Rethinking the Participatory Approach in Community-Based Forest Management to Strengthen
Community Sustainability in Rural Bangladesh: A Case Study

By

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Abstract

Community forestry, underpinned by decentralization policies, holds promise as a viable approach to forest conservation and community development. The rise of community forestry represents a means to address pressing environmental and economic issues such as deforestation, encroachment, and resource degradation. In theory, devolution or decentralization of rights, responsibilities, and authority from the state to forest communities should provide for increasing forest productivity, greater control over the resource, and more significant share of benefits. Subsequently, community forestry has become a popular concept in many countries of South Asia, Europe, and North America to ensure community sustainability in terms of environment, social, economic, and human capital aspects. Strategically, community forestry follows a robust participatory approach along with more integrated management processes. Consequently, community-based forest management (CBFM) strives to incorporate all stakeholders in participation and collaboration with a view to ensuring community existence and well-being of the local poorest people. Therefore, the general purpose of this research is to examin the integrating processes of stakeholders through participation and collaboration in community-based forestry. In addition, I analyze issues of sustainability in communities and examine constraints that limit the processes of integration. I use a qualitative approach along with a case study as the strategy of inquiry in this research focusing on Comilla Sadar South Upazila (CSSU) located in Comilla district, Bangladesh. Data were collected through face to face interviews with semi-structured questionnaires and field notes following purposive sampling technique. The results of this study reveal that the main integration process in community forestry in CSSU are participation and collaboration. Hence, beneficiaries, Bangladesh Forest Department (BFD), and Union Parishad (UP) come together as leading actors through the participatory approach, but existing community forest management ignores the inclusion of NGOs and business entrepreneurs which are also main actors of this kind of integrated management process. However, BFD is working as the central administrative actor whereas beneficiaries work as a responsible actor to nurse and protect the forest resources. On the other hand, UP is pledged to provide various kinds of legal support in favor of community forestry. Furthermore, a significant number of respondents want to revive NGOs' involvement and to incorporate local business entrepreneurs in CBFM for logistic support. Stakeholders actively participate in CBFM in terms of sharing responsibilities like decision making, cost-sharing, motivation and coordination to

make community forestry more efficacious. Furthermore, they collaborate with each other in maintaining communication, consensus building, and in learning processes that ensure accountability, equality, and efficiency. The practice of an integrated management approach contributes to community sustainability including environmental viability, stronger social networks, economic prosperity, and human capacity.While community forestry offers an alternative model of management, there are some crucial constraints that limit its success in Bangladesh, notably political influence, financial crisis, lack of professionalism, and syndicate culture. Nevertheless, the role of community forestry is praiseworthy in strengthening community sustainability.

Dedication

This thesis is dedicated to my beloved parents

A B M Abdul Hakim

&

Mrs. Khorsheda Begum

Acknowledgement

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Acronyms

ADB   Asian Development Bank

BDT   Bangladesh Taka

BG   Bangladesh Government

BFD   Bangladesh Forest Department

BR   Bangladesh Railway

CBFM   Community-Based Forest Management

CSSU   Comilla Sadar South Upazila

CBF   Community-Based Forestry

DFO   Divisional Forest Officer

FAO   Food and Agricultural Organization

GoB   Government of Bangladesh

LGED   Local Government and Engineering Department

MoEF   Ministry of Environment and Forest

NGOs   Non-Government Organizations

REB   Rural Electrification Board

R&H   Roads & Highway

RC   Respondent's Code

TEK   Traditional Ecological Knowledge

TFF   Tree Farming Fund

UP   Union Parishad

UEFDC   Upazila Environment and Forest Development Committee

WB   World Bank

<div align="center">**Chapter One**</div>

<div align="center">**Introduction**</div>

1.1 Background of the Research

Community forestry explores the close affinity between sustainable forest management and local stakeholders with a view to ensure community sustainability (Harrison & Suh, 2004). The general goal of community development in terms of sustainability is to improve the long-term existence of community and well-being of the local people (Community Development Division, 2012; Taylor, n. d.; Township Vision, n. d.; Goal Formulation, n. d.) along with their active participation in community-based forest management.Furthermore, community development seeks more equitable distribution of all social determinants (Gravesen, 2015; Motherway, 2006) for community stakeholderslike availability of livelihood opportunities and stronger networking activities among the members of the society. The preconditions of well-being emphasize increasing local stakeholders' participation, collaboration and co-management process (Chaskin, 1999; The Republic of Rwanda, 2013) along with a synergetic system (Lai, 1997) that emerges as the outcome of the participatory approach. Such an approach strives to involve all or most stakeholders whereby solutions are derived through collective action, where power is shared (empowerment), and transparency is increased. Moreover, stakeholders' active involvement in resource management builds up a sense of ownership and utilization of local knowledge that provides for positive impact on resource sustainability (Nguyen-Khoa, Smith, & Lorenjen, 2005). In addition, the participatory approach increases the potential to enhance the quality of project performance by including marginalized and vulnerable people of the society (Mariner et al., 2011) while maintaining the procedures of co-management process (Petheram, Stephen, & Gilmour, 2004). The co-management process upholds vast interconnectivity, strong networking consensus, consciousness and reciprocal relationships among all of the stakeholders in the community. On the other hand, collaboration becomes an effective instrumental process in promoting community-based natural resource management that emphasizes social networking, norms (Gruber, n.d.) and trust (Petheram, et al., 2004). In the USA, the collaborative approach based ona bottom-up model and beginning from the tenure of the Bush administration spread

gradually to various sectors of natural resource management (Nie & Metcalf, 2015, p.08); most notably, fisheries, land, water, and forestry. A more collaborative approachis seen as a beneficial role in conflict resolutiontoo,because the stakeholders who work together arehighly dedicated to finding common ground and to finding solutions to the problems of natural resource management and conservation(Snow, 2001).The use of a participatory approach as the representation of a bottom-up model in natural resource management (fisheries, forestry, land, watershed) is the optimal way (Manzini & Staszowski, 2013; Mitchell, Buren, Greenwood, & Freeman, n.d.; Erdogan, 2013) to ensure their long-term sustainability and thereby strengthening community sustainability (Tsai, 2014; Schmitz, Stinson, James, 2010). It postulates that the consequences of participatory approaches to local development very likely include community sustainability as a means to address environmental quality, economic prosperity, cultural vibrancy, social well-being (Imagine Halton Hills, 2013; Futureoxford, 2015; Government of New Brunswick, 2008) and human health (Abbotsford, 2013; Mirovitskaya & Ascher,2001).

Many countries in Africa and Asia promote the scope of direct involvement of local people as vital actors or stakeholders in the forest through community-based management (Schreckenberg et al., 2006). This involvement is also considered in community forestry following a bottom-up model of development (Guiang et al., 2001; White & Martin, 2002). For example, realizing the necessity of active participation of forest-dependent people, Nepal conceptualized community forestry as means of achieving diverse benefits like ecological parity, generating income and improving the collection of livelihoods (CFM WG, 2003) for the sake of community sustainability. Subsequently, the government revised its forest policy in 2000 as "Revised Forest Policy-2000" and implemented it in 2004 as the "Collaborative Forest Management" (Paudyal, 2007). In Nigeria, many communities moved from a "top-down" approach to a "bottom-up" approach to ensure peoples' participatory activities in natural resource management including forestry (Edet, Samuel & Etefia, 2014). However, Community forestry, incorporating local people (FAO, 2015, Matiku et al., 2013; Jashimuddun & Inoue, 2012) through the participatory approach, typically ensures integration of all stakeholders including government agencies, civil societies (Kumsap & Indanon, 2016), and private sector (Odera, 2004; World Bank, 1994) into all relevant aspects of forest management. It takes into account decision-making processes (Schreckenberg et al., 2006; FAO, n.d.), maintenance and supervision of forestland, capital

accumulation and investment, crop sharing, and harvesting of forest resources (Orgugo, Mogoi, Obonyo, & Oeba, 2008; Brown, n.d.; Collaboration for Environmental Evidence, n.d.) all of which can contribute to community sustainability.

1.2 Statement of the Problem

The present condition of forest conservation in developing countries like Bangladesh is of deep concern to policy analysts because of increasing encroachment that results in deforestation, and degradation of the ecosystem. It is estimated that more than 0.6 percent of the total forestland in the tropical zone is being degraded each year (Edet, Samuel & Etefia, 2014). Such degradation makes this zone environmentally fragile and economically vulnerable in the long run. To address these problems, many researchers and environmentalists emphasize the need to reduce encroachment. Indeed, it is seen that forest-dependent people are the primary responsible for such encroachment (Davidar et al., 2010; Salam, Noguchi & Koike, 1999; Rasul, 2007). Therefore, forest-dependent people should be incorporated into forest management as the key beneficiary, thereby allowing for stronger participation in the management of the resource. However, co-management and collaboration in forestry remains a challenge because of still practicing top-down approaches in management. This is particularly evident in Bangladesh.

Implementation of the participatory approach, through which NGOs, business entrepreneurs, and local people can take part in the management process (Guijt, 2014; ADB,2004; CIDT, n. d.; Duraiappah et al., 2005) with the agencies of governmental bodies, represents a significant challenge in community-based forestry in Bangladesh (Mazur & Stakhanov, 2008). It is restricted to easy access for legitimate beneficiary groups, local government and business entrepreneurs to the overall management. Further, decision-making and bureaucratic processes are fraught with red-tape practices, even though the Government of Bangladesh (GoB) adopted a participatory approach in forest management (Hossain, n.d). Much research has been conducted on participatory forest management in Bangladesh along with its roles and performances highlighting community member's involvement (Zaman, 2011; Mia, n.d.; Islam et al. 2011; Al-Amin & Hasan, n.d.), and livelihoods (Islam & Sato, 2012; Khan, n.d.). On the other hand, very

few studies discuss the application of a holistic participatory approach in community-based forest management (CBFM) incorporating all parties of interest and integrating their processes and practices.

As discussed above, the total forest land of Bangladesh is being degraded (Muhammed et al., 2008) because of overpopulation, overconsumption, and encroachment (Ali et al., 2010; Mustafa, 2002). As noted by Mongabay in the discussion of Bangladesh, the annual deforestation rate was 0.3 percent (26,000 ha) for the period of 2000-2005 (Mongabay, n.d.). In the 1980s, the rate of forest destruction was 8,000 hectares per annum with the estimated annual deforestation rate of 3.3 percent. Consequently, per capita forestland had declined from 0.035 hectares in 1969 to 0.02 hectares in 1990 (Alam, 2009). Due to forest depletion, Bangladesh is facing serious socio-economic and ecological challenges and environmental degradation like loss of livelihood opportunities and soil erosion in many cases. The socio-economic impacts, due to deforestation, is most serious for poorer members of rural communities who depend on forest resources. Although the deforestation rate in Bangladesh isgradually decreasing, it is still of concern and efforts are needed to ensure the sustainability of the country's forests (Mia, n.d; Niaz & Mustafa, n.d.).

Given these circumstances, the government of Bangladesh adopted new community forestry rules by amending the "Forest Act" of 1927 with the inclusion of "Social Forestry Rules" in 2004 (Islam, 2011) with a view to protect and to increase the size of forest land and eventually to ensure community sustainability as a national goal of the country. To make the Act more effective and raise its potential for community forestry, it was updated in 2010. Community forestry, as a concept, can be seen as new institutional arrangements with legal jurisdiction that engages marginal communities as stakeholders in forest conservation and management (Ali et al., 2010). Development agencies like the Food and Agriculture Organization (FAO), and Asian Development Bank (ADB) consider the addition of these rules as a milestone achievement and as an important initiative for the execution of community forestry in Bangladesh (Jashimuddin & Inoue, 2012). Therefore, the present study seeks to assess the current practices of the participatory approach in community forestry that integrates among the governmental bodies,

local people, NGOs, and private entrepreneurs, as well as the effectiveness of this approach in contributing to community sustainability in Bangladesh.

1.3 Purpose and Objectives of the Research

The general purpose of the research is to explore the integrating processes of all stakeholders through participation and collaboration in community-based forestry. In addition, it seeks to highlight how community forestry can contribute to the sustainability of communities. Attention is also given to depicting barriers to implementation of the participatory approach.

This purpose of the research encompasses several specific objectives:

- To investigate the institutionalized processes of stakeholders' participation in CBFM.
- To ascertain the structures and intensity of collaboration that exists among all stakeholders in CBFM.
- To assess the contributions of community-based forestry in maintaining the sustainability of communities.
- To evaluate the challenges and difficulties in the implementation of the participatory approach in CBFM.

1.4 Research Questions

The study intends to answer to the following research questions:

1. What are the processesof stakeholders' integration in CBFM to ensure community sustainability?

    A. How do the stakeholders and institutional agencies participate in CBFM in terms of decision-making, cost sharing, and labor demands for tree garden projects?

    B. How do the stakeholders coordinate with each other for making collaboration in terms of communication styles, consensus building, sharing responsibility, maintaining equality, and learning processes for management?

2. How does community-based forestry contribute to community sustainability?

1.5 Significance of the Research

Community forest management with the inclusion of all stakeholders including community people has become a significantly important process for more than 25 years. It is gradually becoming a global phenomenon in forest conservation (Nilsson, 2005; Agrawal & Gupta, 2005) and biodiversity protection because of its potentiality in improving rural livelihoods, alleviating poverty (Brown et al., 2002), and promoting sustainable communities as a whole.

The importance of stakeholder participation is being gradually increased in development sectors to allow for more effective resource management solutions (Bason, 2010). Local stakeholders often gather in a table of discussion for innovating new strategies to resolve the problems of public sectors (Agger & Lund, 2017) like fisheries, forestry, land tenure system, and watershed management. Many studies argue that participatory approaches increase the possibility of success of any launched projects as it involves more people or stakeholders of different

backgrounds who contribute to plans and actions (Ansell & Torfing, 2014; Franke & Shah, 2003).

Community forest management is now prevalent in both developed and developing countries. A significant portion (11 %) of the world's forests is through community forestry practices (Petheram, Stephen, & Gilmour, 2004). In tropical zones, more than 2.5 million people are directly or indirectly involved and dependent on forest and forest-related resources, which are governed by community people (Sharma, 1992; Tyani, 2007). Moreover, the community stakeholders are directly engaged in the decision making of forest management with power shared between governmental bodies and local bodies. Increasingly, community forestry is being regarded as a tool that can enhance the quality of life for local people by increasing social solidarity (Kumsap & Indanon, 2016). As well, a wide range of stakeholder participation in community forestry can serve in building capacity, promoting cost-sharing arrangements and improving project management efficiency as well as efficacy (Paul, 2005).

In Bangladesh, community forestry is sometimes synonymous with participatory forestry and has been adopted since 1980. It was initiated to protect the forest by addressing factors related to forest depletion and to alleviate the poverty of the forest-dependent people (Islam & Sato, 2012). The main reasons of forest depletion in Bangladesh are the socio-economic condition of people along with increasing rate of population, and modernization of agricultural activities (Ghosh, 1993, p. 16). People are primarily concerned about their accommodation and food security, and therefore in many instances forestland is their primary target for securing food and shelter. Consequently, forestland in Bangladesh is decreasing day-by-day (Ghosh, 1993, p.17) due to these anthropogenic factors. In these circumstances, new ideasand approaches to community participationis a prerequisite to success. These allow for more integration and collaboration in community sustainability.

1.6 Definitions of Significant terms used in the Research

Forest: Forest refers to a plant of community and a complex web of ecosystems that consists with trees and various types of woody vegetation including living organisms like insects, birds, and mammals (Encyclopedia, n.d.). On the other hand, FAO defined the forest in a quantitative way with a specific size of land and height of the trees, such as forest as a land that plants tree crown in area with no less than 0.5 hectares and the height of the tree should have more than 5 meters at maturity level (WRM, n.d.).

Forestry: Forestry refers to both art and science with the practice of management for maximizing community sustainability (Encyclopedia, n.d.; FNR, n.d.). Another literature revealed that forestry is a scientific study of intricate interaction among the various elements of the forest with community management (eschooltoday, n.d.).

Social Forestry Rules: This is the existing act and regulations of Bangladesh community forestry rule that was formulated in 2004 with the amendment of Forest Act-1927.

Community: The term "community" should be defined in research works of community-based resource management. Community could be defined with the consideration of multiple factors such as spatiality, homogeneity, sharing common norms (Agrawal & Gibson, 1999), sense of harmony (Johnston, 2007), and common attachment (Dinbabo, 2003, p.5). Hence, geographical identity is one of the most important factors in explaining community (Kelly, 2001) that focuses on the territorial entity (Maser, 1997) as well as social and cultural differentiation (Claridge, 2004).

Community Forestry: It refers to "the forestry for the people and by the people" (Magno, Ali, Castro, Choudhury, 1992) and in another way it is also called as "people-oriented forestry". In a formal way, it could be defined as a new provision of forestry that provides "goods and services" (Magno, et al., 1992) for forest-dependent communities. FAO (n. d.) referred social forestry as "Forestry for Local Community Development (FLCD)". Other terms those are being used interchangeably as "community forestry" and "participatory forestry".

Community-Based Forest Management (CBFM): This approach is being used recently in sustainable forest management. This forest management approach embraces all stakeholders or representatives of different stakeholders through a participatory model(s) where participants are expected to contribute with their individual knowledge and experience in forest conservation. Its primary goal is to ensure community sustainability by focusing on economic viability, environmental prosperity, social equity, and cultural vibrancy.

Stakeholder: The term "stakeholder" refers to an individual, a group or an organization that could be affected or affect any plan of action in development activities (Freeman, 1984). Friedman and Miles (2006) who considered stakeholder on the basis of an organization redefined this term. An organization is thought to be a group of stakeholders that is established with a view to fulfilling stakeholder's needs and interests. In this case, stakeholders should have a full right to be a participant in decision-making; the managing body of any organization will work as the agent of stakeholders. In fact, the term "stakeholder" sometimes can be confusing and its definition has changed over time even by Freeman who is regarded as the father of the concept of stakeholder. Freeman (2004) redefined stakeholder to be a group of individuals who are playing vital roles in ensuringthe success and survival of an organization. Who are or who could be stakeholders? In answer to this question, Friedman and Miles (2006) firstly classified five groups of people whocould be stakeholders in relation to a business firm. The stakeholders are shareholders, customer suppliers, employees and local communities. In addition to the above group of people, there is also another group who could also be stakeholders like business entrepreneurs, NGOs, government agencies.

Participation of Stakeholders: Stakeholder's participation means the empowerment of locally affected people who are recognized and empowered to identify and find solutions to their problems (Winnegge, 2005). It emphasizes not only mere consultation or discussion but also requires that they play active roles in taking decisions. This implies that they take part in controlling the whole participatory process (Mariner et al., 2011).

Collaboration: Collaboration involves multiple stakeholders who explore their common goals constructively while maintaining their differences in terms of profession, sex, social and economic status (Petheram, et al., 2004). Gray (1989) revealed that stakeholders must be organized in their participation, sharing thoughts to achieve their collective will. Brown (1980) also stated the similar condition for collaboration as it should proceed from an"under-organized" to "organized" interactive relationship among the stakeholders. Moreover, many other works emphasize additional specific issues in defining collaboration such as "shared values", "multiple participation", "conflict resolution", "compromise", "deliberation" that are often employed in resource sustainability issues (Wondolleck & Yaffee, 2000; Gray, 1989; Cheng, 2006). Moreover, O'Looney (1996) and Bruner (1991) also defined collaboration on the basis of cooperative activities that must exist within inter-organizational networks for achieving common goals that were beyond a single organization or individual. Mutual interdependency, synergistic benefits, sharing responsibilities, consensus building, and decision sharing are core values of collaboration too.

Empowerment: Many researchers reported the frequent use of empowerment in participatory resource management. Holcombe (1995) shows a high affinity between participation and empowerment. They are mutually dependent and linked in a broad context as the pre-condition of empowerment is to get access and participation in decision-making and control over resource allocation. Similarly, White (1981) also referred to empowerment as the outcome of getting control and to be entitled to taking the decision in favor of their own benefits. However, Nelson and Wright (1995) assumed empowerment in a more abstract way such as – "the idea that some can act on others to give them power or enable them to realize their own potential" (Page-7).

Sustainability: Sustainability refers to capacity or ability to maintain entity and integrity of systems and processes along with unique social conditions such as the treaty, policy and practices that strongly support community to be existed forever (S T, n.d.). On the other hand, it also refers to natural resources conservation considering the needs of future generation (Becker & Jahn, 1999). Furthermore, sustainability relates organizational capacity to the conservation of natural ecosystem along with targeting to be self-reliant (Eade & Williams, 1995).

Livelihood: Livelihood refers to capabilities and assets in terms of material and non-material resources. It also denotes human activities that are conditioned for having means as well as maintaining the standard of living (Carney, 1998, p.4). According to the above statement, livelihood is likely to include natural, physical, financial, human, and socio-political assets (Dev, Yadav, Baginski& Soussan, 2003; Feurer, Gritten, &Than, 2018).

Gender: Social scientists use the term "gender" in referring to the differentiation between male and female in consideration of their roles in community resource management, herein, limited to community forestry.

1.7 Limitations of the Research

There are some limitations that I found in pursuing this research and these should be noted at the outset of the discussion. In fact, the research is based on a qualitative approach, which pursued only face-to-face interviews as a method of data collection. Such interviews could ignore some quantifiable facts of the phenomena that might have importance to be noted for making enriched and objectified the research. I chose Comilla Sadar South Upazila (sub-district) purposively as my research area but other parts of the country could be taken into account for extensive data collection that might increase the reliability and validity of the research findings. I collected the data using a semi-structured questionnaire from thirty (30) respondents comprising beneficiaries and critical informants were selected purposively from a sampling frame. There are about sixty community forestry projects in CSSU and the management body does not have accurate lists of beneficiaries and so it was quite hard to make a proper sampling frame. For that reason, I made a sampling frame of 210 beneficiaries and key informants as my potential respondents. I could not increase the number of my potential respondents because of my short time and resource limitations. Furthermore, my main contact in the region collaborated to interview beneficiaries and local stakeholders like UP members, business entrepreneurs, NGOs workers, and local officer of the Comilla Forest Department. It would have been useful to get face-to-face interviews with the resource personnel of BFD; those are directly involved in community forestry policy-making like the Deputy Chief Conservator of Forest and Chief Conservator of

Forest. These key persons of BFD are holding their position in the head office situated in Dhaka (capital city of Bangladesh) and need to get pre-appointment for their interview. Unfortunately, time did not allow for taking interview of these key persons.

1.8 Organization of the Research

This thesis is organized into six chapters. The first chapter introduces the study by defining the research problem with the overall background of the participatory approach and CBFM management followed by primary purpose statement, objectives, and research questions. Chapter two provides extensive forms of literature review, which links the research to relevant current discourses and establishes theoretical propositions on community forestry. Chapter three presents the theoretical and conceptual framework with the discussion of theoretical backgrounds on participation and collaboration in resource management. These theories were used to construct the conceptual framework and to establish the research purposeand research questions. The methodology of this research is described in Chapter four and includes the steps ofoverview, research process, research approach and design following data collection methods and analysis procedures, along with exploring the ethical issues, which were maintained throughout the research works. Chapter five presents the main findings and discussion of analysis and results comprising five individual parts such as stakeholders' participation, stakeholders' collaboration, integration with other types of collaborative strategies in management, the contribution of community forestry, and challenges to community forest management respectively. Chapter six, as a final chapter, discusses conclusion and recommendations with suggestions for further academic and applied research in CBFM.

<div style="text-align: center">**Chapter Two**

Literature Reviews</div>

2.1 World Views of Community Forestry

Community forestry is mostly seen as accessible and well-adopted projects to revive the forest in Nepal, India, and the Philippines where approximately several million people are actively involved (Petheram, et al., 2004). Subsequently, it spread to other parts of the Asian sub-continent and gradually throughout the world under various names (Mallik & Rahman, 1994, p.731; Mallik, Rahman& Park, 1995, p.525). For instance, "Community Forestry" in Canada (Mcllveen & Bradshaw, 2009; Teitelbaum, 2016; Anderson & Horter, 2002); "National Community Forestry Centres" in USA; "Community Forests" in UK (Haley, 2001; Stephen, 2003); "Community Forestry" in Nepal (HMG, 2000); "Joint Forest Management" in India (Bahuguna, 2001; Poffenberger, 2000). Moreover, it is also referred to bysynonymous terms, such as "participatory forestry" (Petheram, et al., 2004), and "social forestry" in Bangladesh (Castro & Magno, 1992; Ali, Choudhury & Magno, 1990).

