethnic People: Experience from Bangladesh. *Society & Natural Resources, 23*(11), 1093-1107. https://doi.org/10.1080/08941920802653521.

Österle, N., Koutsouris, A., Livieratos, Y., & Kabourakis, E. (2016). Extension for Organic Agriculture: A Comparative Study between Baden-Württemberg, Germany, and Crete, Greece. *The Journal of Agricultural Education and Extension,* 22 (4), 345-362. https://doi.org/10.1080/1389224X.2016.1165711.

Pomeroy, R. S., & Rivera-Guieb, R. (2006). *Fishery co-management: A practical handbook*. Oxfordshire, UK: CABI Publishing/IDRC Ottawa.

Rahman, H. M. T., Deb, J. C., Hickey, G. M., & Kayes, I. (2014). Contrasting the Financial Efficiency of Agroforestry Practices in Buffer Zone Management of Madhupur National Park, Bangladesh. *Journal of Forest Research, 19* (1), 12-21. https://doi.org/10.1007/s10310-013-0392-3.

Rahman, M. M., Rahman, M., Zhang, G., & Kazi, K. S. (2010). Conservation letter A review of the present threats to tropical moist deciduous Sal (*Shorea robusta*) forest ecosystem of central Bangladesh. *Tropical Conservation Science, 3*(1), 90-102.

Ros-Tonen, M. A. F., & Derkyi, M. (2018). Conflict or cooperation? Social capital as a power resource and conflict mitigation strategy in timber operations in Ghana's off-reserve forest areas. *Ecology and Society, 23*(3), 44. https://doi.org/10.5751/ES-10408-230344.

Scholtens, J., & Bavinck, M. (2018). Transforming conflicts from the bottom-up? Reflections on civil society efforts to empower marginalized fishers in postwar Sri Lanka. *Ecology and Society, 23*(3),31. https://doi.org/10.5751/ES-10216-230331.

~ Chapter 5 ~

Suškevičs, M., Thomas, H., Romina, R., Biljana, M., & Claudia, P. (2018). Learning for social-ecological change: A qualitative review of outcomes across empirical literature in natural resource management. *Journal of Environmental Planning and Management, 61*, 1085-1112. https://doi.org/10.1080/09640568.2017.1339594.

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ACADEMIC POSITION

2014-present   Assistant Professor
                                      Department of Agricultural Extension Education
                                      Bangladesh Agricultural University

2012-2014   Lecturer
                                      Department of Agricultural Extension Education
                                      Bangladesh Agricultural University

EDUCATION

2015-present   University of Hohenheim
                                      Institute of Social Sciences in Agriculture (430a)
                                      Doctoral Student

2010-2011   Bangladesh Agricultural University, *Masters in Agricultural Extension Education*

2006-2010   Bangladesh Agricultural University, *Bachelor of Science in Agriculture (Honors)*

FELLOWSHIP

2015-2018   DAAD Scholarship for International Ph.D. Program for Agricultural Economics, Bioeconomy and Rural Development

2011-2012   NST fellowship, Ministry of Science and Technology, Government of the People's Republic of Bangladesh

ACADEMIC INTEREST

✓ Capacity and capacity development issues for sustainable development
✓ Sustainable forest and water management
✓ Rights to development
✓ Digitalization in Agricultural advisory service
✓ Organizational pluralism in agricultural and forestry context
✓ Systems Thinking in Practice

WORKSHOPS AND CONFERENCES

Poster presentation:

▪ Kabir, K. H.; Knierim, A. & Chowdhury, A. H. (2018, 17th-19th September). ***What matters for the job performance of field advisors: A case of Madhupur Sal forest Bangladesh***. Poster session presented at the annual interdisciplinary conference on research in tropical and subtropical agriculture, natural resource management and rural development (TROPENTAG), Ghent University, Ghent, Belgium.

Paper Presentation:

- Kabir, K. H., Knierim, A. & Chowdhury, A. H. (2018, 1st-5th July). *Assessment of pluralistic advisory services: A case of Madhupur Sal forest in Bangladesh*. Paper presented at the International Farming System Association (IFSA), Chania, Greece.

- Kabir, K. H. & Knierim. (2017, 19th-22th June). *Capacity development of local forest users and factors influencing in capacity development for achieving collective action: evidence from Madhupur Sal Forest Bangladesh*. Paper presented at The International Association for Society and Natural Resources (IASNR), Umeå, Sweden.

- Kabir, K. H., Knierim & Chowdhury, A. H. (2018, 09th-11th November). *"No forest, no dispute"-The rights-based approach in creating an enabling environment for participatory forest management: A case from Madhupur Sal forest, Bangladesh.* Paper presented by third author at Sustainability and Development Conference, University of Michigan, USA.