Community forestry is a popular concept in Canada where a well-managed forest on crown land can involve a local community. It is estimated that there are more than one hundred community forests in Canada, whichare established through agreements between provincial government and community groups. Subsequently, the community groups also make agreements with the business sector to utilize and harvest the forest for the benefit of local people as well as the industrial sector (Community forests: Growing prosperity at home, n.d.). A community forest movement was seen in British Columbia, Canada that resulted in reforms on the environment, provincial economy, and rural-urban community structure (Anderson, 2002). It is postulated that community forestry in Canada will ultimately render some specific rights to local community groups including greater access and usage of crown land for their livelihood (Teitelbaum, 2016).

Community forestry originated during the very early period of African agrarian development in the form of community managed woodlots. The same strategy was also seen as a large-scale initiative in South Korea (Odera, 2004). There has been a dramatic increase of community-based

forestry with only twenty countries having community forest gardens in 1999 and an increase to more than 100 projects of community forestry in 2002 (FAO, 1999; Wily, 2002). The causes behind these increasing numbers are community empowerment, getting access to forestland, and evolving management regimes (Kajembe, Monela & Mvena, 2003). Moreover, there are other countries in Africa like Burundi, Benin, Congo, Cameroon and Ghana that initiated CBFM in more than twenty percent of their forestland (Wily, 2002). In Tanzania, CBFM was taken into account after 1990 because of failure to establish "command and control" in the government-owned forest called "Duru-Haitemba" forest (Odera, 2004). In Ghana, there were two kinds of works like boundary clearing and plantation establishment that contributes to community forestry (Asare, 2000).

Many countries in Europe are also practicing and implementing new strategies and ideas for community forestry in their forestland management with some distinguishing features. In that region, community people control many non-commercial forestlands from which they can collect lumber, fish, and water for daily usage (Duinker, Matakala, Chege& Bouthillier, 1994). Moreover, all European owners of community forests allow free access for public recreation (Dunster, 1989). Finland and Sweden manage 75 percent and 50 percent respectively of their forest land under the ownership of community people, but they cannot impose any kind of restrictions on public utilizations like getting free access for harvesting berries and mushroom, or for recreation (Kalland & Paetilae, 1993). This right to free access of ordinary people to forests makes an interdependence and inter-connection between nature and people and thereby fosters a unique cultural fact in those countries (Dunster, 1989). Although the term "community forestry" is still uncommon in US forest management (Duinker, Matakala, Chege, & Bouthillier, 1994), there was an initiative in terms of law formulation to support forest-dependent people economically. Regarding this initiation, there has been a formation of an Act called "Sustained Yield Forest Management Act in 1944" (Schallau, 1989). This Act ensures the continuous supply of legal timber for community stability. Furthermore, some county forests that could be referred to as community forests are seen in Wisconsin, New England, and Minnesota (Dunster, 1989) because they pay taxes to states (Duinker, Matakala, Chege & Bouthillier, 1994, p. 713) in exchange for private ownership.

In the Philippines there is a great significance of community forestry in promoting socio-economic conditions of rural and forest-dependent people. Historically, the Philippines was a country of forest land, for instance, 92 % of the total land was once covered by forest. However, forest land has significantly decreased presently due to anthropogenic interventions. It is reported that 57.3 % of the total landbase was covered by forest in 1934 and in 2003 it declined to 23.9 % (FMB, 2005). Therefore, it is a significant concern that the Philippines will be entirely deforested if this exploitative trend continues. As a result of this challenge to the forest sector, the government of the Philippines initiated community forestry in various phases since 1970 (Rebugio, et al., n.d.). The primary target of initiating community forestry included local people especially those who are forest-dependent and economically vulnerable. Efforts were made to engage these stakeholders in implementing community forest projects. Pulhin (1996) noted that the implementation of community forestry in the Philippines contributes significantly to the advancement of environmental sustainability, social equity and reduction of poverty alleviation.

Nepal is another vivid example in launching sustainable community forestry in South Asia. It initiated a new strategy involving Forest User Groups (FUG) for better management of community forestry (Agarwal, 2001, p.1625). These groups are working sincerely to make community forestry more successful. In Nepal, it was found that community forestry contributes rigorously to community development, fundraising in the form of capital accumulation, and forest improvement. These three efficacies of community forestry rigorously changed peoples' view, behavior, attitudes, and understanding in favor of tree plantation (Dongol, Hughey, Bigsby, 2002, p.70). A number of factors were emphasized on community forestry in Nepal that includes anthropogenic impacts like population growth, deforestation, and related threats to the sustainability of forest ecosystems (Hausler, 1993). In 1990, the Nepalese government formulated forest policyand later in 1993 incorporated community forestry through "Forest Act 1993" (Agarwal, 2001, p.1625). This legislation recognized the participation of local people in community-based forest management (CBFM) and created FUG that was responsible for generating, protecting, and harvesting community forestry (Dongol, Hughey & Bigsby, 2002, p.71).

Community forest management is known in Kenya as Participatory Forest Management (PFM). The primary strategy of PFM is to create community-based associations in the form of "Community Forest Associations (CFAs)" that arranges the agreement with the government for forest management. Researchers found that 82 % of all forestry associations were being formed and managed by individuals and community leaders, while 6 % associations were managed by NGOs' directions and logistic support (Orgugo, et al., 2008).

2.2 Historical Development and Legal Framework of Community Forestry in Bangladesh

The idea of community forestry got the attention of mass developers and many environmentalists in Bangladesh by 1980 (Castro & Magno, 1992; Ali, Choudhury & Magno, 1990). The historical background and legal framework of community forestry can be explained best under the consideration of discrete policy formulating steps like agenda setting, formulation, legislation, implementation, and monitoring and evaluation (Rosenbaum, 2011).

In the public policy process "agenda setting" is a process where ideas are generated and promoted for capturing the attention of the policymakers and government (Furlong, n.d.). Hence, the agenda setting is discussed in sketching out the background of the social forest rules of 2004, amended in 2010 and 2011. Since Bangladesh is an over-populated country (Mustafa, 2002), and a significant proportion of the population depends on forest near their home (Rahman et al. 2005; 2006) for their livelihoods (Mohammad, 2013; 2005), it was necessary to think about alternative ways to increase the sources of livelihoods for poor people dependent on the forest resource. Moreover, from the Stockholm Conference and the Rio Summit mandates, the Government of Bangladesh (GoB) has committed to involving local communities in forest management. Therefore, GoB in the 1980s and later made a request to donors for the development of a Master Plan for the forestry sector. Responding to Government's request of assistance in sustainable forest development and to limit deforestation, the Asian Development Bank, the World Bank, UNDP and FAO provided support for the preparation of the master plan (Mustafa, 2002). During the process of the forestry master plan, experts felt the necessity to revise the existing 1979 forest policy and requested to strengthen the activities of community forestry (Chhetri, 2006).

Meanwhile, the issue of community forestry also got attention from political parties who pressured the government to take effective initiative regarding community forestry rules.

Further, GoBsets a target in 1994 to bring about 20% of land under the afforestation program between1995-2015. On the otherhand in 1995, it was being observed that the country's designated forestland was about 10% of the country. So, if it is to reach 20%, then another 10 % forest cover must be achieved by the next 20 years i.e. an average increase of 0.5 % in a year. However, by 2002, the coverage forest resources had increased only by 1% i.e. 0.14% in a year, which is far below the targeted achievement (Muhammed et al., 2008). Therefore, it was quite clear that an alternative way should be found to bring a positive change in the forest conditions of Bangladesh. Simultaneously, it was reported that other countries especially neighboring countries such as India, Sri Lanka, and Nepal invented a new concept of 'social forestry' as an alternative way to maintain the standard size of forest land. Treue (2001) in a case study on Ghana's forest explicitly mentioned, "Trees outside forest reserves are the key to sustainable forest and timber resources management in the future". Realizing the success of community forestry in many other developing countries, the Bangladesh Government took the initiative under the legal agenda to form community forestry rules in 2004, mainly with the inclusion of local poor people dependent on forest resources.

The next stages, formulation and legislation of community forestry in Bangladesh involved different factors and actors such as national and international institutions (UNDP, ADP, WB) who played essential roles in these stages. The main internal actors are government agencies notably the Ministry of Environment and Forest (MoEF), Bangladesh Forest Department (BFD), and non-government actors like civil society and community-based actors. Their relentless efforts turned this agenda into the formulation process. Accordingly, in 1992, MoEF deployed experts to revise the existing policy of 1979. It was formulated in 1994 but there was no focus on community forestry. After considering the success of neighboring countries, the forest department finally established communityforestry rules and approved these in 2004 (National Report of UNFF, 2010). Following approval, the rules were published in the official gazette on December 04, 2004 as the "Social Forestry Policy 2004" (Government of Bangladesh [GoB], 2011; National Report, 2010). The policy expressed a commitment to biodiversity conservation,

ecosystem protection and enhancement of livelihoods opportunities (Dev et al., 2003; Feurer, Gritten, & Than, 2018).

In the context of social forestry policy legitimation, there are many rules, where law and bylaws are adopted and amended by GoB that guide social forest management. Historically, Bangladesh forest management was incorporated into British Policy during the colonial period. Under the political influence of the British government, the first formal policy was enacted in 1894 (Mustafa, 2002) and 1927. However, there was no particular focus under the forest act of 1927 (Ali et al., 2010, The Forest Act,1927). Accordingly, it was substantially amended in 2004 and legislated with acts, ordinance, rules and regulation. In the social forest law of 2004, management, operation, beneficiary activities, and management committee structures have all been depicted in details. The emphasis of the Act is on the participation of local poor people and their inclusion in management and another one is the involvement of females both directly and indirectly. Some essential features of the act are: 1) Bangladesh Forest Department has a right to ascertain social forest area by giving a general order with a view to fulfilling the aim of policy. 2) To pursue social forestry activities, the parties to the agreement are Forest Department, landowner, beneficiary, and NGOs. 3) If any beneficiary is male and married then his wife will also be beneficiary by default and if they would be divorced then both of them will be beneficiary with equal share. 4) Members of the social forest management committee are forest officer, representative of local government, two representatives from the beneficiary group of which one must be the female member. 5) The main criteria for selecting beneficiaries are the condition of being landless, landowners with fewer than 50 decimals, poor woman, vulnerable groups, poor indigenous groups, poor forest villagers, poor freedom fighters or their successors. In 2010 and 2011, some amendments were passed such as increasing the number of females on management committees. As well, the beneficiary group will get 75% of the total forest product. The rules generally defined the process of beneficiaries' selection, roles, and responsibilities of different stakeholders, management, capacity building and distribution of earnings from social afforestation (Arannayk Foundation [AF], 2013).

The implementation stage reflects how community forestry is practised institutionally. In fact, policy implementation means transcribing the policy into plan, action and operation (European

Commission [EC], 2003, p.6). As per the organizational set up of the GoB, the MoEF is the central authority for translating the community forestry rules into action. The MoEF implements the community forestry plan through its different projects by local supervision of forest department called BFD. Although community forestry was formally endorsed in 2004, it has been implemented informally since early 1979 (Zaman et al. 2011). TheAsian Development Bank (ADB) and World Bank (WB) were the main logistic supporters (National Report, 2010) of community forestry at the beginning and a number of projects related to community forestry were implemented in the northern part of the country (Bangladesh). Among the projects, the Upazila Afforestation and Nursery development Projects were established on marginal fallow lands like roadsides, railway lines and institutional premises. Herein, a number of projects implemented on the basis of community forestry are noteworthy including Betagi - Pomora Community forestry project as the first forestry project of this kind in Bangladesh. It started at Betagi and Pomora Mouza (village) under the district of Chittagong in the year of 1979 (Bangladesh Bureau of Statistics [BBS], 1993). In the central part of the country, an agroforestry project was launched with the aim of using 120 ha of encroached Sal Forest land. To engage destitute women in forestry activities, a Food Assisted Social Forestry program was initiated in1989 financed by the World Food Program (Zaman et al. 2011). These projects are still being operated with spontaneous public participation along with the legal support of the Social Forestry Rules-2004 (Mohammad, et al., 2005) under the direct supervision of social forest wing of the Bangladesh Forest Department (Alam, 2009). To promote the community forestry further, BFD implemented the ADP funded projects like the Upazilla Afforestation and Nursery Development Project-1996, the Coastal Green Belt Project-2002, the Forestry Sector Project-2004, and the World Bank funded project like the Forest Resources Management Project in which poor and landless people including male and female were actively engaged in running these projects. The current number of participants as per estimation of BFD is nearly 0.5 million. Encroached forestlands, depleted forest areas, vacant marginal land and roadside areas were reforested under these projects. The significant components of these initiatives were to establish woodlot, agroforestry and strip plantations throughout the country. To date, a 44,408 ha woodlot plantation, a 10,626 ha Agro forestry plantation and 61,739 km of strip plantations have been established under the community forestry programs. The plantations, established under community forestry programs, are being harvested at the end of the rotation (10 years) and of

which the benefits will go to the beneficiaries according to the amended form of Social Forestry Rule 2010. In the last four years, under the project of Climate Trust Fund, 2955 hectare land and 2641 km road have been afforested and planted with strips (seedling trees) through public participatory basis. Moreover, almost five crore strips (seedling trees) were distributed to the beneficiary groups throughout the country with the purpose of extensive afforestation, (GoB, 2016). In 2015, the forest department also established a Botanical Garden at Lalmai Hill Areas of Comilla district and Eco-park at Kajirbagh, Feni with the aim of involving local poor people to augment their socio-economic conditions through generating the scope of employment. In addition, a Char Development and Settlement Project-IV were launched in 2011 achieving more secured rural livelihoods and resilience to climate change.

To augment the management initiatives outlined above, BFD also established training institutes to create expertise in community forestry targeting the personnel of the forest department (GoB, 2016). Furthermore, Bangladesh forest sector initiated a project "Nishorgo Network" to promote collective management in protected areas. The USAID Nishorgo Support Project - 2009 and Integrated Protected Area Co-management (IPAC) project (2009-2012) contributed to strengthening co-management approach with multiple stakeholders. Since 2009 under the IPAC project, seventeen protected areas of the country are being managed by 23 co-management organizations. Climate Resilient Ecosystems and Livelihoods (CREL) Project (2013-2017) of USAID is further working to implement co-management process (GoB, 2016) in community forestry.

The last step to establishing effective community forestry is monitoring and evaluation. Although the legal procedures of social forestry were completed in 2004, it started in the early 1980s and had proved to be hugely successful (Mohammad, et al., 2005). Many scholars and development practitioners recognized the role of community people in natural resource management. In Bangladesh, various types of social forestry institutions have evolved like the participants' group, Social Forestry Management Committee (SFMC), Tree Farming Fund Committee, Upazilla Environment and Forest Development Committee.These committees are working sincerely to achieve the goals of community forestry in all aspects. Community forestry is also making significant contributions in increasing women's participation in forest activities

through its policy and practices because a minimum of one-third membership of committees shall be elected from women (Rahman, 2012). Furthermore, social forestry related activities are playing a significant role in reducing poverty. A total of four projects have been implemented under BFD with the financial support of Asian Development Bank from 1981 to 2006. These projects helped to develop a participatory approach to resource generation and management based on a 'benefit-sharing' mechanism between the government and the local communities. The components of this project included a strip plantation, fuelwood plantation, pilot agroforestry demonstration plot, village afforestation and community forestry. Social forestry is the major resource-based sector for poverty alleviation in a rural area. Per-capita forest in Bangladesh is about 0.02 ha which is the lowest in the world. The forests of Bangladesh are situated mainly in the south-west (mangroves), southeast, northeast (hill forests) and central northern (Sal forests) parts of the country. There was no national forest in the 28 districts of the country. Now due to social forestry almost all districts and localities have significant forest cover (Banik, 2014). As the recognition of social forest activities, the Bangladesh forest department has been honored with many international awardsincluding Solution Search 2013, Wangari Maathai Award 2012, Climate Prize 2012, and UNDP Equator Prize 2012 among others. BFD has established targets in its Seventh Five Year Plan (2016-2020) such as plain land forest plantation that will cover 5000 hectares, coastal afforestation that will cover 30,000 hectares, and a strip (seedling tree) plantation aimed to cover 20,000 km of road and dam (GoB, 2016). These targets indicate that community forest activities are significantly prioritized in making policy, plan and formation of the fund.

2.3 The Need for Stakeholder's Participation in CBFM

There is a consensus that involvement by stakeholdersis important for creating effective participation in development works. Community participation is normally attained through the formation of stakeholder groups in order to achieve success in resource management. In the past, stakeholders' participation was just a way of thinking in development planning, whereas it is now part and parcel or even a mandatory step in any development project (Agarwal, 2001). There is a general agreement in the literature that stakeholders' participation in community

resource management has a potential efficiency that results in enhancing equity, community empowerment as well as environmental sustainability (Chopra, Kadekodi& Murty, 1990; Molinas, 1998; White, 1996). Furthermore, effective participation made community people conscious and empowered them by taking part in decision making particularly for poor and women who are socio-economically disadvantaged and struggle to survive. On the other hand, NGOs also could act as a catalyst to help other stakeholders in planning and accomplishment of works (Agarwal, 2001).

Techavijitsarn, Kovitaya, and Ratana-Ubol (2015) emphasized community participation in developing community-based learning and self-management for community forestry conservation. According to researchers, community learning incorporates three kinds of learning, notably, collaborative learning, problem learning, and practice learning. In each sphere of learning, the participation of community brings together all stakeholders in an open space who share their own experiences, knowledge, tradition and local wisdom to make forest conservation successful. Kumsap and Indanon (2016) also reported similar findings noting that community stakeholders' involvement in community forest management could enhance the quality of management because it maintained tradition, culture, and kinship integration. Therefore, in the sense of intersecting scientific knowledge and local wisdom, community participation in forest management is very important to achieving community sustainability.

2.4 Participatory Approach in CBFM

The participatory approach is viewed as a useful way of bringing about socio-economic development on an equity basis (Duraiappah et al., 2005,) through which local stakeholders share control over development initiatives (World Bank, 2001). It is popular for its development strategies (Mathur, 1995) in response to the failure of top-down approaches (Sillitoe, 2002) and in challenging the inequalities of the communities (Kothari, 2001). It incorporates local communities, local government, NGOs, and the private business sector as the stakeholders in CBFM (Mazur &Stakhanov, 2008; Zoysa& Inoue, 2008) to assure socio-economic development (IHEP,2012) and environmental stability (Grifoni et al., 2014). It selects local communities as

the member of a beneficiary group (Jashimuddin, 2012; Khan, n.d.; FAO, 1978) in accordance with their socio-economic conditions (Islam, 2011). They are the most important vital actors and direct users of the community forest resources (Islam, 2011). For this reason, social scientists emphasize making sense of the socio-cultural and ecological relationships among local people, forest (Moran &Ostrom, 2005) and collaborative management (Dexter, 2016).

Recent studies mention that local people are very enthusiastic to be attached to the management of community forests because of its benefit sharing system through the participatory approach (Al-Amin & Hasan, n.d.). This approach within community forestry motivates beneficiary people to feel a sense of ownership (Hoare, 2010; ADB, 2004) of the plantation and forestland. It also inspires them to protect the plantation area as well as to increase the afforestation rate (Khan, n.d.). However, Bangladesh Forest Department (BFD) is still the central power holder and role player in community forest management as the principal agency of the government body in Bangladesh (Islam, 2011). Notwithstanding, social scientists think that community-based forestry is more likely to promote sustainable natural resources management strategies if there is a good relationship between the community and governmental agencies (Menzies, 2003). On the other hand, local political leaders as a meso level actor (Islam, 2011) of the participatory approach do have an influence on community forest management especially in selecting the members of the beneficiary groups (Khan, 2001). The researchers found that they (local political leaders) insist and often exercise their power in the decision-making process to select known persons or relatives as members of the beneficiary groups as a means to gain the power of decision-making (Chowdhury, 2004). NGOs, as another constituent element of the participatory approach, are working significantly in the social forest sector in Bangladesh (Schreckenberg, 2006). Recently, it was estimated that more than 100 not for profit organizations are working throughout the country under community-based forestry (Jashimuddin, 2012; BBS, 2007; Muhammed et al., 2005). These NGOs are establishing nurseries, strip plantations and agroforestry (Zaman et al. 2011; FSP, 2007) by providing financial and substantial logistic support to targeted people (Zaman et al. 2011). The participatory approach also might include business entrepreneurs as the representation of the private sector (Dexter, 2016; Ondrik, 1999) that could significantly manipulate the plan and actions of CBFM. The community groups could have signing agreements with business entrepreneurs who have an interest in harvesting trees or

pursuing other types of business ventures (Community Forests, n.d.). These kinds of arrangements could also exist between communities and logging companies that might maximize the profit of local communities. Moreover, the private sector sometimes can push the government to allocate more areas for afforestation (Counsell, 2006). Therefore, their involvement is very significant in the management of community forestry.

Beratan (2014) focused on collaborative approaches to forest management claiming outcomes can improve by including multiple governmental and non-governmental stakeholders in the decision-making processes. A collaborative approach to resource management can more effectively deal with complex problems by integrating scientific processes with public engagement. In addition, it highlights the importance of participatory democracy and collaboration, giving respective roles for scientists, technical experts, and the public through their participation in reducing complexity and uncertainty. The author also discussed poor collaboration that sometimescreates more problems than it solves. An unsuccessful process consumes more time and effort as well ascreates an absurd form of social capital like chaotic situation rather than building up and increasing stakeholders' involvement in co-management. According to Beratan, the inclusion of stakeholders in the decision-making process builds trust and reciprocity, which decreases transaction costs and delays. In addition, involvement by stakeholders provides critical flows of experiential knowledge and the articulation of multiple values. On the other hand, although Cadman, Maraseni, Ma, and Casero (2016) emphasized the inclusion of multi-stakeholders for forest management, their main findings reveal that inclusiveness is not in itself sufficient for ensuring proper interest representation. Stakeholders require capacities, i.e., financial, educational, technical, institutional, etc. to ensure their participation is meaningful. In addition, Cadman et al. saw the necessity of collaboration among stakeholders in the development of the standard and quality for sustainable development mechanisms in forestry.

2.4.1 Local People

In acknowledging the importance of local knowledge for forest management, Lee and Krasny (2016) examined the systems and patterns of community forestry in East Asia of which mostly are predominated by traditional local knowledge, community perception, and native culture. For example, they indicate that grove forests represent one of the traditional forests in Korea that indigenous people plant, nurse, and manage with their local values and guidelines. In China, they also found several studies, which identified local community forests as one of the primary drivers in reducing disturbance of the central forest. In response to the adaptive capacity of local communities in Korea, local people established self-organization emphasizing local knowledge and diversity (Lee & Krasny, 2016). Moreover, villagers created Songgye, the traditional forest management association, to secure the common usage of forests. It makes an excellent contribution in maintaining and restoring village groves. They also found a strong emphasis on local traditional knowledge in the maintenance of forest management in many regions of China like wood utilization, land tenure system, benefit-sharing system, and customary regulations (Lee & Krasny, 2016). In giving importance on the participation of local people especially those dependent on the natural resources like fishing, the report of Beaufort Sea Partnership (2009) in this case is considered as evidence of participatory practice in natural resource management. The report disclosed that aboriginal people and northern coastal community residents are the vital stakeholders besides the territorial and federal government in Beaufort Sea Integrated Ocean Management Plan.

2.4.2 Governmental Organization

The government body of any country can take the initiative in launching shared responsibilities in terms of providing startup funding. In wildlife resource management especially in the community-based program, NWMB (1997) reports on a co-financing system for fisheries, oceans, and wildlife co-management. The report disclosed that the Canadian government formed two research-funding programs on wildlife conservation such as the Nunavut Wildlife Research

Trust Fund and a Funding Program for NGOs. Together, theGovernment of Canada and Northwest Territories initiated this collaboration.

2.4.3 Non-Government Organizations

The involvement of NGOs and their rolecan be another important precondition in a co-management and collaborative system (Hassan, 2015). This was clearly shown in the work of Ayles, Porta and Clarke (2016) who discusseda land settlement agreement between Canada and Inuvialuit for fish and marine mammal resource management. In that co-management system, they pointed to the roles of NGOs in bringing together the Inuvialuit and the territorial government for fruitful discussion with problem-solving plans and strategies.

2.4.4 Business Entrepreneurs

Odera (2004) emphasized the necessity of market forces that canbe developed through the inclusion of the private sector in CBFM. The private sector is an efficient user of forest goods who can convert the goods to better services for community people. Furthermore, the World Bank (1994) initiated a new concept termed their Structural Adjustment Program (SAP) designed to promote efficient use of forest resource. Regrettably, SAP provided little attention in developing business entrepreneurship that could promote forest resources (Odera, 2004).

2.5 Process of CBFM

The CBFM offers high potential when it is associated with the participatory approach. These potentials encompass the integration of stakeholders with effective decision-making, collaborative governance, proper selection of actual beneficiaries, empowerment, and efficiency of supervision that is supposed to be the precondition of ensuring community sustainability. Collaborative governance is the key feature of CBFM (Brendler & Carey, 1998; IUCN, 2006)

that incorporates the state, the civil society, the NGOs, local people and the private sector through integration processes and practices (Dexter, 2016; Carlsson & Berkes, 2005; Cash et al., 2006). They are contributing to moral responsibility, accountability, and transparency in their activities (Stieglitz, n.d.). Participation, a central concept of the participatory approach (Neefjes, 2000), could be viewed as 'means' of efficiency and effectiveness; and 'ends' to empowerment, and capacity building (Gack, 2007; ODA, 1995). In practicing and maintaining the decorum of CBFM, there is a growing trust (Jennings, 2005) and cooperation within the local community (Benin & Pender, 2006; Negassa, 2007) that still gives birth of great integration among stakeholders. This trust contributes to the effective and efficient functioning of CBFM that manage natural forest more potentially than private or traditional forest systems (Takahashi &Todo, 2012). According to ODA (1995), there are three kinds of strategies including traditional ecological knowledge, cultural knowledge and shared financial costs that could increase potentiality of getting success in the development project. The community-based forest is the best one where many stakeholders participate from top to bottom levels (Islam, 2011) to make success in its operation and to fulfill its goal. Moreover, effective decision-making could be ensured by blending good leadership, up-to-date knowledge (Bandaratillake, 2002) and conservation values (Folkesson& Green, 2008) in a community-based approach (Hoare, 2010).

2.5.1 Co-Management

Community forestry is adopted in the form of co-management processes as it involves the participatory approach (Petheram, Stephen, & Gilmour, 2004). Co-management is the ultimate outcome of the process of community-based resource management that over-emphasizes stakeholders' contributions. Each stakeholder contributes to the co-management system with his or her own knowledge, experience and expertise. For instance, Lewis, Doidge, and Suppa (2006) reported findings related to the co-management system aimed at conservation of Polar Bears in Nunavik, Canada. They revealed that Traditional Ecological Knowledge (TEK) should be taken into account along with scientific knowledge for having long-term sustainability of Polar Bears as a part of wildlife in Canada. Similar points were proposed by Papik, Marschke, and Ayles (2003) and Cobb, Ayles, and Mathias (2006). For that reason, aboriginal communities and local

hunters could provide TEK in advancing the co-management process. The researchers pointed out the contribution of three institutional initiatives working on a co-management basis namely Nunavik Research Centre, Research Department of Makivik Corporation, and Polar Bear Technical Committee. The importance of TEK and the engagement of aboriginal community (Inuit) in gathering TEK along with scientific methods for wildlife sustainability were also supported in the report of NWMB (1999). Hay, et al. (2000) also emphasized the importance of engagement of local people and hunters through co-management processes for long-term sustainability of Bowhead Whale populations in Nunavut Territory, Canada. Moreover, Ayles, Bell, and Hoyt (2007) emphasized the importance of interpersonal relationships and the need for consensus among local people for the sake of a co-management process, considered essential for success.

2.5.2 Integration

Integration is the main factor of community forest management. It incorporates sound academic knowledge with local ecological knowledge, wisdom, culture and community tradition (Kumsap & Indanon, 2016). Integration encompasses engagement of governmental agencies with local stakeholders for increasing efficiency and efficacy of multiple activities in management. These activities incorporate capacity development, assessing strength and suitability, monitoring, evaluation, and refinancing (Wade-Berg & Robinson-Dooley, 2015).

Fast, Mathias, and Storace (1998) pointed out the importance of integration of both scientific and traditional knowledge for a better plan of action. The authors revealed that there are some problems in maintaining proper management of Beluga whales like lack of sharing information about the stock of fish, lack of proper way of monitoring that could be resolved through the integration of all stakeholders.

2.5.3 Adaptive Collaboration

Community forestry involves hared power between government and the stakeholders under the form of adaptive collaboration (Petheram, et al., 2004) because of the participatory approach. For example, President Bush of the US implemented a regulation on land management that was called "collaborative and participatory approach to land management planning". Later, under the Obama Administration forest management extensively focused on public participation (Nie & Metcalf, 2015). The implementation of collaboration through community forestry contributes to the formation and development of five broad categories of capital assets for the community. The collaboration must be between or within the communities and actors of communities in the form of bonding, bridging, and linking. The capital assets are being evolved in various forms by the implementation of the collaborative process in community forest management. This institutional capital builds up capacity for local stakeholders. The economic capital, which increases the employment opportunities for local needy people or for day laborers besides collecting revenue for both local and national governments. It creates social capital through making relationships, trust and cooperation among all involved actors. The natural capital that gives sustainability to bio-diversity conservation along with the longevity of wildlife and forest health as well (Wyatt, et al., 2010).

Collaboration through integration could increase organizational capacity-building, leadership development (O'Looney, 1994) and also be evaluated as a new resource generating process. Sometimes, non-governmental organizations are vital actors engaged in this collaborative process (Wade-Berg & Robinson-Dooley, 2015). Zimmerman and Dart (1998) pointed out the collaborative practice as an essential factor in organizational management. It saves resources of organizations like money (e.g. financial resources), staff (e.g. human resources) that could be utilized in another productive way. Collaboration also makes an organization successful with self-sufficient sustainability in the long run (Wade-Berg & Robinson-Dooley, 2015). For that reason, there is increasing team-based and collaborative work in many projects; it is reported that in firm management, teamwork was only 20 % in 1980s, whereas it increased to 50 % in 1990, and 80 % in 2000 (Hollenbeck, Beersma, & Schouten, 2012). On the other hand, Wade-Berg & Robinson-Dooley (2015) reported that more than half (50.3%) of social service organizations are

engaged in collaborative works in their research area. Significantly, these collaborative works are related to environmental issues, community and leadership development. They also found that more than 90 percent of respondents (community leaders, organizational key persons) believe that collaboration make an organization successful.

2.5.4 Community Empowerment

An effective participatory approach in community-based management is thought to represent peoples' empowerment (Mathur, 1995). It does not refer to cash or in-kind services, rather it establishes self-determination and sources of power (Power and Empowerment, n.d.) with enhanced capacity to make one's own choices (World Bank, 2001). Therefore, members of the community may enjoy empowerment regarding their status; they becomemore conscious of being valuable contributors and identify with the concepts of community sustainability and equitable existence (Kothari, 2001). There is much evidence to show that the empowerment of local people through community forestry is influential in protecting forestland from commercial overharvesting (Ribot, 2004). For instance, in Tanzania, a CBF project is empowering women by involving them in management through conservation and decision-making process (Folkesson & Green, 2008). In fact, the inclusion of community people in CBFM provides an opportunity for empowerment in a rural environment. In such a way, local people can participate actively in meetings, debates, and consultants on a regular basis in all aspects of rural development beyond community forestry (Odera, 2004). Moreover, CBFM provides a strong social network and cohesion among the members of community forestry that create a corporate outlook to empowered villagers institutionally (Wily, 2002; Shackleton & Campbell, 2001).

2.6 Community Sustainability

The long-term sustainability of a community mostly depends on various types of assets that DFID (2011, 2012) called sustainable livelihoods involving human capital, social capital, financial capital, physical capital, and natural capital. The same criteria in referring to livelihoods are also supported by Carney (1998), Dev et al. (2003), and Feurer et al. (2018). However, these types of capitals are closely interconnected with each other and form a foundation on which community sustainability can be achieved (Islam & Sato, 2012). Almost all of these criteria of community sustainability are significantly guaranteedbycommunity forestry. As Kumsap and Indanon (2016) reported in their one study, community people have two kinds of provisions, like direct and indirect uses of community forestry. Direct use is the collection of food, herbs and wood products from forestry, while indirect use is to have a learning center that is a space to get together for learning about natural resource management.

2.6.1 Social Justice and Equity

The most significant step in establishing community forestry is to allocate social benefits on an equity and equality basis as well as to establish a traditional right to access forestland (Petheram, et al., 2004). Moreover, community forestry also establishes a social position of vulnerable groups by employing them (vulnerable people) in community forest management for taking role in decision making, income generation activities, and social dignity. Community-based forest management addresses social justice and equity at the national level by ensuring access to the forestland management of the local community (Rebugio et al. n.d). CBFM advances such social constructions like the social network, interactions, membership of local associations, norms, sanctions, the affiliation of trust, reciprocity that contribute to social justice and equity (Odera, 2004).

2.6.2 Economic Viability

The primary consideration of initiating community forestry is to eliminate poverty, through short and long term economic returns as a source of income generation activity (Petheram et al., 2004). Thus, the primary objective of community forestry is to assure economic prosperity through which people attain adequate sources of livelihoods opportunities especially focus on generating income, saving money, and forming capital for investment. In Bangladesh, for instance, it establishes a benefit-sharing system through the participatory approach, where forest departments will get 45%, the local beneficiary will get 45% and 10% will be reserved for future tree plantation (Al-Amin & Hasan, n.d.; Misa & Hossain, n.d.) in the form of Tree Farming Fund (TFF). It is restricted to access for villagers inside the government-owned reserved forest (Barrow et al., 2002), while people can get the right to access community-owned forests (Sunseri, 2005; Hoare, 2010) for utilizing it (community forest) in meeting their needs. The permit-based access to community forestry for local citizens, those that are marginalized, enables them to fulfill their basic demands and improve their well-being (Matose & Clarke, 1993). Community forest can provide various products to support the livelihood of stakeholders (Engida &Teshoma, 2012; Matiku et al., 2013) mainly by providing a source of income. For instance, the resource can provide bamboo, wood, medicinal plants, naturally dying fuelwood (Bharathie, 1985), ginger, turmeric and different types of vegetables with economic surplus value (Baten, 2010; Stieglitz, n.d.). By collecting these products, people can generate their income through the creation of employment opportunities like the wood industry, where small and medium entrepreneurs produce artifacts from the timber resource (Charnley & Poe, 2007).

2.6.3 Environmental Quality and Ecological Conservation

Environmental quality can be sustained and enhanced through the management and strategic action of community-based forestry (Pulhin et al., 2008). It also contributes to ecological conservation through agroforestry and tree-farming (Lasco & Pulhin, 2006) taking into account the need to improve the continuous supply of water, maintain soil fertility and reduce soil erosion (Rebugio et al., n.d.). Takahashi and Todo (2012) found in Ethiopia that the establishment of a community forest association increased the forest area by 1.5 % in the first two years. Local

people now see significant movement of wildlife in the forest that was not seen before community forestry (Folkesson & Green, 2008). Generally, it can be argued that community forestry generates natural capital from which all kinds of natural resources like plantations, wildlife, fisheries and other biological resources can be sustained in support of stakeholder livelihoods. For instance, local people adjacent to the forest area derive ecological services from the core and buffer zone of the forest in the form of water, soil, and food for their animals. Others use the organic material such as leaves as a fuel or compost fertilizer for utilizing in other types of agricultural activities such as rice cultivation, and vegetable farming. These activities point to the strong interaction between users and their natural environment, one underpinned by complex ecosystems and biological processes (Charnley& Poe, 2007). There is evidence (Pandey, Cockfield, & Maraseni, 2016) that community forestry offers potential to enhance adaptive capacity to deal with climate change providing carbon stock and livelihood benefits. Importantly, Smit and Pilifosova (2001) contend commercial forestry is adaptable, and reflects a history of long-term management decisions under uncertainty. Keenan (2015) focuses on increasing adaptability to climate change through community forestry, which is regarded as the most proper way to adapt to changing the environment and to combat climate change. The work revealed findings from community forestry organizations in British Columbia where almost half of the organizations successfully achieved adaptability to climate change. Subsequently, a significant portion of the community forestry groups or associations also integrated adaptability strategies into their plan of action. The author also considers decentralization processes that people can follow for more collaborative governance in community forestry. The author also focuses on the climate risk that all stakeholders perceived. It can be measured using statistical tools along with the perception of the local community and their knowledge. In exhibiting the contribution of community forestry to increasing the adaptability with the changing environment, Pandey, Cockfield, and Maraseni (2016) reported on a study in Nepal. These workers summarize that through the implementation of community forestry, the local community does have a chance to work together to improve the forests and to fulfill their own basic needs of forest products such as "fodder, grasses, fuelwood, and timber." It increases social capital and the opportunity for livelihood collection. Local communities could survive themselves with forest resources during adverse situations like droughts that affect agriculture and food production. In addition,

local communities speculated that sustainable community forestry helps to keep stable weather conditions with the optimum level of temperature and rainfall.

In a study by Gabay and Alam (2017), they show the direct contribution of community forestry to livelihoods and human well-being regarding firewood, timber, and many non-timber forest products. Besides these, community forests also provide water-related services (both quality and quantity) through water regulation in the ecosystems and reducing soil erosion. In this case, the role of the local community is significant because they could be actively involved in reforestation or afforestation activities to rehabilitate degraded land and restore land productivity. Furthermore, community forestry still has a strong influence on local democracy and self-governance. According to this study, it is a vehicle to achieve global development and conservation initiatives such as the conservation of biodiversity, which can promote the implementation of the REDD+ initiative (Reduction of Emissions from Deforestation and Degradation).

2.6.4 Cultural Vibrancy

Charnley and Poe (2007) maintain that forests play important roles in people's socio-cultural factors and intensely manipulate inhabitants' sense of identities, ideologies, food behavior, and overall lifestyle. It also creates recreational opportunities for the local community (Matiku et al., 2013). Moreover, community forest creates a context through which individuals from different communities are building new kinds of relationships by their culture that might incorporate a choice of lifestyle, knowledge, and food behavior (Robinson, 2010).

2.6.5 Restoring Human Capacity

In community forestry, human capital refers to the product of human capacity with knowledge-based skill and wisdom (Robinson, 2017), and the ability to work with sound mental health. Forms of human capital make community people more competent, productive, and dynamic in

securing livelihood opportunities (Bray et al., 2005; DFID, 1999). Since the beginning of community forestry programs, manytraining initiatives and workshops were organized with a view to human capacity development for individuals and organizations involved in community forestry activities. These training and workshop events were helpful in increasing relevant knowledge, skills, health and leadership (Dongol, et al., 2002) on forest management as well as community development, all of which are fundamentally related to human development (Pokharel, n.d.).

2.7 Knowledge Gaps

The preceding discussion highlights community forestry related works of literature with multi-dimensional aspects. The literature tends to glorify the role of CBFM in fostering the livelihood opportunities for community people as well as for the sustainability of community in terms of social, economic, physical, and human capital (Gabay & Alam, 2017; Pandey, Cockfield, & Maraseni, 2016). Furthermore, there is extensive literature on collaborative approaches (Keenan, 2015; Beratan, 2014; Petheram, et al., 2004; Nie & Metcalf, 2015; O'Looney, 1994; Wade-Berg & Robinson-Dooley, 2015; Zimmerman & Dart, 1998; Hollenbeck, Beersma, & Schouten, 2012), increasing adaptability with climate change (Keenan, 2015; Paudel, N.S., 2011), and local knowledge (Lee & Krasny, 2016; Nguyen-Khoa, Smith, & Lorenjen, 2005) that provide a basis for community forestry management. Nevertheless, there exists a significant gap in understanding the integration of multiple stakeholders in CBFMand the importance of a holistic participatory approach. There is a need to address these gaps to improve sustainability. The literature review helped to identify a number of significant knowledge gaps related to participation and collaboration of multiple stakeholders and the need to consider the inclusion of business entrepreneurship as a component of CBFM.

Chapter Three

Theoretical and Conceptual Framework

This chapter explores some existing theories related to the social scientific ethos that could be applied in community forestry under the heading of the theoretical framework. Subsequently, important and necessary concepts have been retrieved from existing theories with a view to developing a conceptual framework to highlight links and interactions between the participatory approach, community-based forest management and community sustainability. Therefore, this study is guided by two collaborative theories, specifically comprehensive theory of collaboration (Gray & Wood, 1991), and grounded theory of collaboration (Colbry, Hurwitz & Adair, 2014). Furthermore, the study also has taken into account other theories such as stakeholder theory (Fontaine, Haarman & Schmid, 2006; Donaldson & Preston, 1995), participatory theory (Monsi, 2014), and sustainability theory following Brundtland Report (Brundtland, 1987). The implications of all relevant theories are described below.

3.1 Comprehensive Theory of Collaboration

The main impetus for collaboration is to get solutions to humanistic problems emerging from organizational and social domains (Gray & Wood, 1991). In giving the definition of collaboration, Gray (1989, P.5) revealed "a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible". Subsequently, Gray and Wood (1991) proposed an integrative model called "collaborative alliance" on the basis of the above definition of collaboration. They described that collaborative alliance is an effort to increase problem-solving capacity by forming an inter-organizational network (Gray & Wood, 1991). In this case, "public-private partnership" represents a good example of the collaborative alliance in solving various types of rural and urban problems. However, the collaboration alliance as an integrative model embraces other types of theoretical perspectives within its domain on which "resource dependency theory" and "social ecological theory" could be most relevant to the present research.

Resource Dependency Theory

The central theme of the resource dependency theoretical perspective is to reduce dependency on other organizations while achieving the stability of resources and enhancing efficiency (Wood & Gray, 1991). It also simultaneously emphasizes increasing inter-governmental relationships as well as minimizing any kinds of uncertainty that could be harmful to sustainability (Gray & Wood, 1991). On the other hand, Williamson (1991) emphasized bilateral rather than multilateral relationships in achieving organizational efficiency under the domain of microeconomics theory. Moreover, exchange relationship and the environment of adaptive behavior within organizations is also a focal point of resource dependency theory (Banaszak-Holl, Zinn& Mor, 1996). In such a way, crucial resources like capital, human resources, and logistics services could be obtained.

Socio-ecological Theory

The main domain of this theory is to regulate partner's or participants' behavior with the collaborative alliance to achieve common goals (Gray & Wood, 1991). Moreover, Selsky (1991) uses this perspective to examine the effectiveness of collaboration in capacity development for reducing environmental turbulence.

3.2 Grounded theory of Collaboration

The grounded theory of collaboration is another important theory that encompasses six causal collaborative themes. These themes of interpersonal collaboration have a great influence on creating leadership, teamwork, and social exchange (Colbry, Hurwitz, & Adair, 2014). The researchers identified the causal themes such as "turn-taking, observing and doing, status seeking, building group cohesion, influencing others, organizing work" (Colbry, Hurwitz, & Adair, 2014; p.68). Hence, turn taking indicates to make the agreement with others for consensus building in decision-making (Wooley, Chabris, Pentland, Hashmi, & Malone, 2010). The second theme is observing and doing action accordingly that is a participant acts what he or she observes from surrounding environment (Colbry et al., 2014). After this accomplishment, the actors always try to evaluate others' perceptions about their jobs as to have their status seeking. In such a way, group cohesion is being built up with a leadership responsibility (Curphy, 1992). Another central idea of the leadership responsibility is to influence others (Yukl, 1999) to have a good

integrity of team mission, vision, aim and objectives. Indeed, the influencing capacity is considered as the outcome of leadership that does exist in team works and in managerial tasks as well. Lastly, team work should be highly organized, by defining and assigning everybody's respective jobs, for more effective collaboration. Every member of the team should be sincere and accomplish their assigned duties and responsibilities even in the absence of managers or team leaders.

3.3 Stakeholder Theory

The theoretical background of stakeholders is often classified into two categories, normative and descriptive stakeholder theory (Fontaine, Haarman & Schmid, 2006). On the other hand, Donaldson and Preston (1995) classified the theoretical background of stakeholders into three categories with the addition of the instrumental approach beyond normative and descriptive theory. The normative approach considers the moral and philosophical guidelines in managerial activities, while the descriptive approach deals with stakeholders' interest realization. The instrumental approach places emphasis on establishing the connection between the role of stakeholders and their contribution as well as on achieving organizational goals, mission, and vision. In giving importance to the role of stakeholders, Freeman and Evan (1990) emphasized on the participation of stakeholders in decision-makingthat makes them empowered as well as ensuring general welfare for themselves. Moreover, they encouraged the management body to work as the agent of stakeholders and thereby to fulfill their needs and interests rather than simply maximizing their profit. On the other hand, Savage et al. (1991) classified stakeholders on the basis of their dependence on the management of the organization. Their distinguishing classifications are supportive, marginal, non-supportive, and mixed blessing that links cooperation and competition to various degrees (shown in below figure - 01).

	Low Competition	High Competition
High Cooperation	Supportive	Mixed Blessing
Low Cooperation	Marginal	Non-Supportive

Fig-3.1: Relationship between cooperation and competition of stakeholders (formulated by the author)

With reference to community-based forest management, it can be postulated that the best supportive institutional stakeholder is Non-Government Organizations (NGOs), as it relies upon high cooperation and low competition. Moreover, Clarkson (1995) also conscious about the classification of stakeholders classified stakeholders on the basis of degrees of intensity of relationships such as primary and secondary stakeholders. The primary stakeholder means that there is a great interdependency between stakeholders and management where the managing body cannot succeed without the direct support of stakeholders. On the other hand, the secondary stakeholder could be sustained through the voluntary relationship of stakeholders with the management; that is, there is no great affinity between the stakeholders and management and management runs without any direct involvement of community people.

3.4 Participatory Theory

Participatory theory relates the various forms of involvement of local people, institutional engagement with a development project. It is now well established that any kind of human and social development project would be mostly unsuccessful without the active involvement of stakeholders. Therefore, ensuring participation by beneficiaries in development projects is highly required by donor agencies like the World Bank (WB), the International Monetary Fund (IMF), Japan International Co-operative Agency (JICA), Canadian International Development Agency (CIDA), U.S Agency for International Development (USAID), and ADB. In reference to the participation of stakeholders, the involvement of beneficiaries and their different perspectives is very important and comes first in the discussion of the project development.

A beneficiary could participate in a project in terms of project implementation, sharing responsibilities, monitoring and evaluation, helping finalize a decision, and eventually sharing the output that brings them (beneficiaries) benefits (Sundaram, 2002). The assurance of people's participation in the planning process is a priority issue in project implementation because of its contribution in enriching the strategic action. The contributory action could include available sources of data, making easy communication with vulnerable groups and others who committed to the project(s). Sometimes local people demand illegal and illogical advantages from authorities that should not be taken for granted as per normative patterns of management. Therefore, the inclusion of local people in management as participants could reduce such illegal pressure and avoid any potential liabilities. Furthermore, it would be possible to evaluate local people's judgement on the duration and effectiveness of any newproject. In addition, the inclusion of stakeholders in management could make stakeholders more accountable and responsible, therefore increasing the probability of projects success. Besides, the participation of community provides a sense of ownership that result in community empowerment (Adhikari, 2011). Interestingly, Hutton and Leader-Williams (2003) assumed that participation by vulnerable people who are most dependent on natural resources, would enhance management and conservation. In addition, it would be more successful if they get an opportunity to have incentives or profit sharing from resource-based projects. Hosseini (2011) also noted the same theme that the opportunity of stakeholder involvement in forest management could improve forest sustainability. It is noteworthy that local people can provide traditional knowledge that can increase efficacy in management regimes (Blaikie, 2006). Monsi (2014) stated two models in support of the participatory theory. One is "Ladder of Citizen Participation Theory" and another is "Pimbert and Pretty Model of Participation". Monsi examined different levels of participation from these models. These models included "manipulation", "information", "consultation", "placation", "partnership", "delegated power", and "citizen control". Hence, the researcher found that last three levels of the model like the partnership, delegated power, and citizen control are the most active participatory activities in which local people enjoy the highest control over the community resources and management. Claridge (2004) also considered the "Ladder of Citizen Participation Theory" on the basis of enjoying degrees of power between governmental agencies and local communities. The researcher referred to a "non participation" stage that implies manipulation and therapy for inclusion of community people primarily. Following this primary

stage, the theory addresses for "degrees of tokenism" implying placation, consultation, and information; Lastly, the theory considers degrees of citizen power indicating citizen control, delegated power, and partnership which is the highest level of power enjoying by local communities in participatory approach of natural resource management. The same themes also have been portrayed in the "Pimbert and Pretty Model" in different typologies like "passive", "information", "consultation", "functional", and "self-mobilization". In this model, self-mobilization is a very active form of participation that must be maintained by taking a decision.