MODULES AND COURSES ATTENDED

Name of the module	Responsible Institution & person	Grade Obtained	ECTS	Duration of the course
"Qualitative Research and Developing Grounded Theory in Social Sciences"	Technische Universitaet Muenchen Prof. Dr. Vera Bitsch	-	3	17.07.2017 to 21.07.2017
"Principles and Practices of Survey Research: Designing and Conducting Surveys"	Faculty of Organic Agricultural Sciences, Witzenhausen, University of Kassel Prof. Dr. U. Hamm	-	3	28.08.2017 to 01.09.2017
"Publishing and Writing in Agricultural Economics"	The University of Bonn, Prof. Dr Thomas Heckelei	-	3	04.09.2017 to 08.09.2017
"Questionnaire Design and Data Analysis in SPSS" (4202420)	The University of Hohenheim Prof. Dr. Tilman Becker	1.7	6	WS 15/16
"Knowledge and Innovation Management" (4301410)	The University of Hohenheim Jun.-Prof. Dr. Andrea Knierim	1.3	6	WS 15/16
"Governance, Institutions and Organizational Development" (4903480)	The University of Hohenheim Prof. Dr. Regina Birner	1.3	6	WS 15/16
"Systems Thinking in Practice (STiP) in Ph.D. Research Appreciating uncertainties and opportunities and knowing how to act with Farming Systems Research."	International Farming System Association (IFSA)	-	4	29.06.2018 to 05.07.2018
Participated in a study excursion "Agricultural Organizations: From Global to Local" to Bonn/Rhineland	The University of Hohenheim Prof. Dr. Regina Birner	-	3	16.05.2016 to 21.05.2016

PUBLISHED ARTICLES AND INCLUDED IN THIS THESIS

Kabir, K.H., A. Knierim, A. Chowdhury, and B. Herrera. (2019). "Developing Capacity of Forest Users Through Participatory Forest Management: Evidence from Madhupur SAL Forest in Bangladesh." Journal of Sustainable Forestry 38(2):1-22. https://doi.org/10.1080/10549811.2018.1540991.

ARTICLES IN PROGRESS

Khondokar H. Kabir, Andrea Knierim & Ataharul Chowdhury (2018). Assessment of a pluralistic advisory system: The case of Madhupur Sal Forest in Bangladesh. Submitted to the Journal of Agricultural Education and Extension (https://www.tandfonline.com/toc/raee20/current).

Khondokar H. Kabir, Andrea Knierim & Ataharul Chowdhury (2018). "No forest, no dispute"-The rights-based approach to creating an enabling environment for participatory forest management: A case from Madhupur Sal forest, Bangladesh. Submitted to the Journal of Environmental Planning and management (https://www.tandfonline.com/toc/cjep20/current).

PREVIOUSLY PUBLISHED ARTICLES

K.H Kabir, M.A. Kashem and M.A.M. Miah (2011). "Constraints faced by the nursery owners in the production of saplings". *Bangladesh journal of extension education*, 23 (1&2):53-60.

Billah, M. M., Sarker, M. A., Miah, M. A. M. & **Kabir, K. H.** (2015). "Adaptation of Farming Practices by the Smallholder Farmers in Response to Climate Change". *Journal of Agricultural Extension and Rural Development*, 7(2): 33-40. https://doi.org/10.5897/JAERD2014. 0649.

Khondokar Humayun Kabir & Debashis Roy (2015). "Preferences of ICT tools by the Upazila Agriculture Officers (UAO) for the Information Exchange in Bangladesh". *Journal of Agriculture, Forestry and Fisheries*, 4(2): 59-65.

Munmun, R., Sarker, M. A., Hoque, M. J. & **Kabir, K. H**. (2015). "Women's Participation in Agriculture at Forest Land Areas of Bangladesh". *Journal of Social Sciences*, 11(1):30-38. DOI: 10.3844/jssp.2015.30.38.

Khondokar Humayun Kabir, Debashis Roy, M. Abul Kashem (2016). "Social Computing Behavior of the Students of Bangladesh Agricultural University, Mymensingh". *Social Sciences*, 5(6):86-96.

M. A. Sarker, Ataharul H. Chowdhury, Mahmuda Hoque, Baokun Lei, **K. H. Kabir** (2018). "Videos in Improving Farmers' Innovation Capacity for Climate-Smart Forest and Agricultural Practices: An Experience of Madhupur Sal Forest in Bangladesh". *Journal of Geoscience and Environment Protection*, 6(3), 83-99. DOI: 10.4236/gep.2018.63008.

COMPLETED PROJECT

"Attitude and Level of Knowledge of Farmers on ICT based farming" funded by Bangladesh Agricultural University Research System (BAURES) and University Grant Commission, 2013 (Project Number: BAURES/2013/44/AU-GC)

Stuttgart, 2018
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