In 1970, Brazilian educator Paulo Freire proposed a new idea on the participatory theory called "participatory communication". The researcher developed this idea based on a critical examination of the traditional system of learning methods and stereotyped thinking (MacBride Commission, 1980). The main argument in this idea is that the traditional system of learning always tries to impose its authoritarianism upon the masses with the application of foreign concepts. Local people cannot readily absorb these strange ideas and are often shocked by the concepts. Therefore, in this situation, the researcher proposed the concept of "dialogical pedagogy" that emphasizes community interaction through dialogue and participation. Freire considered traditional culture, mutual commitment and trust (Servaes, n.d.) that could revive a "sense of ownership" to the local people upon natural resources. Freire's model over emphasized communication among the members of society as a means to finalize the decision, and to address implementation and project evaluation in community resource conservation. Members of the community should share their experience, traditional knowledge, and own thinking in project implementation to allow for community empowerment and eventual success of the project (openuni, n.d.). On the other hand, multiple works identified the emergence of NGOs as a vehicle in the development project that could help in achieving community empowerment (Mohan & Stokke, 2000; Barroso, n.d.). Claridge (2004) found that the most common term in defining participation is the involvement of stakeholders in decision-making. Therefore, the researcher pointed to participation as a social process (Tikare, et al., 2001) by which local groups share their thinking and experience in decision making (White, 1981; Eyben & Ladbury, 1995; Ndekha et al., 2003).

Chambers (1995) provided several popular statements in giving theoretical clarity of participation. The researcher shows that low capital cost is very likely considered in development

projects, because the donor's main concern is to recognize cost-effectiveness. Moreover, the participation of local stakeholders can minimize cost, because the local people's judgement is beneficial in establishing a financial plan. As well, sustainability can be enhanced through the involvement of local stakeholders in designing, constructing and maintaining the plan and project. Furthermore, incorporation of ideological professionals established a belief that empowerment of poor people and their command in project management could certainly enhance the quality assurance, practices, and community sustainability. Buchy, Ross, and Proctor (2000) also reported that environmental management could be better in practice, if it would include local communities in management. Sometimes, it is found that local communities are highly enthusiastic to be engaged voluntarily in the management. They seek the direct participation in management for transferring power from government to themselves in such a way. In addition, this mechanism of equal balance of power could make them (local communities) benefit more. Indeed, there is much literature to indicate that the participation of stakeholders should be viewed as mandatory in newly launched development strategies (Agarwal, 2001; Eyben & Landbury, 1995; Kelly& Van Vlaenderen, 1995).

3.5 Sustainability Theory

Sustainability theories attempt to integrate economic, ecological, and political models for realizing the good existence of community, society, or eventually a state. The main theme of sustainability theory is that global problems should be solved by integrating economic, ecological, and social systems with durable, coherent, and moral vision (S T, n. d.). In fact, sustainability is widely used and a new ideological umbrella in various spheres of life that could not be addressed with a single discipline (Cabezas & Fath, 2002) like sociology, environmental science/policy, politics, economics, and public administration. This contemporary theory especially emphasizes conservation of natural environment, reviving traditions and culture along with moral requirements, social institutions and political issues. The fundamental aim of sustainability is to see how social, cultural, economic, and environment domains are closely related and how they interact to contribute to the long-term viability of communities and human well-being. In another way, sustainability theory embraces two kinds of arguments, notably, economic and non-anthropocentric arguments. Economic arguments refer to increasing

employment opportunity, efficiency, and storing of capital wealth. In contrast, non-anthropocentric views argue on preserving biodiversity and conservation of nature for sustainability of natural capital. It emphasizes both renewable and non-renewable resources like forest and oil conservation, respectively, for present and future human well-being (Loukola & Kyllönen, 2005). Following the Brundtland-report, Lynam and Herdt (1989) advocated that social aspects should be considered as one of the indicators of sustainability. Hence, social aspects or "social capital" that embraces knowledge sharing and organizational networks to enhance the efficiency of social systems should be addressed (McElroy Jorna & Van Engelen, 2006). Further, equality health and safety (Lynam & Herdt, 1989) can also be incorporated into social sustainability for ensuring human well-being. McElroy, Jorna and Van Engelen (2007) introduced another term called "anthro capital" to replace social capital. These researchers used this new term for realizing non-financial capital. The non-financial capital, according to them, incorporates human and social capital simultaneously for achieving good measurement of sustainability. Subsequently, Healey (2010) considered human capital as a theoretical assumption that underlies one's ability, values and personal skills to improve capacity development. Furthermore, Widok (2009) gives great importance to economic sustainability to complement social and environmental sustainability. The author found in a study that more than half of 828 managers of companies responded that they are afraid to be prevented from meeting their corporate responsibilities only because of the financial crisis. Therefore, economic factors need to have equal importance as an indicator of sustainability.

With reference to the historical background of sustainability, Basiago (1999) referred to "Limits to Growth" which describes the exponential growth of population, industry, and pollution. Because our world is limited in size and area, and ecosystems have a limited carrying capacity, the world will not be capable of dealing with continued exponential growth in population and with the current rate of resource exploitation. Therefore, these three phenomena like population growth, industrial activity, and pollution should be considered and integrated respectively with social, economic, and industrial sustainability efforts. For that reason, the author considered three relevant recommendations to promote sustainability: minimum environmental degradation, maximum conservation of natural resources and maintaining equilibrium in population growth. The same principles were also supported by agenda 21 that recommends integration of social, economic, and environmental sustainability as a blueprint for survival. Likewise, Agenda 21

proposes that entrepreneurship and equity could ensure sustainability of socio-economic realms (Keating, 1993). Similar views are found in the research work of Kahn (1995) where the researcher assumes three basic pillars of sustainability, economic, social, and environmental realms, with reference to Agenda 21.

3.6 Conceptual Framework

The central principle of this study is to explore the involvement of all constituent elements of the participatory approach related to community-based forest management, which is viewed as the vital force in ensuring community sustainability (Weekes-Vagliani, 1995). Drawing on the participatory approach, community-based forest management, and community sustainability as the central concepts underpinned with the theoretical assumptions discussed above, the study proposes the following conceptual framework (Figure -3.2), to address the research questions:

The framework is developed to present a visual depiction of integration among the participatory approach, Community-Based Forest Management, and community sustainability.
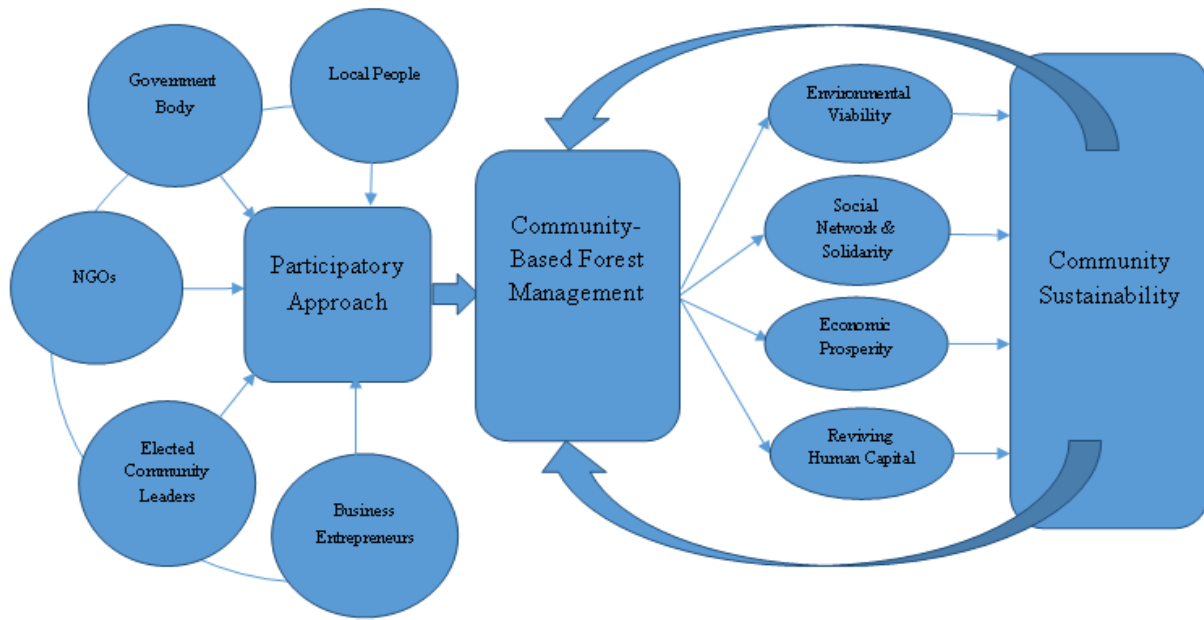
Figure 3.2: Conceptual Framework showing the relationship among the participatory approach, CBFM and Community Sustainability

Source: Developed by the author using the existing theories, literatures, and empirical studies on Community Based Forestry

The conceptual framework displays great affinity among the concepts of the participatory approach, community-based forest management and community sustainability. Hence, the participatory approach incorporates five kinds of parties including local people, the government body, NGOs, elected community leaders, and business entrepreneurs. All of these stakeholders should be addressed in CBFM through active participation and collaboration that could result in constructive engagement. Consequently, their engagement in CBFM is expected to meet the conditions of community sustainability, such as environmental viability, social networking and solidarity, economic prosperity, and reviving human capacity in terms of human capital. In the present study that was pursued in Comilla Sadar South Upazila (CSSU) as the research area, I have taken into account enlisted beneficiaries of community forestry as the local people, BFD as the agency of government body, a community organization named "Holodia Mohila Unnoyon Shongstha (Holodia Female Development Organization)" as a representative of NGOs, UP members as the representative of elected community leaders, and some businessmen, those doing business in the local market of CSSU. All parties listed are involved in community forest management in the research area. Their direct involvement in CBFM, especially in taking

decisions, ensuring accountability, equality, and financial accumulation makes their management, sound, effective, collaborative, integrated, and result oriented. The maintenance of a co-management process through the participatory approach in combination with a bottom-up model in running community forestry in CSSU ensures a comprehensive and progressive approach to community sustainability. Therefore, the present study examines community sustainability in terms of environmental viability, social network and solidarity, economic prosperity, and reviving human capital as a means to promote CBFM.

Chapter Four

Research Methodology

4.1 Overview

This chapter outlines the methodological foundations, along with the main strategic structure of the study such as research approach, research process, theoretical ground and methods. This research follows a qualitative research approach (Creswell, 2003; 2014; Miles & Huberman, 1994) as the indicator of interpretive policy analysis to explore the implications of community forestry in Bangladesh and to uncover the answer to my research questions. Hence, interpretive policy analysis addresses the meaning of actors about phenomena (Willis, 2017) that are completely situation or context based rather than general or universal law (Yanow, 2007). In choosing this view, I focus on the context of my previous background and experience in Bangladesh. Bangladesh is geographically a lower riparian country that makes it environmentally vulnerable to flooding in the rainy season, drought in the dry season, and deforestation. These environmental vulnerabilities severely affect marginal communities especially those dependent on natural resources for their livelihoods such as fisheries communities, and forest-dependent communities. Therefore, my background in Bangladesh provides me with a very interesting perspective and curiosity about community, community forestry and sustainability. Moreover, I had scope to see community forestry activities as an observant and opportunity to engage beneficiaries. These interactions provided for interesting experiences in field observations involving local stakeholders' active participation, inter-personal relationships and interactions, managerial capacity and actual practices. All relevant works of community forestry are more or less grounded on the collaborative approach. As such, throughout the study, I gained insight into the participation process and perceptionsof local people. In previous encounters, it was evident that local participants are very curious and enthusiastic about community forestry projectsand are intent on achieving success especially in ensuring community sustainability. The local stakeholders' involvement along with their managerial skills as well as their active engagement in community forestry promotes a participatory approach, collaboration, and community sustainability. These ideas and practices accordingly help toestablish a complex network of relationships among the community people with regard to community forestry. Therefore, considering my previous experience with the existing practices of community forestry, I applied interpretive inquiry in the present study.

Herein, all stakeholders of the local area, Comilla Sadar South Upazila (Sub-district), are actively involved with community forestry projects in terms of decision-making, financial accumulation, consensus building, and sharing responsibilities during the project's tenure period. In the interviews, all stakeholders expressed their personal experiences and arrived at subjective assessments. Thus, the realities, that participants faceregarding community forestry management, were being interpreted with their (stakeholders) own meaning, interpretation and judgement. Participants were very pleased to participate and provided information related to CBFM in the context of future prospects, successes, barriers and recommendations for further development. Thus, the qualitative approach as the strategy of interpretive policy analysis was determined to be the best way to explore the integrating process of community forest management in CSSU.

4.2 Qualitative Research Process

The qualitative research process (fig-4.1) began with ideas about community-based forest management in Bangladesh that was launched to address the present crisis in the forest sector. On the basis of initial ideas and problem identification, overarching research questions have been posted and addressed to formulate research purpose and objectives. Later, an extensive literature review was completed to systematically review previous work in community-based forestry. All subsequent activities were taken into account on the basis of the relevant literature and relevant activities fully related within a theoretical framework from idea or motivation to drawing conclusions. Hence, results from this study will contribute to existing literature and to the long term sustainability of forest management in Bangladesh.

The present study is articulated on the basis of the following qualitative research process:
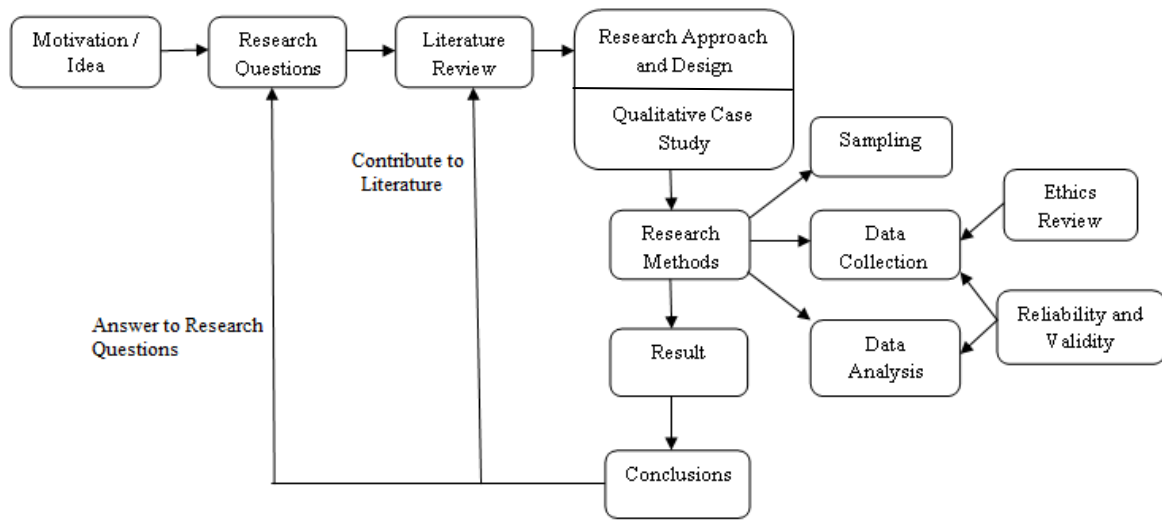
Fig- 4.1: Showing the outlines of qualitative research process (Sources: Bryman & Bell, 2016; Bullock, 2006)

4. 3 Qualitative Case Study

The qualitative research approach (Jick, 1979; Brannen & Moss, 2012; Johnson & Orwuegbuzie, n.d.) has a provision to follow strategies of inquiry such as phenomenology, ethnography, case study, and grounded theory (Cresewell, 2014). To address the research questions of this study, I utilized a qualitative approach along with a case study as the strategy of inquiry. Many researchers posit that a case study approach is a suitable strategy for empirical inquiry in conducting qualitative research related to stakeholders' participation analysis and community development. Besides, a qualitative case study commonly employs various types of methods in data collection including interview, informal discussion, and secondary data collection that can enrich the study in terms of validity and reliability.

In fact, a case study is an "intrinsic study of valued particular" (Denzin & Lincoln, 2005) which emphasizes making sense about the understanding of people who have perceived the particular incidence or experienced the phenomena. In this study, the focus is on the views of people concerned with community forestry. Similarly, Creswell (2003; 1998) considered the case study in a broader context as "an exploration of a bounded system or a case through detailed, in-depth data collection involving multiple sources of data collection". However, a case study should be a

bounded subject with specific time and space that must be a representative of the whole phenomena (Creswell, 1998; Burns, 2000). The phenomenon is also being precisely represented through a case study along with the use of triangulation in data collection. Many social researchers uphold case studies as qualitative inquiry due to its emphasis on local perspectives, inner sense about community participation, and subjective ontological stance.

I applied the case study approach in this research with a view to achieving the purpose, objectives and possibly the best answers to the research questions, as Yin (2009, 2003) also supported it for enabling researchers to have interviews with potential respondents of events.

Hence, qualitative research involves social investigation to highlight peoples' perceptions about the incidences they face in their daily life. In other words, qualitative research is an approach that explores the patterns, case, and effects of peoples' actions as social actors to be adjusted with others (Atkinson et al., 2001).

4.4 Qualitative Sampling

The population of the research area is finite because the population contains a countable number of sampling units (Nacmias, 1997, p. 181). Hence, I collected a list of community forestry projects (Appendix XII) from the assigned officer (Forester, Comilla Social Forestry Division) of the Bangladesh Forest Department, and the list of beneficiary people (Appendix V) from the president of the executive committee of the respective community forestry project. All collected lists bear the evidence of finite sampling population from which the sample size is determined.

In this study, the sampling frame as a complete list of sampling units (Nacmias,1997, p.181) includes beneficiaries, officer of Comilla Social Forestry Division, representative of the Union Parishad (those are working as the agencies of Local Government) of Comilla Sadar South, representative of the local NGOs, and local business entrepreneurs. The research population was enlisted as a sampling frame (Appendix V) with the total number of 212 individuals along with all stakeholders.

I used the non-probability sample design (Nachmias, 1997, p. 184; Trochim, 2009, p.55) to ensure the participation of potential respondents, because the non-probability sampling design is among the best sampling approaches for qualitative research. Subsequently, I applied purposive sampling techniques (Sandelowski, 1995; Nachmias, 1997, p. 184; Trochim, 2009, p.56) in selecting the research area (Fig- 4.5) and determining the number respondents, as a kind of non-probability sample design. The sample size in this study was thirty (30) individuals who were selected for interview from various stakeholders following the participatory approach (e.g. beneficiary people, the officer of the Forest Department, representative of Union Parishad, NGO's agency and the local business entrepreneurs) that I fixed upon purposive sampling. Since, the purposive sampling emphasis on researchers' personal intuition and allows them to select the research area and sample size on their subjectivity and the process of saturation (Dworkin, 2012; Mason, 2010). This sample size (30 respondents) is considered adequate for this study because it is recommended by many authors in peer-reviewed articles. Many workers choose a number of respondents such as 25-30 as a standard sample size for qualitative research (Bertaux, 1981; Creswell, 1998; Bernard, 2000; Guest et al., 2006; Dworkin, 2012; Marshall et al., 2013). Therefore, this attempt could be the best possible way to obtain the sample that appears to be representative of the research population (Nachmias, 1997, p.184).

4.5 Data Collection Methods

This study is based on both primary and secondary level data (Paudel, 2011) following descriptive, explorative (Babbie, 1998) and analytical research designs. Hence, the primary data were collected through sixty-minute face to face interviews (details below) using semi-structured questionnaires. Field notes (details below) were recorded as qualitative observations (Creswell, 2014) to augment data acquisition for subsequent analysis. On the other hand, in the collection of the secondary data, I brought together all necessary data and information from published and online based books, books chapters and journal articles using Google Scholar and ProQuest link as online based search engines using the library of Memorial University Grenfell Campus.

4.5.1 Interviews

Requests for the interview with individuals were made in-person. During the initial contact, I asked the respondents to propose a suitable place and time where and when they would feel more comfortable to be interviewed. Majority of respondents, selected from beneficiaries, requested me to arrange interviews in their residence on holidays. The key informants like officers of Comilla Social Forestry Division, Union Parishad representatives, NGOs representatives, and business entrepreneurs requested me to arrange the interview meeting in their working place in the afternoon because this time was convenient for them. Therefore, I attempted to arrange interview meeting with all of them (thirty respondents) as per their preferred and convenient time and location.

Plate – 4.1: The researcher conducting an interview of respondents. Respondents faces are deleted for confidentiality and privacy (Source: Hassan, A B M Enamol, 2017)

4.5.2 Field Notes

Field notes are considered as a strategy of qualitative observation with which a researcher takes notes in an informal or unstructured way on the activities of program, group, or individuals at the research area (Creswell, 2014). Hence, some respondents have been beneficiaries of community forestry hierarchically as successors of original beneficiary people who died. Such beneficiaries got an official notification regarding their automatic involvement and some did not get any notification. During field visits, I observed that some respondents, though they are negligible in number, were mostly ignorant about community forestry and know little abouttheir roles, duties,

and responsibilities in forestry management. Their limited understanding about community forestry was noted in general through field note techniques.

4.5.3 Qualitative Documents

The qualitative document is another important part of inquiry strategy that incorporates multiple public documents like meeting minutes and official records, etc. Hence, I collected some meeting minutes, resolution and written documents that were maintained and preserved in office registries. These documents have been organized, findings depicted and discussed in the analytical parts in the thesis.

4.6 Selection of the Research Area

The study area selected for this research encompassed the Comilla Sadar South Upazilla (Sub-district) of Comilla Zilla (District) located in the southeastern part of Bangladesh (https://en.wikipedia.org/wiki/Comilla_District) (fig- 4.2, 4.3, 4.4, 4.5).

Fig-4.2: Map of Bangladesh (Source: https://www.google.ca/search?q=map+of+bangladesh)
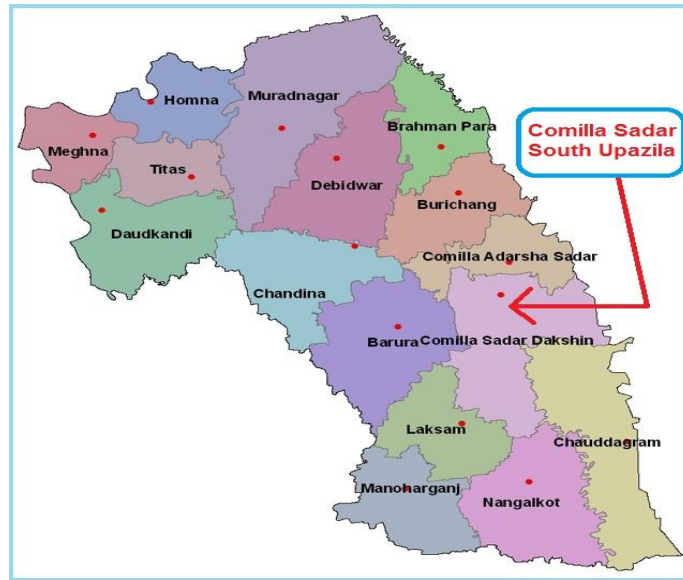
Fig-4.3: Map of Comilla District (Source: www.google.ca/search?q=map+of+comilla+district+bangladesh)

Fig- 4.4: Map of Comilla Sadar South Upazila (Source:

ww.google.ca/search?biw=map+of+Comilla+sadar+south+upazila)

Fig- 4.5: Map of Roadside and Forest Gardens (green marks) in CSSU

(Source : www.google.ca/search?biw=map+of+comilla+sadar+south+upazila)

1. Lalmai Tower to Joinogor Roadside Garden

2. Harichhor Circular Road to Atiti Roadside Garden

3. Hodhgora to South Hajothkhola Roadside Garden

4. Baghmara to Hajothkhola Roadside Garden

5. Baghmara to Vucci Roadside Garden

6. Vucci to Bangla Bazar Roadside Garden

7. Joshpur Bit Forest Garden

8. Rajeshpur Bit Forest Garden

The Sadar South Upazila (sub-district) recognized as a rural area (Banglapedia, n.d.) comprised of several unions and has theUpazila Parishad institution (Bangladesh Bureau of Statistics [BBS], 2011). The most significant income for this population comes from agriculture and agricultural activities (Bangladesh Population Census, 2001; Cultural Survey Report of Comilla Sadar Dakshin Upazila, 2007). Communities within this sub-district are generally poor and residents are dependent on nature for their livelihoods. Comilla Sadar South Upazila has a good number of roads (paved and semi-paved) managed by Local Government Engineering Department, Roads & Highway, and Bangladesh Railway. According to the "Social Forestry Rules-2004", the social forestry divisional office of Comilla (part of Bangladesh Forest Division) made a contract with the respective department and beneficiary groups to implement community forestry. The community forestry projects of Comilla South Sadar upazila have been largely successful and for that reason, this Upazila is famous for its community forestry zone.

4.7 Data Analysis Methods

For analysis, all interview data were organized and categorized by the following three steps: (i) transcribing data, (ii) coding (focusing on a single concept) and (iii) constructing themes (addressing personal values relating contexts), and overarching concepts (Noble & Smith, 2014, p.3; Wortly, 2003). The three tablesbelow summarize the procedures of qualitative data analysis in this research.

Table-4.1: Data extract containing units of data and line by line coding

Units of Data	Early Descriptive Codes/Line-by-line Coding
Transcribing the interviews e.g. all interviewers' statement as their responses to the research questions are transcribed with detailed insights.	Initial coding process retaining participants' words, whereby each word is considered as keyword or code.

Table-4.2: Development of initial themes from descriptive codes

Early Descriptive Codes	Broad Initial Themes
Initial coding process retaining participants' words, whereby each word is considered as keyword or code that follows to construct broad initial themes.	Organizing ideas, concepts that bring together similar categories/classes by following sorting system.

Table-4.3: Development of final themes and overarching concepts showing linkage with broad initial themes

Category Development/Broad Initial Themes	Final Themes	Overarching Concepts
Broad initial themes of table -4.2 will be followed in constructing final themes and overarching concepts.	Linking between broad initial themes and overarching concepts	Overarching concepts are formed to address the research objectives.

In Chapter 5, the qualitative data analyses and results are discussed based on the three steps outlined above. First, transcriptions of respondents' statements are described through line-by-line coding that is considered as initial coding. Subsequently, the initial coding statements were reviewed to address theoretical ideas related to CBFM along with organization and categorization under the heading of broad initial themes. In fact, initial coding was transformed to broad initial themes on the basis of the frequency of statement repeated by respondents. At the final stage of data organization and categorization, the broad initial themes were reviewed to construct final themes and overarching concepts (Appendix-VIII) that together address the research objectives.

4.8 Reliability and Validity

Reliability

Reliability in qualitative research mostly depends on maintaining documentation (Yin, 2009) and the degree of replication (Bryman & Bell, 2016). Reliability implies one can achieve the same results under the same conditions (Wortly, 2003). There are a number of steps taken into account in this research such as asking extra questions related to overarching questions and concepts to the respondents for judging the possibility of gaining similar findings, for maintaining the reliability. In addition, the database on interviewees' statement containing the data, coding, initial and final themes along with overarching concepts were formed in a separate folder electronically. This database could be used to test or justify any finding in future, if it is required.

Validity

The validity of qualitative research means how closely the collected data is represented and reflected in its findings, analysis and conclusions. In this case, the main challenge was to minimize the researchers' bias. In this study, I tried my best to present the findings as per field level data and peer-reviewed literature. Further, the research was based on triangulation e.g. face to face interviews and field notes that were taken into account to maximize the quality of the research through minimizing the biases of both researcher and respondents.

4.9 Ethics of the Research Methods

Maximizing benefits: The study will help to address the community-based forest management related problems faced by the government of Bangladesh. The results will be disseminated widely to stakeholders including participating communities, local elite groups, political representatives, respective government agencies, NGOs, and academia. It is anticipated that outcomes from this project will improve the quality of CBFM in Bangladesh.

Achieving consent: Consent was achieved through direct communication (meeting) and by providing printed information through a brief project description (as part of the informed

consent). The research approach and purpose was explained to the participants including its risks and benefits to the communities. In addition, utmost care was taken during the conduction of interviews. If anybody wished to withdraw during or after the meeting, their given information would be removed and deleted from the digital recorder and all project records. Similarly, surveys will be destroyed if requested by a respondent.

Respecting the confidentiality and anonymity of my research respondents: Face to face interview was completely anonymous (by specific respondent name). A coding process in semi-structured questionnaires was used for analysis to mask participants' real names and identity when associated with specific comments.

Avoiding harm to my participants: There is no implication of physical risks or deception involved in this research project. Methodsdid not induce any act against respondent's wishes, for example no participant was asked to disclose information of an intimate or sensitive nature. There were no financial risks to participants such as loss of jobs, promotion opportunities, etc. However, I had to assume that there might have been some possibility of psychological/emotional risks regarding feeling uncomfortable, embarrassed, anxious or upset. Every effort was made to minimize these risks.

4.10 Timeline of the Research

Table-4.4: Timeline of the Research – Gantt chart

Tasks	Description	2016				2017												2018						
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1	Completion of Course works	■	■	■	■	■	■	■	■															
2	Internship									■	■	■	■											
3	Proposal Development	■	■	■	■	■	■	■	■															
4	Proposal Review								■	■	■	■												
5	Detailed Literature Review	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
6	Questionnaire set-up and approval of Research Ethics Board												■	■	■									
7	Travelling for data collection														■	■	■							
8	Data cleaning and transcribing																	■	■	■				
9	Data categorization and analysis																				■	■		
10	Result Compilation and write up findings																						■	
11	Editing and Thesis Submission																							■

Chapter Five

Findings and Discussion

The findings and discussions are articulated in this chapter by linking broad initial themes, final themes, and overarching concepts. Hence, broad initial themes together construct the final themes that are ultimately discussed in overarching concepts in each subsequent section to address the research objectives.

5.1 Stakeholders' Participation in Community-Based Forest Management

This chapter articulates the sharing responsibilities of all stakeholders to address the first objective of the research, e.g., investigating institutionalized processes of stakeholders' participation in community-based forest management (CBFM). Hence, participation is explored under the discussion of sharing responsibilities maintained by beneficiaries, Bangladesh Forest Department (BFD), Union Parishad(UP), and NGOs working as the main stakeholders of CBFM in Comilla Sadar South Upazila(CSSU) (Appendix-VIII, Table -01).

5.1.1 Responsibilities and Contribution of Beneficiaries

Beneficiaries are the main responsible organ of the stakeholders who work at the field level to implement the vision of the community forestry in Comilla Sadar South Sub-district. The overarching concept of the responsibilities and contributions of beneficiaries are explained in creating some final themes like nursing (taking care of planted trees) and protection of trees and garden, participation in the meeting, maintaining communication, and financial investment for production. Final themes are discussed in detail below.

5.1.1.1 Nursing and Protection of Trees and Garden

The beneficiary groups as the main focal point of community forestry is comprised of residents are economically marginal people in the adjacent area of the forestry project. According to rules and regulations of the "Bangladesh Social Forestry Rules-2004", their (beneficiary) main duties are nursing trees and protecting gardens to promote the sustainability of community forests. It was found in the research area that more than seventy-three percent (73 %) of the respondents agree with current rules and do work accordingly. During growth, some unnecessary branches or roots need to be removed, and so the beneficiaries remove these unnecessary branches and roots in a timely fashion to improve log quality. This is very important for maintaining the health of growing trees and the people take these responsibilities seriously without any cost to the project (plate -5.1). As well, regular movement of people in the garden is very essential to protect against illegal cutting in the forestry garden, especially for the gardens, which are created along roadsides. The beneficiaries of respected areas always keep watch on the garden during their movement or in the leisure period of works. As a respondent said,

> "Every day, we keep our watch in the garden during our movement or crossing the road. We always clean the unnecessary branches of trees of the garden that helptrees to be grown quickly" – RC 05

Another main duty is to regularly enhance protection of the community forestry garden (both roadside and forest garden). Almost seventy-sevenpercent (77 %) of respondents does this job in their respective gardens. As a respondent said-

> "As a beneficiary, I always do guard the garden to protect it from the thief and human-made damage" - RC 27

This work creates a great affinity between the beneficiaries and the trees, as most participants agreed that this affinity is one of the pre-conditional activities for success of the community forestry project.

Plate – 5.1: Three beneficiaries are nursing their forest garden. The faces are deleted for the sake of anonymity and privacy (Source: Hassan, A B M Enamol, 2017)

The success and the efficacy of the project mostly depend upon the nursing system that is utilized by beneficiaries. In the nursing system, beneficiary people are planting, watering, and providing fertilizer following the guidelines given by forest officers.

5.1.1.2 Maintaining Communication and Participation in Meetings

Communication is a very important factor in any kind of participatory management. Regarding this matter, my observation is that the beneficiary people are very intent on maintaining communication in their forestry project management programs. As a respondent said-

> "There is no alternative way of maintaining communication in the project management. We have a good contact with all members of the forest management. This is our pleasure to have a scope for talking with forest officer or any experienced person about our duties and responsibilities in community forestry. We do have a warm relationship with the members of other community forestry projects. We go and see the methods and techniques that they apply in their projects and if it is good, then we also follow the same method" - RC 09

Usually, two or more members together visit the community forestry garden. In visiting the garden jointly, they have a productive discussion about various issues regarding the project. Almost all beneficiaries (93 %) agree and are enthusiastic about maintaining communication,

both directly and indirectly, and most of the respondents perceived that forest related activities could be more progressive in quality through keeping good communication among all stakeholders.

To maintain efffective communication, it is necessaryto have maximum participation of members in meetings along with a proper time frame. As it is one of the main tasks of beneficiary people in community forestry is to arrange and attend meeting regularly and to offer thoughtful opinions. The main objective of this process is to keep updated information about the status of the project. In this case, respondents always tried to attend meetings regularly. Beneficiaries are sincere and try their best to keep a vital role in the meeting with maintaining prior communication. As a respondent said-

> "We arrange the meeting and ensure maximum participation of members to make discussion with necessary informationand pursue the all other members to participate in meeting regularly with the valuable opinion" - RC 09

In this study, my observation is that more than half of respondents (53 %) of the beneficiaries have attended regular meetings of which 47 % are active participants as they have given wide opinions on how to promote more effective forest management.

5.1.1.3 Financial Investment

Community forestry deals with many financial matters such as buying strips of trees, fertilizer, employing extra labor, and for purchasing materials like bamboo for fences to protect the resources. Sometimes, beneficiaries in CSSU contribute money, though BFD mainly provides financial assistance. Beneficiaries need to derive extra money for growing strips and protecting gardens after creating the project with resources from the Tree Farming Fund (TFF). In fact, TFF is being maintained by depositing money (10 %) from selling earlier harvested trees from the garden. In this case, beneficiaries try to contribute money as per everybody's capacity. As a respondent exposed –

> "As a beneficiary, we maintain the nursing of the garden regularly and properly. For maintenance, we spent twenty thousand taka on buying strips and fertilizer, renting daily

laborer, watering and setting up the fence, because BFD fund does not cover this extra expenditure"—RC 24

In fact, beneficiaries are not bound to contribute financially, but their contributions will make the projects more fruitful and successful. Sometimes, BFD is unable to allocate enough money in community forestry for resource crisis, and then beneficiaries share some portion of the budget willingly to meet that deficit.

5.1.2 Leading Roles of Bangladesh Forest Department

The BFD as the main institutional stakeholder works at both the policy level and action level to implement the vision of community forestry in CSSU. One of its primary roles is to provide necessary logistic support to beneficiaries. The leading roles of BFD are explained under a number of final themes such as motivation and encouragement, supervision and monitoring, finalizing the decision, arrangement of compensation, arranging financial disbursement. These themes are discussed below to address the objective and research question of this study.

5.1.2.1 Motivation and Encouragement

The success of community forestry depends largely on levels of motivation and encouragement. Beneficiaries should have motivation and encouragement in carrying out their assigned jobs and responsibilities regarding community forestry. The BFD, as the main supervising governmental agency, is playing a strong role in motivation and encouraging of beneficiary people. In every community forestry, there are forest officers designated (Appendix-XI) to provide proper guidelines and suggestions to beneficiaries. This duty is integrated into their role of supervision and project oversight. The assigned officers give proper motivational and encouraging speeches to beneficiaries so that they recognize the importance of specific practices such as nursing, protection, and how their work contributes to more sustainable tree plantation. In field observations, I found that approximately forty-seven percent (47 %) of the total respondents

were fully satisfied with the motivational and encouraging initiatives of BFD representatives. In this case, some respondents'answers to the interviewing question are noteworthy-

> "Providing effective suggestions regarding the nursing of the garden and protecting the trees" RC-15

> "Visiting the project frequently, giving suggestions, try to solve the problems with remedial management" – RC 20

> "Providing effective suggestions" – RC 26

5.1.2.2 Supervision and Monitoring

Supervision and monitoring represent other vital forces of BFD. The financial status of projects, overseen by BFD, is a very critical matter in CBFM.The BFD disburses necessary funds through account payee cheque and the assigned forest officer distributes payments to respective management body so that the project is implementedsuccessfully. I found that eighty-seven percent (87 %) of respondents are well-informed and fully satisfied with the management of project funds. As a respondent said-

> "BFD provides financial support as per rules and needs for successful implementation of the project"—RC 14

Representatives of the BFD monitor and supervise community forest activities through regular inspection of forestry projects. As part of this process, there are fruitful discussions with beneficiaries and staff of Union Council. As the two respondents said,

> "The representatives of the BFD maintain their assigned responsibilities perfectly. As they visit the project sites, supervise the task and performance of executive committee of CBF"—RC 04

> "They are visiting the project in every two or three months. During their visits, they give valuable suggestions for solving problems if anybody demands. They are talking directly with beneficiaries. We are satisfied to see their performance in community forestry" – RC 05

The BFD's main duty regarding supervision is to select roadside and space for tree plantations and to visit the project twice every month. As noted by a respondent-

> "The first and foremost responsibilities of the BFD is to select roadside and space for tree plantation, and after that, the assigned officers do arrange the formalities for the approval of Upazila Environment and Forest Development Committee and finally Zila Environment and Forest Development Committee"- RC 29

During inspections and discussion with beneficiaries, officers always check and recheck all related documentation related to the project, including financial transaction memos, meeting minutes (Appendix -XII), and receipts. These are preserved as records for future purposes. Reducing political influence is another vital role of the BFD. The representatives always try to keep the management free of bad political influence especially in selecting beneficiary people and tendering the garden for maximum price. As one of my respondents said-

> "They are trying to keep the community forestry project free from political influences. One of the main tasks of the BFD officers is to visit the project timely and to tender the matured garden for having good price"—RC 09

5.1.2.3 Decision Making

BFD, as the key government organization, is responsible for final decision making concerning CBFM. The decisions range from community formation, money disbursement, beneficiary selection, place and road selection for establishing gardens. Besides, the BFD along with the executive members of the community, arrange schedules for tender or retender of the gardens. Some views of respondents could be importantly noteworthy in reference to this role of BFD, as-

> "Finalizing the decision making and doing follow up of implementing decision taken by the assigned officer of the BFD" – RC 01

> "Moreover, BFD takes the final decision in selecting the beneficiaries" – RC 29

Sixty-four percent (64 %) of respondents think that the role of BFD in taking decisions is commendable. It was apparent during interviews with different stakeholders that the assigned officer of BFD always tries to maintain a neutral position and attempts to decide in favor of the majority of beneficiaries. Political pressure and influence in rural areas of Bangladesh is not uncommon and is often a vital factor in dealings with money matters. Businessmen including sawmill owners are likely to seek favours from local political leaders leading to a patron-client relationship. Therefore, the businessman who is politically sheltered tries to confirm the tender in favor of himself with a minimum price that results in losses to both government revenue and beneficiaries.

As a respondent said-

> "There is a lot of barrier, we face in community forestry, should be noted here for your kind information as a researcher on this sector. First of all, the critical thing we have to face during tendering of our forest. This is the formation of syndicate. When we make a schedule to sell a garden to open market by advertising as a tender, it is seen in every term to form a strong syndicate so that other businessman could not drop any tender openly. For this conspiracy, both beneficiary group and government lose their present market monetary value and revenue respectively."- RC 01

In this case, BFD attempts to accomplish all the arrangements neutrally with no political implications. Nevertheless, there are some economically and politically powerful local people in some areas that are inclined to be beneficiaries in community forestry, thereby violating social forestry rules. BFD's officers also try their best to tackle this situation and to select beneficiaries while maintaining necessary criteria as per social forestry rules and regulations.

5.1.2.4 Arrangement of Compensation

Maximum number of community forestry projects in Comilla Sadar South are situated in the roadsides. Almost all roads are constructed and maintained under the Department of Local Government & Engineering Department (LGED), Roads & Highway (R &H). Some community forestry projects are also located near the Bangladesh Railway (BR). Union Parishad (Council) also occupies ownership of some roads of rural areas. The BFD mostly occupies the roads of the

above departments for community forestry projects. Therefore, there is a great dependency upon these organs of the Bangladesh Government for occupying the land, such as agreements giving a share of revenues to those departments. It was evident in my findings in Comilla Sadar South that after planting trees in the roadsides, the respective departments which occupies the ownership of the road develops a plan to extend the road as part of its rural development works. In this case, the respective departments cut the trees as per their needs without taking into account the impact on forestry or their obligation to established agreements. Another government oriented department, Rural Electrification Board (REB), deals with setting up electric lines in the rural area. This department uses the roadside to install electric poles on the ground for delivering electricity to villages. These kinds of all activities can cause serious harm to community forestry projects because of rapid losses in forest biomass and ultimate government revenue. Therefore, BFD, in this case, endeavors to negotiate with those respective departments to have a suitable compensation in favor of beneficiaries and government revenue collection. As a respondent said,

> "The BFD representatives are sincere to realize compensation that the beneficiaries get losses for launching development work like road extension or settling the electric poles" –RC 04

In fact, it is not easy to recover fair compensation for those losses described above, but the attempts of the BFD are truly praiseworthy and optimistic.

5.1.3 Integration of Union Parishad

Union Parishad (UP) which is the smallest rural administrative and local government unit of Bangladesh (Khan, n.d.; Union Councils of Bangladesh, n.d.) represents another supporting institutional stakeholder who can work at field level to implement the vision of the community forestry in rural areas of Bangladesh. The union is in a position to give some necessary legal support to beneficiaries. The overarching concept of integration of UP is considered below where specific final themes are examined. These range from settling conflict resolution, formal and informal support, and motivating local people that are discussed below.

5.1.3.1 Formal and Informal Support

The works of UP in community forestry can be categorized as formal and informal support though it has no direct involvement in community forest management. Formal support can be seen as legal action, taken by UP in favor of community forestry. For instance, UP provides its direct support to community forestry management when it is needed. If an individual or party damages the forest, and the forest committee takes legal action against the offender, UP helps the committee in preparing a legal suit and provides evidence favoring the management committee of the community forestry. As a respondent said,

> "When it is seen that somebody is taking out any strip or destroying any branches of trees, it is indirect duty of UP's members or chairman to protest or take legal action against the criminal person. The body of the UP always gives shelter the management committee of the community forest management with legal support" - RC 03

Moreover, UP employs community people for ensuring the security of the wider union. Sometimes, UP works with community police and orders them to keep special watch over the forest garden as a means to enhance the security of community forestry gardens. As a respondent said,

> "UP includes community police to protect the garden or if anybody destroys the national property, he/she could be under the jurisdiction of law"—RC 12

In addition, UP also provides strips for tree plantations to the local people and community forestry. The UP is not financially involved in community forestry, but they allocate strips (seedlings/young trees) free of charge and it provides valuable assistance to community forestry to encourage rapid growth, thereby promoting sustainable forests. Moreover, UP's main task is to do infrastructural development of the rural area that is also helpful for community forestry. UP as an agency of local government that is responsible for constructing and reconstructing roads, culverts, and deep tube-wells. These kinds of development activities make the community forestry more progressive too. As two respondents said-

> "It is a good idea to keep a percentage or a certain portion of money that comes form community forestry sale for Union Parishad. This amount could be spent in the rural development that makes us benefitted both socially and economically" – RC 02

"The money that is earned from community forestry selling will be spent in local development works like, constructingand renovating roads, and setting up tube wells for fresh water. Sometimes it provides strips (seedlings) for forestry that is fully free of cost"—RC 15

In community forestry management, another informal role of UP is problem solving and dispute resolution. Beneficiary people sometimes face uncomfortable situations in protecting their community forestry garden. Roadside landowners, who think that the shade of trees will damage their crops, often create obstacles and problems that prevent the maintenance and management of forests. For example, sometimes landowners cut the strips or take out the strips so that trees cannot be grown. These kinds of activities often create conflicts between landowners and beneficiaries. In this case, UP can play a valuable role in taking the initiative to resolve the dispute. As a respondent said,

"Sometimes they (UP representatives) want to settle the disputed matter for conflict resolution" —RC 10

It is found during my data collection that fifty-seven percent (50%) of the respondents are conscious of the role of UP in finding solutions to problems. It is also evident that UP as a vital agency of local government always attempts to give priority to community forest management or beneficiaries in settling the problems. Moreover, if the department cuts any tree illegally, UP plays a role in recovering compensation from REB. As a respondent said,

"They are trying to keep the active role in earning compensation from Rural Electrification Board as this organization is responsible for cutting many trees to set up electric poles " RC - 05

The above discussion reflects the important role of UP in finding solutions to local problems and their earnestness and commitment to community forestry.

5.1.3.2 Motivating Local People

The representatives of UP also play an important role to motivate local people for planting trees. Their motivational activity and positive feedback certainly makes individuals more enthusiastic

and elevates the desire to plant trees for revenue as a means to keep the environment green and clean. UP sometimes arranges workshops and public discussions to motivate people for planting trees along roadsides, near unused lands around residences or the surrounding areas of ponds and yards. As a respondent said-

"Pursuing the people to plant the tree and to save our environment thereby" RC –14

In my field observations, fifty-four percent (54%) of respondents indicated that UP is a government-oriented agency. This agency works in a rural area of Bangladesh on behalf of the Bangladesh central government. Therefore, rural people always evaluate the input given by representatives of UP on behalf of the government. This view compels rural peopleto maintain and obey the order accordingly. It is noteworthy that any local government agency's proclamation is considered byall villagers.

5.1.4 Participation of NGOs

Non-Government Organizations (NGOs) as another supporting institutional stakeholder also works in both policies and at field level to implement the vision of the community forestry in the rural areas of Bangladesh. NGOs can also give legal support to beneficiaries. However, their role is often ignored in practice, though their involvement is still active by law (MoEF, 2010, p.18). Nevertheless, the overarching concept of participation of NGOs, as explained by respondents, is determined on the basis of maintaining their previous roles in CSSU like raising public awareness and motivation, capacity development activities, coordinating management. These roles are discussed below.

5.1.4.1 Raising Public Awareness and Motivation

NGOs as the third sector in a state could play avital role in any participatory process involving resource management (Hassan, 2015) particularly roles that support social development. In

community forestry, for instance, their involvement is necessary and widespread as evident in the literature (Ayles, Porta & Clarke, 2016). During my field observations in Comilla Sadar South, it was found that almost half (44%) of the total respondents indicated the importance of incorporating NGOs into community forestry. Respondents think that motivation and mass awareness can advance their social activities and well-being. Hence, motivation can be a key first step in raising public awareness. As one of my respondents said-

> "It did important work for community forestry such as to raise public awareness, implementing plan and action" – RC 01

Some respondents said that it is not necessary to spend extra time or money to make or raise public awareness. It could just be addressed with their regular duties. For instance, NGO workers often go door to door to meet with their clients for micro-credit operations. As such, NGO workers could raise some agenda items in their discussion and supervision regarding tree plantations or assist in creating community forestry gardens during their regular visits. As a respondent said-

> "As they are going from door to door to meet people for disbursing loans to their debtor and could influence them to plant trees as much as they can"—RC 14

Moreover, many NGOs are well informed and have experienced in deliberative dialogue, extending from professional settings to community schools where they discuss the importance of sustainability and greening the environment. Some respondents suggested that it is necessary to have a special plan for teenagers so that they can better appreciate the necessity of forestry for community sustainability. As a respondent said-

> "NGOs can deliberate motivational speeches in schools and public places and also could follow up with their ongoing projects" - RC 18

5.1.4.2 Capacity Development Activities

NGOs' involvement in community forestry through stronger participation can also play a vital role in increasing capacity development of beneficiaries and other members of the management. Paradoxically, beneficiaries are the vital force of community forestry but are also those who are economically less viable and socially vulnerable or an underprivileged group. Thus, they have less scope to develop their capacity regarding human capital, and social networks. In this context, their capacity development is very important for the long-term viability of community forestry. Because beneficiaries are the main actors in maintaining forest nursing, protection, and responsible for the overall condition of the forest, it is essential that human resource and network capacity is maintained. NGOs, in these circumstances, have been offering relevant training and workshops targeted at individuals involved in community forestry. As a respondent said for favoring the NGOs involvement in community forestry,

> "NGOs could be involved for arranging workshops or training. And also can help in selecting the overall plan and action" – RC 17

In my field observations, I found that almost sixty percent (60%) of respondents get training and attend workshops arranged by both local and national NGOs. My findings also revealed that these respondents received training twice or more with a focus on stewardship of community forestry including learning good maintenance of forest gardens.

5.1.4.3 Coordinating Management

Community forest management is strongly based on coordinated management and all local stakeholders are augmented with institutional supports. Hence, NGO's involvement in coordination is necessary; more than three-fourths (87%) of respondents think that it is easier to solve many problems with NGOs direct involvement in management. In the selection of beneficiary members, for instance, NGOs can help achieve more success by assisting with the selection process. One reason is that NGOs have a population list stratified by economic status

(e.g., monthly income, land ownership, and location). Because of this updated information, NGOs can make a precise list of people who are eligible to be included as a beneficiary of community forestry. As well, NGO workers have direct dealings with local people for their micro-credits. Consequently, the NGO workers know about the people's sincerity, punctuality, and potentials. Therefore, possibly they can make a better selection of beneficiaries than any other party within the management. As a respondent said,

> "NGOs could select perfectly beneficiaries those will be the sincerest to the nursing of forestry" - RC 18

Summary

The findings shown in Fig. 5.1 and discussed above present the processes and strategies of all stakeholders' participation. Hence, it is seen that beneficiaries are more active than any other stakeholder involved in CBFM. On the other hand, the BFD is very active institution, which motivates and encourages the beneficiaries as field level workers, those most influenced by community forestry. If community forestry projects are to be successful, beneficiaries will need to get more assistance both financially and socially. In fact, it was seen that the majority of beneficiaries were mostly dedicated and devoted to community forestry though some were problematic and less sincere in their job and responsibilities. Unfortunately, UP's roles are somewhat questionable and objectionable to a significant number of beneficiaries due to its inactivity in community forestry. They note that UP is getting a funding allocation but is not showing any remarkable duties and responsibilities. However, it is overwhelmingly recognized
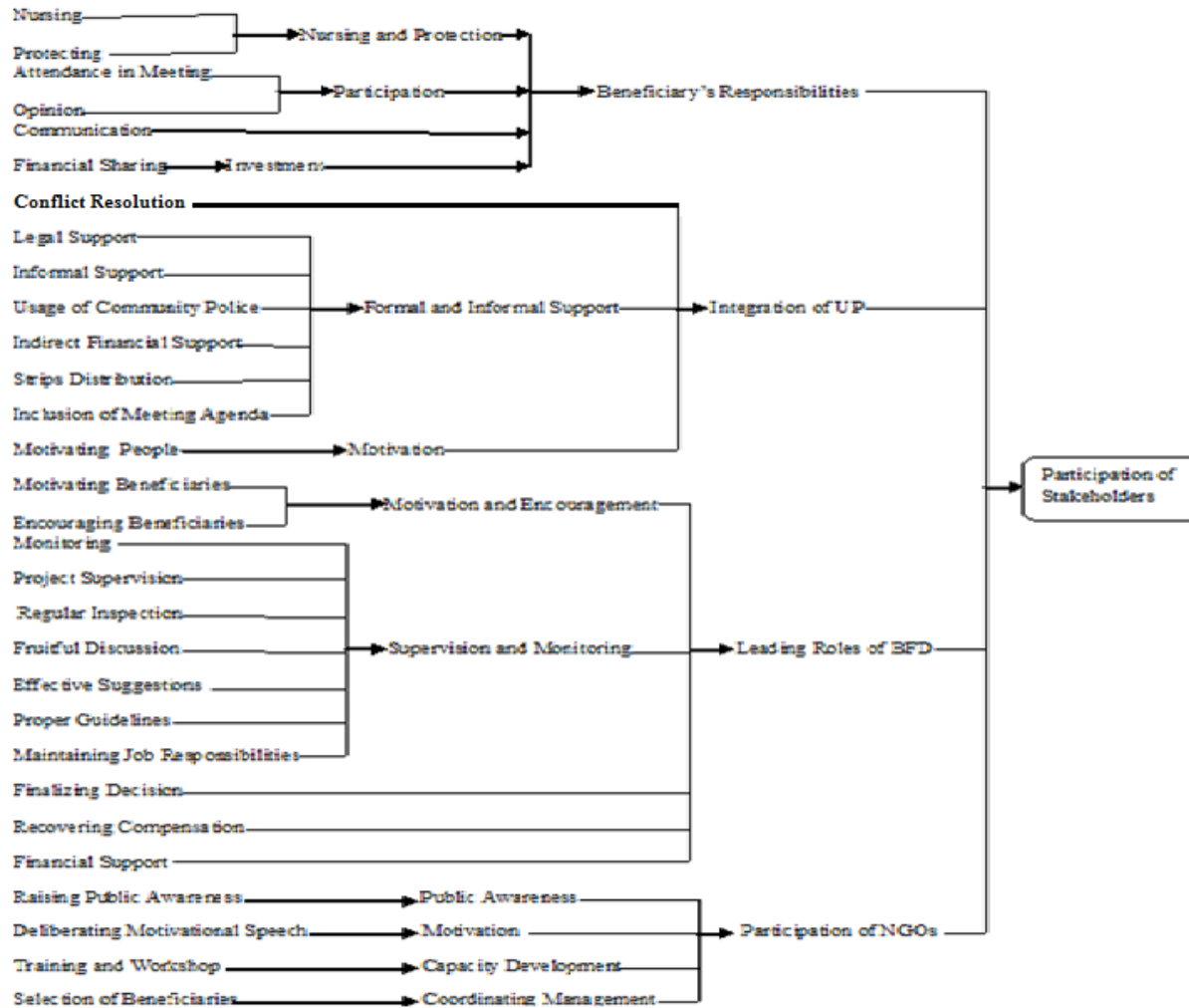
Fig-5.1: Showing all stakeholders' active participation in community-based forest management (Formulated by the author)

that sometimes UP's informal legal action in favor of community forestry is very helpful. For example, it can give legal evidence in court against those accused of crimes. Although some NGOs have been actively incorporated into community forestry management, they are at present, largely ignored. The role of NGOs is laudable because NGOs can arrange necessary training and workshops for beneficiary people on behalf of the BFD. Currently, there is no arrangement of training because NGOs are absence from formal management groups. The majority of respondents interviewed in this study feel the necessity of NGOs' involvement. Generally, it can be stated that all stakeholders' participation in sharing responsibilities as an output of the

participatory approach makes community forestry more progressive and dynamic in favor of strengthening community sustainability.

5.2 Stakeholders' Collaborationin Community-Based Forest Management

The following articulates the practices of collaboration among stakeholders designed to address the second objective of the research. That is, ascertaining the structures and intensity of collaboration that exists among all stakeholders in CBFM. Hence, collaboration is explored mainly under communication styles and consensus building that all stakeholders engage in to implement effective community-based forest management in CSSU (Appendix-VIII, Table -02, and Table - 03).

5.2.1 Interactive Communication

Interactive communication is the first and foremost strategy of collaboration that meets the necessary conditions of CBFM. The form of interactive communication implies a strategy in which information is being transmitted and received among the actors with thoughtful feedback to find the solution together (GC, n.d.; McQuerrey, n.d.). Hence, the study embraces interactive communication as an overarching concept that explores the final themes like policy wise selection process, plantations and regular supervision, regular arrangement of meetings, negotiation and legal action, formal and informal contact. Each final theme explains interactive communication in detail along with necessary broad initial themes (Appendix – VIII; Table -2) embracing holistic practices in CBFM in CSSU. This is discussed in more detail below.

5.2.1.1 Policy Wise Selection Process

Communication is an essential condition in collaborative management. Every stakeholder should have good communication with each other for the sake of collaboration. In community forestry,

the main and preliminary task is to select the location for establishing a forest garden and roads for access to roadside gardens. In making forest or roadside gardens, beneficiaries should be selected from the nearest or adjacent area. In this case, perfect selection of location and beneficiaries can be challenging but is critical. It is also observed in my research area (Comilla Sadar South Upazila) that most of the stakeholders are very concerned with the location and selection of beneficiaries. Most of the respondents answered that there is a pressing need to follow the existing clause of "Bangladesh Social Forestry Rules -2004" in selecting people to be included as beneficiaries in community forestry. I found in my field observation that all stakeholders communicated well with each other to ensure optimal selection of beneficiaries. As respondents answered-

> "As to the successful implementation of community forestry, the roadside is to be selected firstly through the proper guideline of the BFD"—RC 03

> "Selection of a proper roadside for gardening of community forestry and selection of good tree species that will be grown up quickly" – RC 19

In roadside selection, the BFD communicates with other governmental agencies like BR, R&H, LGED, and UP to get their land for tree plantations. So, the BFD should have good communication and an effective organizational network with these departments. Effective communication increases the possibility to have lands for community forestry and allows the easy process of establishing community forests. In making contracts with respective organizations, the BFD has to follow the established policy, especially in determining the percentage of shared revenue from forest sales. In general, the respective departments get twenty percent (20%) of the revenue after the completion of tenure or contract duration. The BFD is trying to follow current rules in selecting locations and making contracts with those organizations that have land ownership. The BFD also has to make contracts or communicate with different types of stakeholders and agencies to have an authentic list of beneficiaries. This is considered a challenging endeavor by key informants,

> "We emphasize on the perfect selection of beneficiaries, the creation of the garden, and good maintenance. We also emphasize on making a good communication with local

government agencies. We do have field visits from time to time for sharing with beneficiaries about the nursing system and present condition of the garden"—RC 19

Frequently, some political influences and interferences can complicate the selection of beneficiaries. Consequently, there are incidences where some people are included who are not illegible according to the criteria that are set in rules and policy. In this case, there is no alternative way to have effective and rigid communication among stakeholders to get a valid list of beneficiaries. For that reason, the BFD communicates with UP and also with local people to derive authentic information about the actual socio-economic position on which beneficiaries should be selected.

5.2.1.2 Plantation and Regular Supervision

The primary aim of formulating community forestry in Bangladesh forest policy is to ensure the long-term sustainability of forests through tree planting and regular supervision taking into account the livelihood of rural residents. It is a common phenomenon that forests are at risk of damage and deforestation through encroachment, especially in the forest sector of developing countries like Bangladesh. In these circumstances, the evolution of community forestry has been regarded as an instant solution to this uncertainty, mostly because of the new provision of tree plantations and regular supervision. The challenge faced by forest loss can be partly met by encouraging community forestry with attention to three broad activities, notably, regular maintenance of gardens, protection and nursing the gardens, and encouraging strip plantations. Hence, my field observations revealed that almost all stakeholders are involved directly or indirectly in maintaining these management activities. For example, it was apparent that most of the beneficiaries are directly involved in nursing, protecting, and planting trees whenever needed. It is noteworthy that a managing committee and an assigned officer of the forest to ensure quality always supervise the work of beneficiaries. It is reported from my respondents that they work in community forestry under the direct supervision of a forester (officer from the BFD). The officers always try to give proper guidelines about the plantation, nursing and

protecting the garden. Respondents indicated that they have a very good communication regarding garden maintenance, such as-

> "I was involved as a treasurer of the committee. I would strictly maintain good communication with all other members of the committee. We are used to discuss in our communication about the nursing system of the trees and garden. Cutting the unnecessary branches of trees, keeping clean and watering the garden."—RC 17

It was clear from my data that most farmers communicate very actively, and through their discussions, are able to set priorities and address operational activities as needed. These activities could involve establishment of gardens, increase self-responsibility, supporting strips with sticks, usage of composed fertilizer rather than chemical pesticides. Moreover, they do trimming of unnecessary branches of matured trees, keeping garden clean, and picking up the weak strips as well as abandoning trees for quick growth of trees. As a respondent said-

> "As good maintenance of the forestry garden, we pick the weak strip up for sorting till the first seven years and the abandoned strips or trees would be distributed to beneficiaries according to their share. And have never seen any irregularities in distributing the abandoned parts of trees after cleaning." – RC 29

Eventually, it can be said that every stakeholder contributes to collaborative management by playing a role in plantation and regular supervision.

5.2.1.3 Regular Arrangement of Meeting

Frequent meetings have a great influence on collaborative management. There is a requirement to have frequent communication among all stakeholders to increase the intensity of the relationship among the actors of collaborative management. In my research area, all stakeholders are integrated with forest management through their thinking and activities. Most of the respondents indicated that management committees arrange meetings in a timely fashion and when the maximum number of executive members can attend. As the respondents said-

> "We are organizing frequent meetings to be active in the project. It might be one in every two months or two in every six months"—RC 09

> "We arrange the meeting in every three months in the presence of Bit Officer. We disburse the TFF money perfectly for the garden of second rotation." –RC 29

> "We do meet after every 4 months. More than 75% of members present in the meeting"—RC 20

During meetings, stakeholders share information about the present status of forestry including the level of damage and growth. In meetings, everybody gives an opinion. Beneficiaries get a chance to meet with local leaders, political representatives and government officials, those most influential in policy making and to whom beneficiaries can raise local necessity and demands. Moreover, the managing committee preserves meeting minutes in written form for future needs and records (Appendix-VII). A number of respondents indicated that meetings are very important and necessary just after the formation of the community forestry garden to ensure good maintenance for the first two years. Some respondents replied that meetings are not so necessary after the trees mature and therefore they arrange meetings less frequently in later years but keep in good communication with all stakeholders and with the forestry gardens. As a respondent said-

> "For good maintenance, we would arrange meeting frequently for next two years of garden's creation. Now it is not so necessary to arrange the meeting as all the trees have been mostly matured and no possibility of getting damage"—RC 23

In summary, it is apparent that regular arrangement of meeting and members' participation in thosemeeting makes all stakeholders active in engagement. As a respondent said-

> "We also try to keep active other members of the project through our verbal communication. Our chairman always tries to evaluate other's opinion for making them active and thoughtful"—RC 09

As is evident, there is a positive relationship between the occurrence of meetings and active engagement of members. It is also clear that active engagement of stakeholders in community

forestry improves collaboration which in turn ensures active engagement of members of the committee and eventually all stakeholders, as the below figure shows-
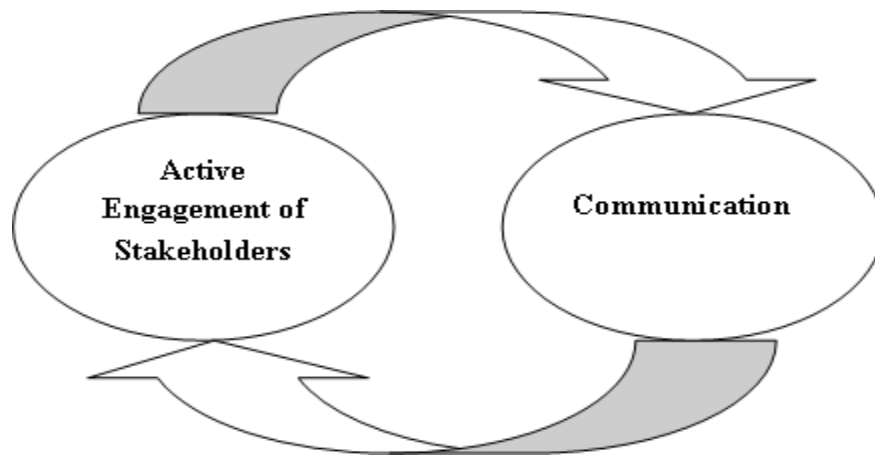
Fig-5.2: Showing a relationship between active engagement of stakeholders and communication (formulated by the author)

Hence, in collaboration, BFD's role is very noteworthy. The BFD carries out regular inspections andconducts site (field) visits as a means of achieving sound collaboration and management.

5.2.1.4 Negotiation

Collaboration follows the rules of having effective negotiation among all parties especially for securing compensation. As discussed before, there are multi-parties (stakeholders) in community forestry. Some stakeholders are individuals designated as beneficiaries while others are institutional or organizational like BFD, UP, and NGOs. It is clearly evident through my field observation that all stakeholders are engaged in complicated networking (showing in below figure-5.3) in terms of maintaining respective job responsibilities in CBFM.
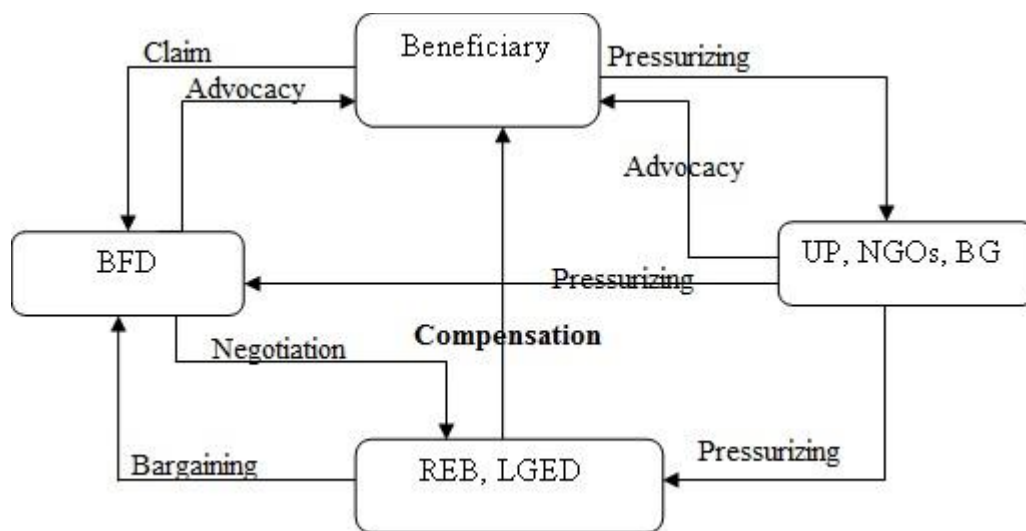
Fig-5.3: Showing compensation recoverysystem for beneficiaries through a complex networking among stakeholders (formulated by the author)

The above figure displays the mechanism of recovering compensation in favor of beneficiaries through arranging communication among stakeholders in CBFM of Comilla Sadar South Upazila. Firstly, beneficiaries tell BFD about their problems and claim for compensation. Simultaneously, beneficiaries pressure agencies for support. NGOs, UP, and BG also support the beneficiaries in favoring their needs by lobbying two parties, BFD for being sincere, and encumbering departments like REB and LGED for being flexible in producing compensation. According to the claims and pressures of other stakeholders, BFD arranges to negotiate with those departments that impede community forestry to seek proper compensation. Eventually, departments that impact on community forestry may arrange to compensate the parties following much bargaining and negotiation. In fact, such gains and concessions occur only because of collaborative management by maintaining good communication among the stakeholders. As a respondent said-

> "In fact their visit would be one in a month on average. Moreover, they come instantly if it is urgent or have any objection. For example, to arrange negotiation and to attempt for earning compensation from respective office like REB or LGED for destructing trees" – RC 02

Finally, community management and beneficiaries also keep intimacy with the landowners of the adjacent area of roadside forestry projects. Sometimes, these landowners raise serious

objections because every year shadows of trees cause significant damage to their cash crops. So, they are very likely to be the loser. After receiving such complaints, respective forestry committees will verify this matter and where appropriate, give compensation. As a respondent said,

> "We do try to compensate the loss of the adjacent landowner, if he claims or actually faces." – RC 02

5.2.1.5 Formal and Informal Contact

The stakeholders of community forest management are maintaining communication in both formal and informal ways for the sake of collaborative management. Formal communication is being mainly maintained within institutional networks. For example, communication is maintained between the managing committees and the BFD, or between managing committee and UP. Further, the institutional representatives mainly communicate in meeting with members of the forestry committee. On the other hand, informal communication is mostly seen among the beneficiaries. They often communicate with each other in the local market or in tea stalls. They discuss community forestry regarding its nursing, protection, or any kinds of problem that encounter. As a respondent said-

> "The communication style in the community forestry is like informal. It mostly happens in the local hat (market) when we go there for domestic things. So that, we get together, exchange our greetings, and discuss for taking action about various issues of community forestry like nursing the garden, plantation strips, and protection" RC – 02

> "We do communicate informally at least to all members of the beneficiary groups" – RC 07

Some beneficiaries think that informal communication is better because they feel more comfortable sharing their own views. For that reason, more than half of the respondent favors informal communication.

Summary

The findings discussed above present a holistic scenario of interactive communication (fig-5.4). It is seen that beneficiary selection, the first step of community forestry, requires good interactive communication among local people of the rural area to have a very effective community forestry program. There are some criteria that should be maintained in selecting beneficiaries and in doing so, the BFD representatives need to maintain contact with local people who provide socio economic information to help in the selection process. Similar interactive communication is also made with other governmental agencies for selecting location because of the need to get land from R &H, LGED, and BR. In this case, BFD maintains effective communication with that particular organization to get land for community forestry, as it pursues a collaborative process. Similarly, in other facets of community forest management like supervision, meeting arrangements, negotiation and formal and informal communication, there is a need to maintain collaboration. For example, all executive members of the community forestry committeeare very sincere in arranging meetings and they disseminate information to each other about the time and agenda of the meeting. Furthermore, all beneficiaries are very dedicated and devoted in supervising, nursing and protecting gardens. In ensuring better gardening, BFD's assigned officers are
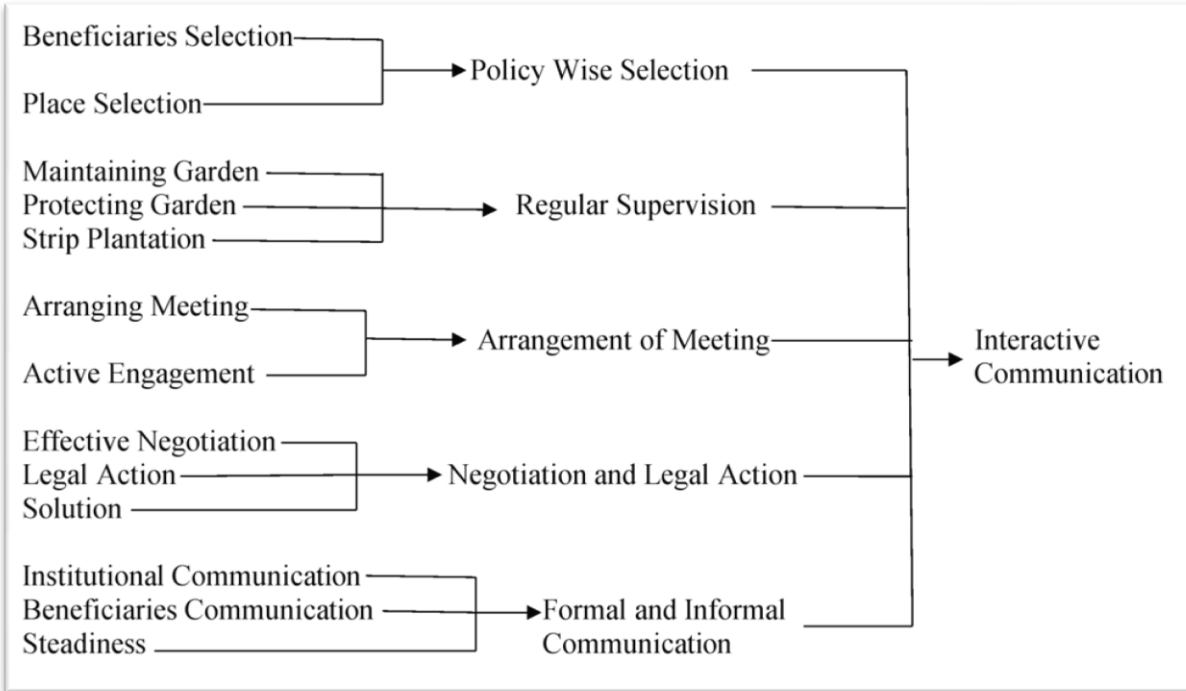
Fig-5.4: Showing a Tree of Interactive Communication (formulated by the author)

communicating to field level personnel for supervision on a regular basis to satisfy beneficiaries. In addition, all stakeholders especially UP's members, beneficiaries, and officers of the BFD, are interconnected with each other to arrange fruitful negotiations with other government organizations (encumbering departments); if their tasks raiseany barrier to community forestry. For example, REB's electric cables and LGED's road extension often damage many trees within community forests. In such cases, all relevant parties arrange negotiation to minimize losses. Thus, interactive communication of all stakeholders contributes to collaboration, and in such a way, all stakeholders keep themselves active, dynamic, and prompt in advancing community forestry.

5.2.2 Consensus Building in Making Decisions

Consensus building is another important strategy of collaboration that meets some essential conditions of CBFM. Hence, the study embraces consensus building as an overarching concept that explores the final themes like diversity and plurality of thinking, agreement upon the consideration of expertise in management, maximum participation and common interest,

dissemination of information, consent-based decision, evaluation of members' opinion, and absence of dialectical relationships (Appendix – VIII; Table -3). They are discussed below-

5.2.2.1 Diversity and Plurality of Thinking

One of the main characteristics of CBFM is the maintenance of diversity and plurality in activities. Community-based forest management is often used synonymously with participatory forest management because both follow a participatory approach is the basis of its management and operations (Petheram, Stephen, & Gilmour, 2004). A participatory approach in natural resource management always gives priority to diversification in thinking and consideration of plurality in action. As was evident in my field visits, most respondents, representing almost three fourth in Comilla Sadar South, pointed out that every member of the beneficiary group could express their views in meetings even if they were not members of the executive committee. As one respondent said-

> "When it needs to take any decision regarding community forestry, all beneficiaries and members of the executive committee and even those are not involved in community forestrywill be informed and requested to give the opinion. The president of the committee presides over the meeting and finalize the decision on the basis of the opinion given by all members" – RC 03

On the other hand, all stakeholders like UP and representative of BFD are also present in the meeting. Their presence and active involvement in decision-making system proved that there is a practice of diversity and plurality in CBFM. Regarding the diversification and plurality, some respondents' views are important, as-

> "In management committee meeting, it is seen that some diversification of opinion and opposite thinking to each other"—RC 01

> "It is very normal to have a different opinion in a meeting"—RC 02

5.2.2.2 Agreement upon the Consideration of Expertise in Management

 Community-based forest management is fully pledged to make a balance between the diversification and the quality of decisions. In ensuring the quality and effectiveness of activities, the forestry managing committee certainly considers the expertise in taking all decisions. For that reason, two factors are being very important in management; one is experience and another one is bureaucracy (Fig 5.5).
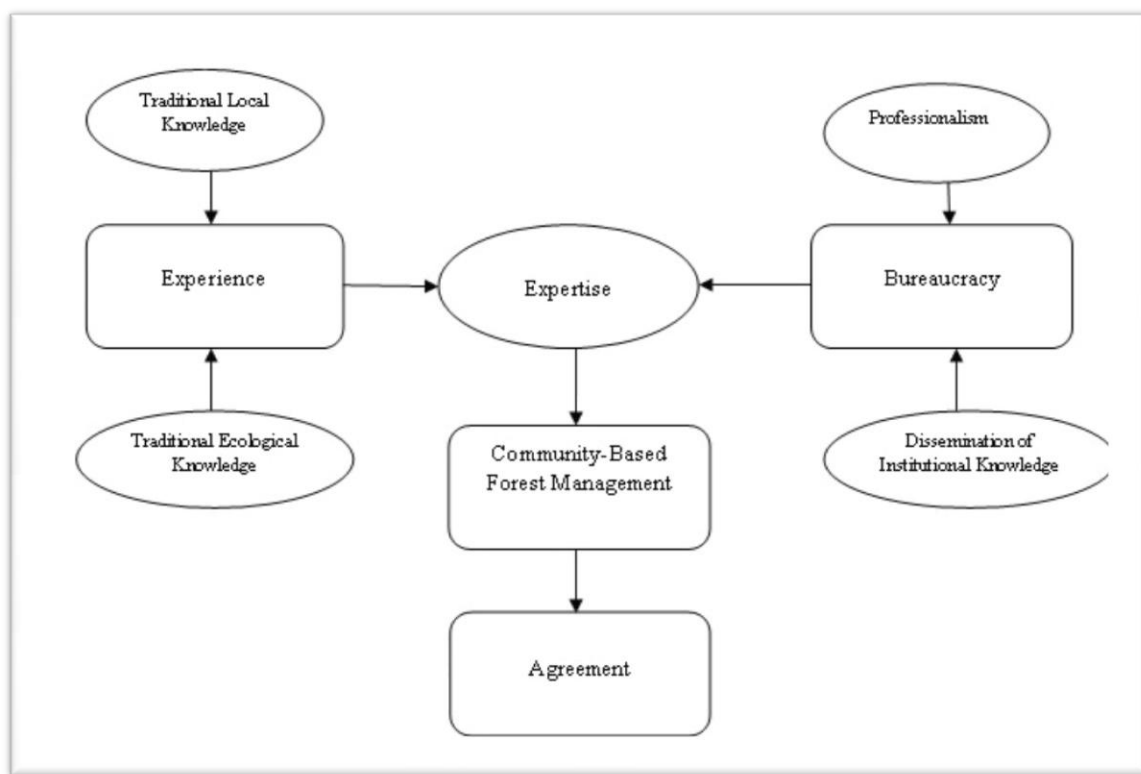
Fig-5.5: Merging of experience and bureaucratic knowledge in CBFM through expertise (formulated by the author)

Hence, the view of people with experience gets high priority because of the value of traditional local knowledge (TLK) and traditional ecological knowledge (TEK). The experienced person or members of the committee or beneficiaries purportedly know better the existing practice of traditional, cultural and ecological patterns. This factor should be taken into account in community-based forest management and conservation. Regarding this issue, a respondent said-

"However, the experienced people's opinion is getting priority in making the decision because of knowing better about traditional practices and geographical aspects" –RC 02

On the other hand, each and every activity should have conformity with the existing rules and regulations as the country has an act called "Social Forestry Rules - 2004" that was included in "Forest Act-1927" (Appendix- IX). The BFD is part of the Bangladesh bureaucracy; its officers have good knowledge and ideas about the existing rules of community forestry. They know every clause of those rules better than any other members or stakeholders of the community forests. Therefore, it is mandatory to have them as part of the government bureaucracy. They help the executive committee with legal and administrative support on a range of activities that must be conformed to social forestry rules. Hence, a respondent's praiseworthy note-

"It should be noted that there is a great influence of the representative of the forest department (BFD) in taking the decision as his/her opinion would be the representation of the final decision. In this case, the respective officer of the forest department would always try to consider the need and demand of all other beneficiary members in giving his/her opinion so that all members could fulfill their personal and common interests with maintaining the interest of the environment. Therefore, it is clear that no personal interest would be prioritized more over the common will" - RC 01

Therefore, the participation of experienced individuals and members of government agencies in meetings is not only mandatory but their thoughtful views and opinions are also cordially expected and appreciated.

5.2.2.3 Maximum Participation and Common Interest

It is a precondition of CBFM to ensure maximum participation of executive members and to fulfill common interests on a priority basis. It is an essential requirement of the participatory model to have a combination of all stakeholders in terms of gender, professional, and status. The president of the executive committee of community forestry attempts to have the participation of all members of the committee. The members are also very inclined to attend meetings whenever they get calling. As a respondent said-

"We get one meeting in every twenty days where more than 70% members participate in that meeting" –RC 02

There is no specific clause in existing rules about a quorum for meetings. Still the president tries to get the participation of all members or at least two-thirds of the members. Importantly, the management committee emphasizes common interests rather than personal interests. According to the clause of the social forestry rules, each decision should be made with at least two thirds of the members. In case of failure to have two-thirds of the members in attendance, a decision should be taken according to the majority of people. If it is also not possible to have a majority, then the file goes to an advisory committee and the committee finalizes the decision on the basis of common interest. Regarding this matter, a respondent said-

"….. so that all members get their personal and common interests with maintaining the interest of the environment. Therefore, it is clear that no personal interest would get preference only over the common will"-- RC 01

The community forestry committee process ensures maximum participation of its stakeholders and every member is always expected to provide the opinion with a view to establishing the CBFM on dissemination of knowledge and information. Sharing is the best way to have success in any project practicing community forestry activities. I found in my research area that more than half of the respondents (53 percent) interviewed share their knowledge and experiences when they gather. This kind of sharing certainly can enrich their knowledge base. It also allows for updated data and information that might be helpful in doing forestry activities. For instance, if individuals have a chance to participate in training or workshops, knowledge and information can be disseminated through formal talks or discussion sessions.

5.2.2.5 Consent-Based Decision

Community forestry considers diversification on one side, and considers consent on the other, because where there is diversification, there must be consent or agreement. So, community forestry management is bound to maintain both diversification and consent in its plans and

actions. The community forestry project in Comilla Sadar South Upazila (sub-district) is mostly maintaining and achieving the rigorous agreement between maximum members of the committee. Based on social forestry rules, it is clearly stated that a minimum two-thirds of the executive members of managing committee should be in agreement in finalizing any decision (section 12, sub-section 5, Bangladesh Social Forestry Rules-2004). In this case, some respondents' views are noteworthy-

> "Community forestry could be the best example of making consensus…….." – RC 01

> "All beneficiaries show their consensus in a given decision. Everybody would be agreed on any issue or decision made" – RC 03

> "Our discussion and final decision in the meeting are the representation of everybody's thoughts" – RC 05

Another important point in Comilla Sadar South Upazila community forestry is to have an equal evaluation of every member's opinion. Almost half of the respondents (47 percent) interviewed feel free, because of getting positive evaluations, to express their own opinion in meetings or in any informal gathering regarding community forestry. Eventually, the decision would be finalized on the basis of everybody's opinion and mutual evaluation.

5.2.2.6 Absence of Dialectical Relationship

There is a good characteristic in Comilla Sadar South community forestry, notably, the absence of dialectical relationships. Almost every issue is being discussed in meetings and everybody has good provision to express his or her view but no conflict was found in any matter of discussion. Hence, it should be noted that almost all of my respondents answered (80 percent) that they do not face or see any conflict in their management. However, I have to disclose some answers given by my respondents, as-

> "But it does not make any conflict among the members of the committee and all are consensus upon which the final decision is taken for action." -- RC 01

> "No conflict we are facing in that meeting" – RC 02

"And it is noteworthy to note that there was no conflict I ever found in the discussion of the meeting though diversification of opinion was found"—RC 03

"No dialectic relationship is found among the members of the community. Everybody listen to others' opinion and comes in agreement. Nobody feels loss" – RC 07

The absence of dialectical relationships proves that it is very easy for good decision-making with consensus on any issue of community forestry. Further, beneficiaries feel high reliability and credibility on managing committees, the main responsible body of taking decisions. The present practices of the evaluation of members' opinionshelps ensure such reliability and credibility. As a respondent said –

"In taking the decision, we are used to discuss generally more than sixty minutes on any issue. So we are satisfied in the system that ensures the highest level of reliability and credibility. And there is no conflict among all members of the committee."—RC 09

Summary

The findings discussed present the scenario of consensus-building (fig-5.6) Community forestry is somewhat built on diversity and plurality of management because of the incorporationof four kinds of stakeholders in its activities, notably, BFD, beneficiaries, UP, and NGOs wherein BFD and beneficiaries are actively involved in taking decision considering mutual understanding with each other.
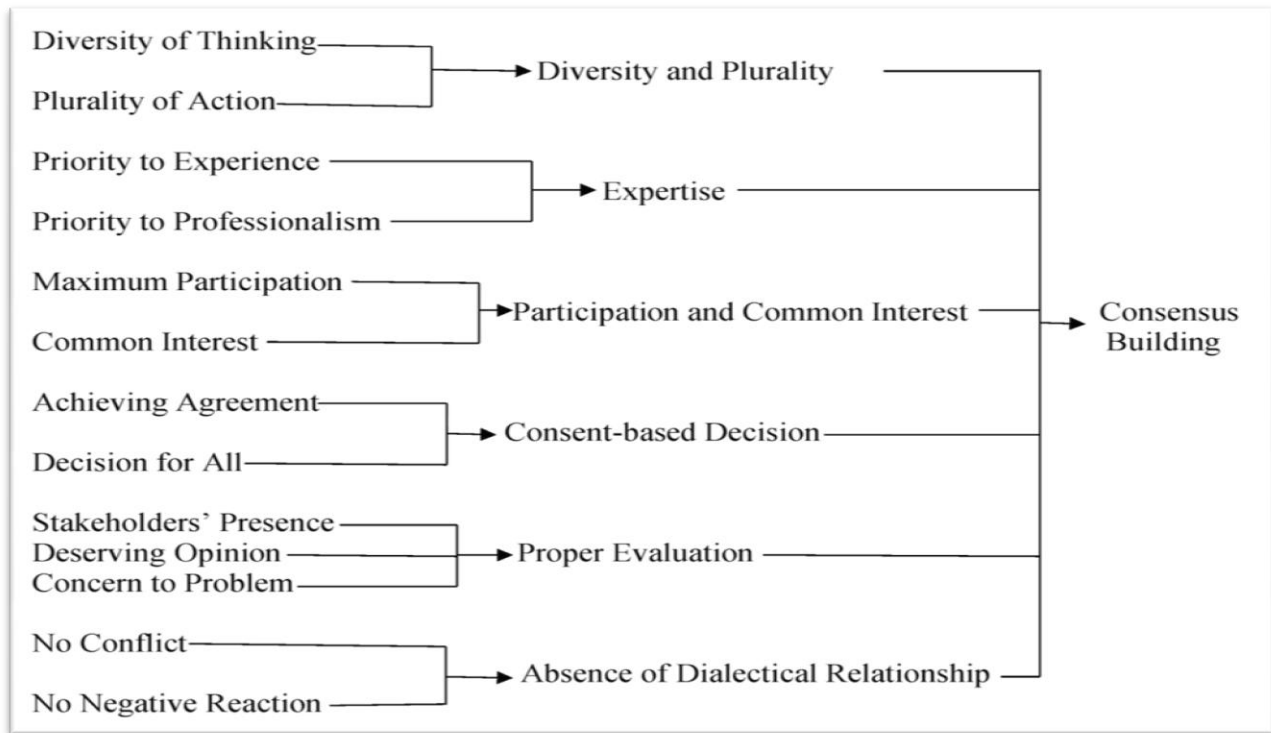
Fig-5.6: Formation of consensus building in community forestry management (formulated by the author)

These groups also build consensus in giving priority to skills, experience, and professionalism of stakeholders. For that reason, it was seen that the people involved in community forestry are getting priority in finalizing decisions. Priority to the common interest and ensuring maximum participation are also indicators of consensus building that are being maintained by stakeholders in their accomplishment. In addition, one of the main strategies of reaching consensus is to evaluate positively ones' opinion by others that are being maintained in CSSU. Furthermore, stakeholders' diversification in thinking, views, and opinion never create any long-term dialectical relationship that could adversely affect consensus building and the total management of community forestry. Therefore, it is postulated that community-based forest management in CSSU always tries to maintain consensus building in taking initiatives in community forestry.

5.3 Integration with other Types of Collaborative Strategies

There are additional strategic approaches to collaboration in community-based forest management that I explored in CSSU. These approaches allow for conformity with existing management strategies. These strategies follow existing community forestry rules in all aspects of management like making the decision, consideration of equality, learning process, co-financing system, maintenance of accountability and transparency, and evaluation of performance. All of these strategic practices are being shaped and established through collaboration in which all stakeholders are communicated with each other. These collaborative strategies are discussed below-

5.3.1 Integration with Existing Community Forestry Rules

5.3.1.1 Consciousness about Rules

The integration between existing community forestry rules and actual practices of community forestry activities should reflect a level of consistency. The "Social Forestry Rules-2004" is a legal framework of Bangladesh community forestry and the stakeholders are very inclined to follow the rules in running their activities. During my field observation, it was noted that more than half of the total respondents (56%) were aware of existing rules that govern community forestry and more than 36 percent of these respondents have had a rules booklet (Social Forestry Rules-2004). Moreover, a significant portion of the respondents (seventy percent) were more or less conscious of the conformity between rules and practices (Appendix-IX, Table-01). All of them think that the activities of the community forestry in Comilla Sadar South are being maintained following "Social Forestry Rules-2004". Hence, some respondents' answers are noteworthy-

> "Yes, I am well-aware about the Social Forestry Rules-2004 of Bangladesh. I have this booklet in my collection. However, some important issues like the involvement of NGOs actively in community forest management with enjoying the financial benefit in exchange

for their efforts like providing training and workshopshould be considered. Still it is clearly stated in the rules but not in practice" -- RC 01

In the above statement given by a respondent, it is seen that the respective respondent is concerned about the active involvement of NGOs in community forestry, as NGOs are involved verbally but not in practice. In this regard, the respondent thinks that every task of community forestry should follow existing rules. Otherwise, any inconsistencies between the rules and practices could hamper the normative pattern of community forestry. A respondent also expressed his concern, as-

> "Yes, I know about the social forestry rules-2004 that I collected from our management committee. It is regrettable that these rules are not being followed and maintained properly. Nobody follows the rules. For example, Forest Department allotted one-kilometer road to 5000 beneficiaries where it should be only 1000 by rules" -- RC 07

In the above statement, it is clear that beneficiaries and executive members of the community forestry are conscious about the maintenance of rules in plan, action, and accomplishment.

5.3.1.2 Motivation in Updating Rules

Community forestry rules were incorporated in the Bangladesh forest act in 2000 by amending the "The Forest Act-1927" (Appendix- X). There is a need to amend this Act on an ongoing basis to address changing needs and current demands. For that reason, the community forestry rules of Bangladesh require amendments, particularly to allow for involvement by NGOs, the inclusion of business entrepreneurs and adjacent landowners, and employing actual beneficiaries. Most of the respondents feel the necessity to update current rules and policy. It is also apparent that the respective government officials including officers of the Bangladesh Forest Department are also motivated to update existing community forestry rulesas well as to reformulate the existing forestry policy of Bangladesh. As a key informant said-

> "We are doing efforts to update the social forest act"—RC 30

In field observations, key informants argued that adjacent landowners should be included in community forestry projects to allow them to derive some financial benefits. The rationale for this view is that landowners are very likely to be a loser because their young crops may be damaged by shade fromtrees of nearby farms. As a key informant said-

> "In selecting beneficiaries, we should consider the landowner of the adjacent area of the roadside project. Sometimes, we should think about powerful people of the area in selecting beneficiary because they are capable enough to protect the garden than poor people. Therefore, we have to formulate context-based policy"—RC 30

The above statement also indicates that economically and politically powerful people sometimes helpful in sustaining the project. As the economically and politically solvent people occupya strong position within the community or in their respective area, their voice is very influential in keeping community forestry free of any disturbance.

5.3.1.3 Inclination in Maintaining Rules

The beneficiaries are not only conscious of forestry rules but also are inclined to maintain the rules in their assigned jobs. Although some respondents do not have the collection of the booklet of community forestry rules, they show their interest to get it at any cost. Some respondents said that it is difficult to get a printed copy or photocopy of community forestry rules because they live in a rural area. As respondent said,

> "……. well known about the social forestry rules but does not have the collection of the booklet yet. I amtrying to collect it immediately"—RC 09

To follow the rules in their (beneficiaries) community forestry activities, they ask the president or secretary of the executive committee about the matter when they face any problem regarding the rules. As another respondent said-

> "Yes, I know and I have the collection of this booklet. Still Social Forestry Rules-2004 is OK, but the problem is to break the rules in practice. For example, selection of beneficiary which is not being followed perfectly. For that reason, local people should be

more conscious about this matter and the agencies of the local government should be sincerer in selecting the actual beneficiaries for the project"—RC 19

The localpeople are concerned about the beneficiary's selection process. Some respondents think that respective departments should be more careful in the process of beneficiary selection so that the assigned rules are not violated.

5.3.2 Maintaining Equality in Community-Based Forest Management

Maintenance of equality on the basis of gender and economic status is the first and foremost strategy of collaboration that meets the necessary conditions of community-based forest management. Hence, the study embraces two overarching concepts; notably, the woman in CBFM and economic position in community-based forest management. Hence, the scenario of the status of woman in community forestry in CSS as an overarching concept explores the final themes like rare participation of the woman, and priority to females in management. Another overarching concept, the scenario of economic position in CSSU elaborates the present condition through exploring final themes like the managemem which has no economic influence in taking decision, and evaluation of performance. These factors, discussed below, depict a general scenario about the status of equality along with broad initial themes (Appendix- VIII; Table -04) in community-based forest management in CSSU.

5.3.2.1 Women in CBFM

In Bangladesh, CBFM makes provision for women to be included in both beneficiary and managing committees. The inclusion of women in community forestry is established within a legal framework. The Bangladesh Government formulated community forestry rules named "Social Forestry Rules-2004" in which the rights and position of womenare clearly defined in terms of getting priority in the selection of beneficiaries and as members of the executive

committee. For example, the rule states in Section - 6, Subsection-2(Ga) that "Poor Women" will be prioritized in beneficiary selection. In formulating managing committees, the rule clearly states in Section-9, Subsection-1(ko) that managing committees will be formed with five members of which at least two members will be women. As well, in Section-9, Subsection-2 states that all members of the committee will be elected by the beneficiaries of the respective area and at least one-third of the members will be elected from women (MoEF, 2010, p. 10-12). Therefore, it postulated that community forestry established the right of women in its plan, process, and rule formulation. However, it is not yet clear whether in practice women's participation in community forestry is adequate; this is particularly relevant in the case of Comilla Sadar South community forestry projects. My field observations disclosed that there were low levels of participation by women in Comilla Sadar South community forestry. According to the present scenario, their (women) involvement could be recapitulated below.

5.3.2.1.1 Rare Participation of Woman

The involvement and participation of women in community forestry in rural Bangladesh are not adequate. In fact, the lack of active involvement of women is not only the state of community forestry but also a common scenario for almost all development works in rural Bangladesh.This is also the same case in community forestry in Comilla Sadar South despite well-established community forestry rule that calls for women's rights and equality. In this case, some respondents' answers are very noteworthy-

> "In fact, female's participation is very rare in the development work of Bangladesh rural area. So, it is hard to ensure the spontaneous participation of women in rural participatory forest management" -- RC 03

> "There is no female member in the management committee at present because of the absence of any female member during the time of organizing management committee" -- RC 01

> "Female members are not active though they are involved documentarily. They are just involved financially but not giving labor in the garden" -- RC 06

In analyzing the above statement, it can be said that the participation of women in Comilla Sadar South community forestry is rare though women are very encouraged to be involved actively in

community forestry. The main causes of rare participation of women in community forestry relate to traditional and conservative thinking, stagnant social structure, and socio-economic conditions. Comilla Sadar South is a rural area and most of the inhabitants are farmers and directly or indirectly involved with agriculture and agricultural activities. Generally, the education level of this sub-district is low and because few options exist most inhabitants are compelled to be involved with agricultural activities rather than commercial services and other jobs that require advanced educational qualifications. Consequently, these kinds of socio-economic conditions make inhabitants of the Comilla Sadar Southstagnant, traditional, and conservative in thinking. Some of the respondents feel that there is little need to involve women in community forestry. As a respondent said-

"Women are not physically capable of employing labor in forest gardens"-RC 09

For that reason, it is hardly possible to ensure equality on the basis of gender in community forestry. Some beneficiaries and key informants also feel the same. For instance, a respondent said -

"Now it is not possible to ensure equality on the basis of gender because females are not interested in participating spontaneously for traditional structure of our society" - RC 17

"Because of traditional, conservative, and stagnant social structure that is not pro-women participation in any development works in the rural area" —RC 01

Although the participation of women in community forestry is rare and women are not still interested to be involved actively, it is admirable that women's active involvement is expected by all other members of the CBFM. The notion of giving females priority is addressed below.

5.3.2.1.2 Priority to Females in Management

The active participation of women in community forestry is not only supported by community forestry rules but also encouraged by the members of executive committee. My field visits indicated that male beneficiaries and members of the committee always expect participation of women of all ages to make equality in forestry activities. Field data indicated that seventy percent of respondents (Appendix- IX, Table-02) were inclined to favor women's participation in community forestry. As for evidence, some respondents' speeches are noteworthy -

> "In fact, management committee wants the direct and spontaneous participation of women to make it equal to men participation" -- RC 01

> "……but females are most welcome to be involved here" -- RC 17

> "Females are not significantly involved in the project but management committee always gives priority to be involved with the project activities" -- RC 19

Women could participate in community forestry in two ways; one is to be listed just as a beneficiary and another is to be a member of the executive committee. In both cases, women are encouraged to participate. Some evidence is provided from the following response –

> "We always give priority to the female beneficiary and also give them scope to be involved in managerial activities" – RC 30

A key informant who explained that the managing committee and community forestry as a whole are very pleased to have women in management gives the above statement but they are not willing enough to be involved. The main cause might be their stereotype of family and social structure that is not favorable to the involvement of women in economic activities. Interestingly, some female respondents are automatically beneficiaries if their husbands die (MoEF, 2010). However, in such cases women may not have an interest or may be unaware of the provision for them to participate. As noted below-

Field Note:

> "The respondent (female) has been involved in community forestry automatically because of her husband's death. She has not been informed about her involvement and the management committee of the community forestry also did not know her about this involvement on the basis of succession. Besides, her husband also did not inform her as she would be the beneficiary after his death as successor. So, she was fully ignorant and unaware of this issue. Therefore, she knows nothing about the activities of this forestry, her beneficiary sharing, and community forestry rules" – RC 08

Some women were still interested and curious and weremotivated to be involved in and to know about their local community forestry. A few are involved in running forestry projects. As a respondent said -

> "We have two female members who come to meeting and give opinions spontaneously". – RC 20

It is also noted that the opinions of female members are being regarded and evaluated positively as much as possible. A respondent said about his daughter's curiosity about his forestry garden, in which she always keeps watch during her movement. As-

> "…… anyway, my daughter is very interested in these activities and she involves indirectly with this community forestry. On the way to her college, she always used to observe and kept watchingthe tree plantation during the movement and instantly informed us if any problematic situation occurred" -- RC 03

Moreover, some female members continue to try and get information about community forestry, especially information related to how the garden nursing is running and how the garden is contributing to the environment. Regarding this matter, a field note is noteworthy:

Field Note -

> "However, she has a great intention to be involved actively. For instance – involvement financially in the creation of the garden, to be presented in the monthly meeting, sharing thoughts and giving the opinions. She showed interest to be involved in the nursing of the garden as well. Moreover, she is well informed about the usefulness of forestry that must be good for our surrounding environment as well as social relationships and

economicviability. Tree produces oxygen and absorbs carbon dioxide from the atmosphere that is good for our health essential for keeping the environment cool. She is also informed about the role of Union Parishad (UP) in protecting forestry. She urges that the landowner of the adjacent to roadside of forestry should be compensated properly. On the other hand, the beneficiary also should be compensated in case of losing trees because of any development works like setting up the electric pole or road extension" – RC 08

5.3.2.2 Economical Position in CBFM

5.3.2.2.1 Economic Influence Free Management

There are a lot of activities related to economic factors in community forestry and its management. The selection of beneficiaries is one of the main tasks of management. The community forestry rules formulate specific criteria in selecting beneficiaries (Section-6, Subsection-2) like landless people, landownership below 10 decimals (the people who have agricultural land less than 10 decimals), poor woman, under-privileged, backward groups (not clearly defined in rules, but could be measured in terms of social and economic indicators like illiteracy, source of income), poor indigenous, and poor forest villagers (MoEF, 2010). It is seen that the formulation of criteria underpinning selection does not support just the affluent or wealthy landlords, but also the wider population. The rules associated with beneficiary selection is mostly implemented in the field and the executive committee is inclined to select beneficiaries those are most vulnerable within the area. The management committee of community forestry is formed based on enlisted beneficiaries. As a respondent said-

> "There is no scope in general to influence more on the total activities of the community forestry in term of economic status. It has been seen that the people, those are comparatively more economically richer than others, are not getting any extra opportunity to impose their will over others in the meetings of community forest management committee. All people are being judged equally and accountable to the whole body for their assigned job" - RC 03

In my field observation, I determined that sixty percent (60%) of respondents feel that there is no special priority to economic solvency in selecting beneficiaries. Moreover, almost fifty-seven percent (57%) of respondents think that the existing executive committee is working neutrally and independently and do not give priority to economic power and pelf in activities (Appendix-IX, Table-03).

5.3.2.2.2 Evaluation of Performance

Every beneficiary of community forestry and member of the managing committee will be evaluated on the basis of their performance. The beneficiaries who work sincerely, complete their assigned job on time, and attend meeting regularly may be selected as an executive member of the committee. As a respondent said-

> ".... positive evaluation always goes to the person who works actively and earnestly" - RC 06

In fact, sixty percent (60%) of respondents feel that the managers of community forestry in Comilla Sadar South Upazila evaluate the performance of members (Appendix-IX, Table-03) based on their assigned duties. It is also true that there is provision for experienced people and those will be prioritized in selecting beneficiaries or members of the committee. As a respondent said-

> "There is no influence of economic status; everybody is equal in terms of membership of the community. But those are experienced and possessed of good knowledge on community forestry activities are most welcome to play the key role in the project management." – RC 17

Experience is being also taken into account in managing community forestry activities. It is very important to have an experienced person especially in the garden of the first rotation, because at that time, all beneficiaries are fresh and none of them has experience in doing work in gardens. For that reason, an experienced person will be taken into consideration and given priority as the beneficiary providing they meet the criteria.

However, there are some critiques from respondentswho indicated some individuals get priority as beneficiariesbecause of their affluence or their relationship to others with economic power or status. As a respondent said-

> "Sometimes it is hard to maintain equality. The person, who has enough money and has a warm relationship with comparatively richer people in the village, will get priority in all cases. The same condition is seen in the selection of beneficiaries where many poor people were ignored from the list of the beneficiary." -- RC 10

5.3.3 Learning Processes in CBFM

A learning process in community-based forestry is being followed using both a formal and informal learning system. In fact, community forestry in some areas arranged a formal learning system through the organization of training and workshops by the BFD and NGOs. Hence, NGOs, according to the clause of community forestry rules (Section-21) are the most suited actors to present training for beneficiaries for which they will get paid at a certain rate from the BFD (MoEF, 2010, p.21). On the other hand, the informal learning system (sefl learning) is being followed by all beneficiaries through interactions, chatting and gossiping. The learning systems that I encountered during my field visit are summarized below through the overarching concept used to address the objectives of the research. The overarching concept focuses on broad initial themes, and final themes from the line by line coding systems of answers from respondents (Appendix-VIII, Table-05).

5.3.3.1 Formal Learning System

The main formal learning system in Comilla Sadar South community forestry was organized with collaboration between Comilla Social Forestry Division (BFD) and NGOs. The BFD as a government agency employed reputed and experienced NGOs to arrange training and workshops for beneficiaries. NGOs on behalf of the BFD selected beneficiaries as trainees for two days or three days training. As a respondent said-

"...... Now all members are getting a proper training about the necessity and mechanism of tree plantation by other co-members. Moreover, after selection of beneficiaries, they would be oriented under the support of NGOs and Forest Department. These training sessions include nursing of trees, importance of tree plantation and its impacts on the environment in the long run, and regular maintenance of garden" – RC 01

In my research area, almost half of the respondents (Appendix - IX, Table-04) received training arranged by NGOs with the collaboration of a forest department officer. All of them think that the training they received was very helpful and effective. They were exposed to various issues and learned about the nursing and protecting system of community forestry garden. As a respondent said-

"Learning process is done by the Forest Department. They taught us about planting and nursing system of trees and also about keeping distance between the two strips and fertilizing system at the beginning of the project. However, I think, everything is perfect so far regarding the learning process"—RC 10

"First, we received training about the forest and a suitable place and time to plant trees with the presence of a Range Officer. The training was so helpful and inspired for doing more works and planting trees"—RC 09

The training and workshop activities followed several different agendas around which discussions took place. Agendas include agroforestry and nursing, the importance of community forestry, maintenance, strategies of agriculture, the importance of tree plantation and its impacts upon the environment.

5.3.3.2 Informal Learning System

The present and more common practices of learning in community forestry involve an informal system of learning. Hence, the informal learning system means that the beneficiaries get ideas from family members or from other members of the community forestry project, including ideas about nursing and protecting the garden. In my research area, more than half of the respondents (Appendix - IX, Table-04) did not get any formal training but they gathered ideas about

community forestry from informal discussion with forest department visitors. As a respondent said-

> "Learning process is very informal. Sometimes Forest Department teaches and gives important suggestions to the beneficiaries and management body about tree plantation and management. Subsequently, the management committee also provides their knowledge to all other beneficiaries during daily communication in street or local market or in tea-stall." – RC 19

It is also noteworthy that it is positive to have formal learning through training and workshop but this is not mandatory and farmers will not face problems if they do not get it. Fortunately, because most people of Comilla Sadar South are engaged in agricultural activities, they are already very familiar with the nursing system of the trees. As a respondent said-

> "Actually everyman is well-awareabout the nursing system of tree garden, since we are rural people. Anyway, we did not get any formal training or workshop from the authority" --RC 02

Historically, rural people get their basic learning about trees, and the planting of trees from their family as it is a tradition in rural areas. One respondent said-

> "Actually learning process in community forestry is mostly about family-based learning. As I get from my parents and I teach to my children too" – RC 05

For that reason, the government thinks that training can sometimes be skipped as a means to address their budget constraints. Another reason is that it is not always possible to organize training because of the inactivity of NGOs. Initially, NGOs were the main responsible body for arranging training in Comilla Sadar South but they are currently no longer involved with community forestry and no training is being arranged. As a respondent said-

> "But now the learning process is going informally because of not having involvement of NGOs and there is a deficiency of financialresources. The people who are comparatively more experienced is responsible to orient others, especially to the new comers about the whole procedural systems of community forestry" – RC 01

Consequently, beneficiaries are bound to seek and take help of experienced persons who are already involved in the community project. Their communication mostly is being held in informal ways especially in local market when all of them go to purchase goods.

5.3.4 Co-financing System in Community-Based Forest Management

The matter of financial gain of Comilla Sadar South community forestry is related to both the institutional funding system and personal spending money. In fact, the primary and main sources of community forestry are BFD funding in terms of government revenue and TFF funding. This revenue comes to the community through the social forestry wings of the BFD. The BFD follows the "Social Forestry Rules-2004" for disbursing the money to the respective community and its beneficiaries. On the other hand, the respective beneficiaries and the management also spend their personal money, where BFD funding is inadequate, to carry out any extra expenditure in support of community forestry. As a respondent said-

> "The main source of money (spending money) is BFD funding but sometimes beneficiaries also contribute financially in case of getting deficiency in government funding." -- RC 19

> "We are sharing financially to community forestry with the Forest Department. But the large part of the total expenditure comes from the Forest Department"—RC 17

Therefore, community forestry is being run with not only BFD funds but also with the beneficiaries' investment. For that reason, the community forestry financial system can be regarded as a co-financing system with the contribution from both the government and the community. Their co-financing system is coded and articulated with themes and overarching concepts that figure out institutional investment, personal investment and keeping transparency in financial dealings (Appendix-VIII, Table-06).

5.3.4.1 Institutional Investment

Basically, community forestry is being financed by the government. Hence, the government finance department oversees the institutional investment and ensures this kind of investment is following the rules and regulations that are articulated in "Social Forestry Rules-2004". Section-22 and -23 of social forestry rules are the statements of tree funding and its utilization in community forestry. As the rules state (section -22, and subsection-3) there will be a formation of the fund and all kinds of expenditure like the costs of tree plantations, and its nursing will be carried out with the utilization of this fund (MoEF, 2010). My field visit in Comilla Sadar South community forestry disclosed that initial funding especially in making the garden of the first rotation comes from the government. Respondents were very consistent in their answers to this issue with more than eighty-six percent (86%) of them confirming government support for initial startup (Appendix- IX, Table-05). As a respondent said-

> "Forest Department provides money in forming a garden of the first rotation. Later 10% of the total money, which we collected from selling the first rotation of garden, is disbursed to create a garden of the second rotation."—RC 01

> "Most financial accumulation comes from BFD funds through the forest office in making garden of the first rotation."—RC 28

The BFD on behalf of government disburses funds to community forestry projects through a fund managing sub-committee, which is comprised of three members. This sub-committee is fully responsible for dealing with all financial matters through a STD bank account (MoEF, 2010). On the other hand, in making the garden of second rotation, the total amount of money will be accumulated from TFF that was derived earlier from garden sales. As a respondent said-

> "Main financial source for making a garden of the second rotation is to use ten percent money (TFF) of previous garden that has already been sold. We received seventy thousand taka that was ten percent of the revenue from the previous total selling. In fact, the BFD provides the whole amount of money in the garden of the first rotation."—RC 05

5.3.4.2 Personal Investment

It was seen that the majority of community forestry garden projects face a budget deficit making the management of the community forest projects very challenging. In these circumstances, there is no provision to obtain extra funding from the BFD because it is clearly stated that all operations should be completed within the initial budget allocation at the time of the first rotation and with TFF funding that occurs in the second rotation. Consequently, beneficiaries do not have any alternative way to get funding from the BFD and are bound to finance or invest personally in fulfilling immediate demand. As respondents said-

> "We are also financially contributing instantly to manage the labor cost of the garden because of having a lack in government investment" -- RC 26

> "Everybody contributes financially in community forestry by paying some amount of money at a time that is deposited in a saving account with a view to fulfilling any future and instant needs especially for the maintenance of garden in case of getting the deficiency of government funding" – RC 02

My data indicate that there are almost fifty percent of respondents (Appendix- IX, Table-05) who invested their personal money in community forestry project. This is an inordinate number and is a strong indicator of the importance of community forestry to rural farmers. The majority of respondents responded that the government funding is not enough to cover all necessary costs of expenditure for forestry. For example, it is necessary to protect their tree crops with sticks and a fence to have enclosures. Moreover, some strips degrade and die resulting in gaps that must be filled with a plantation of new strips. As a respondent said-

> "……if any tree would die and to replace it with new seedlings, the government would provide twenty percent of the total cost and the balance eighty percent should be managed by beneficiaries"—RC 19

In additions, it is also necessary to apply fertilizer for speedy growth of trees and to employ extra labor for cleaning the garden. However, government funding is not sufficient to cover these expenditures and therefore beneficiaries need to invest money in completing the necessary work.

Regarding the personal investment and labour issues, the following respondent answer is noteworthy. As-

> "All members contribute financially to run the project. The people, who are financially more solvent comparatively to others, contribute more to the project. The members who contribute less, they are intended to employ their physical labor in the garden like, cleaning, nursing or watching. Therefore, no dissatisfaction that I ever found" -- RC 03

5.3.4.3 Transparency and Public Disclosure

The most vital factors in financial dealings are transparency and public disclosure. Community forestry strongly requires transparency and disclosure because the endeavor involves various actors and multiple stakeholders. All stakeholders contribute to community forestry because they derive either indirect or direct benefits. With a view to establishing transparency, community forestry rules stated in Section-22, Subsection-5 that fund managing sub-committees will have to open a STD account in any state-owned schedule bank that must be run as a joint account with the secretary and treasurer of the sub-committee (MoEF, 2010, p. 22). In my research area, Comilla Sadar South community forestry maintains a joint STD account in Agrani Bank, Tomsom Bridge Branch, Comilla under the name of Secretary and Treasure (Appendix-XI). All financial transactions like money disbursement, savings (sometimes achieved by selling the lumbers of the tree), and beneficiary's contributions are deposited in this bank account. Moreover, the fund sub-committee is fully bound to disclose each financial transaction to make other members and all beneficiaries aware of project transactions. In such a way, the community forest management committee tries to keep transparent all dealings of forest management. Hence, some respondents' answers are noteworthy-

> "Financial statement of the community forestry is very transparent. We have a lot of reliability on the management committee. Everything goes fine"- RC 04

> "Financial matter and dealings are fully transparent and have accountability to disclose publicly" – RC 30

5.3.5 Maintaining Accountability in Management

The maintenance of accountability is an important part of a participatory approach that must be applied in community forest management. Because community forestry is built on a participatory model, various types of stakeholders are involved actively and must demand accountability in maintaining overall management. The existing community forestry rule also stated some clauses for ensuring accountability of executive committees. It is stated in Section-13, Subsection-2 that the president of the committee will get a "show cause letter" if any member of the executive committee fails to fulfill his/her assigned duties and responsibilities, and every member will get a personal copy. If no satisfactory answer(s) is forthcoming from the committee, the forest range officer will notify the Divisional Forest Officer (DFO) in writing about the matter. DFO will try to solve the matter and could, if necessary, refer the matter to the Upazila Environment and Forest Development Committee (UEFDC). After having a full discussion, the existing executive committee of community-based forest management could be dismissed and replaced by forming new one (MoEF, 2010, p.14). However, in my study area there was significant evidence that management has been most successful in ensuring accountability. There is a significant segment of respondents (almost sixty-five percent) who are fully satisfied with the performance of the existing executive committee and believed members of the executive committee are accountable to all beneficiaries and other stakeholders for their assigned job (Appendix-IX, Table-06). As a respondent said-

> "Members of the executive committee are fully accountable for their assigned tasks to other members and beneficiary people as per rules. Any financial matter and the statement would be disclosed in meeting to inform others. Every question that was asked to the responsible person would be answered satisfactorily in the presence of the representative of Forest Department." –RC 01

Accountability of the respective committee in my research area, Comilla Sadar South, is categorized into three strategies (Appendix-VIII, Table-06) and is discussed below.

5.3.5.1 Proper Maintenance of Documentation

Maintaining proper documentation is one strategy of ensuring accountability of community forestry in Comilla Sadar South Upazila (Sub-district). The assigned member maintains the record of every document of all statements like money, receipts, and memos for the sake of accountability. The executive committee, according to Section-12, Subsection-02, should have a meeting every three months or can arrange meeting anytime with a notice of seven days before, if an emergency arises (MoEF, 2010, p. 13). The committee is bound to provide an agenda and to maintain a registrar record to keep it secure for a record of minutes (Appendix-VII and XI). As a respondent said-

"Every transaction is being recorded with proper filing and documentation" -- RC 03

"We maintain all documentation perfectly for tendering the garden such as depositing 25 percent as security money, and National Identity Card etc. And overall our documentation system is good and ok"—RC 29

Half of my respondents (fifty percent) think that the present record keeping system of every transaction and meeting minute is being run in a proper way and accountability is maintained as much as possible (Appendix-IX, Table-06).

5.3.5.2 Disclosure of all Reports

The community-based forest management committee discloses all reports and financial transactions to all beneficiaries and stakeholders. In my research area, the committee has been organizing a meeting every three months for the last three years. In their board meeting, the assigned members present a status report dealing with their respective jobs. As a respondent said-

"They are bound to disclose each and every voucher whenever we ask for"– RC 03

There are a significant portion of the total respondents (fifty-four percent) who have been informed about the overall status of community forestry like TFF money, the total area of the garden, the total number of trees, total disbursement of money (Appendix-IX, Table-06). BFD as

a main supervising actor of community forestry is keeping track of revenue generation on a monthly basis. As the financial matter is a sensitive case, the assigned officer discloses all the details of revenue collection in each and every year. These transactions are posted for public information (Table - 5.1).

Table- 5.1: Showing achievement of government revenue from community forestry (in Bengali)

Regarding the matter, one of my respondents said -

> "Clear financial statement about buying and selling that must be disclosed in a meeting and to open place for seeing everybody" -- RC 02

Another important requirement for participants is to get a satisfactory answer casually or informally about their issues from executive members of the committee. Sometimes, the beneficiary gets an informal or casual meeting with the members of the executive committee in the local market during shopping, and they have a discussion about community forestry. Beneficiaries get answers to their queries in that informal discussion. As a respondent said-

> ".....Besides, every member is bound to let the meeting know about the status of their respective areas like the condition of strips, trees, or nursing in the garden, or about any problem they face" -- RC 02

My results indicate a significant number of respondents (eighty percent) were satisfied with having answers to their queries. Therefore, they believed that the executive body is mostly responsible for their assigned job (Appendix-IX, Table-06).

5.3.5.3 Summary

 In summary, it appears that all members of the community-based forest management committee are sincere and dedicated to their responsibilities. The existing community forestry rules states clauses with specification of responsibilities of the managing committee (Social Forestry Rules-2004) Section-11 indicating the committee must cooperate with forest officers to pursue community forestry activities, that the committee motivates and supports the beneficiaries in pursuing their jobs. Also, the committee ensures all legal advantages for beneficiaries, as well as resolving confrontations that occur between groups (MoEF, 2010).

5.4 Contributions of Community Forestry to Community Sustainability

The following discussions articulate the contributory effects of community forestry to address the third objective, assessing the contributions of community-based forestry in maintaining the sustainability of communities. Hence, the sustainability of communities is discussed under the overarching concept of environmental viability, social networks and solidarity, economic prosperity, and human capital (Appendix-VIII, Table -07, Table - 08, Table-09, and Table-10).

5.4.1 Environmental Viability

Environmental viability represents one of the main contributions of CBFM. It embraces the principles of reducing environmental degradation, mitigating and adapting to climate change, promoting ecological conservation, and enhancing natural beautification (Appendix – VIII; Table -07). These principles are discussed below.

5.4.1.1 Reducing Environmental Degradation

Environmental degradation is currently a serious global issue and continues to receive attention both in worldwide public and academic debates. Deforestation and over-consumption of natural resources due to the consequences of anthropogenic activities remains a challenge. In my research area, the most important implications of environmental degradation are the increase in atmospheric pollution, increased runoff, soil erosion and land degradation, low precipitation in comparison to the past, and increasing natural disasters like excessive rainfall (flood) and drought. In these cases, the community forestry in Comilla Sadar South Upazila has an important role in reducing environmental degradation through the production of fresh oxygen, reducing soil erosion and increasing the amount of rainfall. Community forestry uses government-owned land for tree plantations and in turn the plantations produce fresh oxygen and absorb carbon-di-oxide (CO_2) that keeps the environment cool and fresh. The reduction of CO_2 is important in carbon sequestration and therefore helps reduce greenhouse gas emissions. Almost half of the total respondents (Appendix-IX, Table-07) were conscious of the production of oxygen in the atmosphere due to tree plantations through community forestry. As some respondents said-

> "Community forestry is very essential for environmental sustainability as it renders a lot of oxygen to the environment." RC -02
>
> "We can get a lot of oxygen that evaporate from the tree." RC- 03
>
> "It provides us with a lot of oxygen"—RC 09

Most respondents are very conscious about the value of tree plantations and everybody knows that trees are the primary source of oxygen. There is a strong recognition that tree plantations should be protected immediately after planting and through maturity. My field visit provided the following data (Table 5.2) regarding tree plantations in community forestry projects.

Table-5.2: Number and name of trees in respective community forestry garden

Name of Garden	Number of Tress	Name of Trees
Kheaish Primary School to Boroshar Culvert	200	Orjun
Shuvanagar Garden (Joshpur Bit-Small)	3000	Shishu, Cross Belgium
Shuvanagar Garden (Joshpur Bit- Big)	9000	Cross Belgium, Ekashi
Boraipur Garden (Joshpur Bit)	12000	Akashmoni, Ekashi
Bagmara to Hajotkhola (Roadside Garden)	6000	Ekashi
HazotKhola to Vucci	7000	Akashmoni
Holdia to Betagao	4500	Belgium, Akashmoni

Source: Field visit (Comilla Sadar South Upazila), Date: 15 December, 2017 to 31 January 2018

The above table showing the current tree plantations in community forestry projects in Comilla Sadar South Upazila indicates that a variety of trees have been planted. These trees can reduce environmental degradation, in terms of oxygen production and also in reducing soil erosion, maintaining soil fertility and soil stability and increasing the chance of rainfall, especially in drought season. As some respondents said-

> "The activities of community forestry reduce soil erosion, and keep our environment cool and fresh" --RC 01

> "Community forestry helps environment by reducing soil erosion through the plantation of tree on the already damaged land and roadside." -- RC 29

Some respondents were extremely concerned about precipitation that is essential for agricultural activities and keeping the environment cool and fresh. They also noted that tree plantations through community forestry could increase the chance of rainfall. In addition, the agricultural soil could be more fertile due to available tree plantation as the tree increases the humus of soil. As a respondent said-

> "Forestry reduces soil erosion and increases organic matter of soil that makes the soil more fertile. Moreover, it increases the chance of precipitation" -- RC 19

There are two kinds of community forestry in Comilla Sadar South Upazila; one is forest garden, and another is roadside garden.

Plate – 5.2 (Source: Hassan, A B M Enamol, 2017)   Plate- 5.3(Source: Hassan, A B M Enamol, 2017)

Plate – 5.2 shows a forest garden (Shuvanogor Forest Garden) and Plate- 5.3 shows a roadside garden (Kheaish Primary School to Boroshar Culvert Road).

Bangladesh is an environmentally fragile country with much of the land and many of the roads subject to damage during the rainy seasons. The tree plantations along roadsides can protect roads and could also reduce accidents caused by roadside erosion in many cases. As a respondent said-

> "…. it makes strong our road and roadside which would be no more eroded during rainy seasons"—RC 02

The roots of trees stabilize the edge of road and roadside

Plate - 5.4: Increased stability of soils at the edge of a road as a result of a tree plantation (Source: Hassan, A B M Enamol, 2017)

Interestingly, the biological role played by plantations, including increasing chance of precipitation, reducing soil erosion, and increasing fertility of soil remains unknown to many beneficiaries in the study area. For that reason, only thirteen percent and about seven percent (Appendix-IX, Table -07) of respondents were aware of the ecological contributions of tree plantations. Further, only three percent (Appendix-IX, Table -07) of respondents knew about the role of trees in increasing organic matter in the soil.

> "And in indirect return, farmers could get some benefits in terms of reducing pesticide usage. For example, as the community forestry creates a house for a lot of birds and the birds eat insects from crop fields that make the crops free of insects"—RC 30

As discussed below, there was some evidence that respondents were aware of the value of trees in reducing CO_2 levels.

5.4.1.2 Mitigating and Adapting to Climate Change

Community forests combats climate change in terms of reducing carbon-dioxide in the atmosphere (Strengers, Van Minnen, & Eickhout, 2008) and decreasing the chance of natural calamities like cyclones through coastal afforestation (Rawlani & Sovacool, 2011). In CSSU

community forestry, a significant proportion (43.33 percent) of respondents believed in adaptation to changes in climate through community forestry tree plantations (Appendix-IX, Table -07). As a respondent said -

> "Community forestry helps in reducing and adapting to climate change as it absorbs carbon-dioxide. This absorption of carbon dioxide also mitigates the impacts of climate change. So, we need to plant tree as much as we can." - RC 19

In contrast, a number of respondents noted an important putative benefit regarding climate change resulting from community forestry, notably, the decreasing incidence of cyclones. This relationship is difficult to measure, but the frequency of cyclones appears to have decreased in recent years as noted an older respondent, -

> "Several decades ago, we had a lot of natural calamities like cyclones that damage our house, crops and utility connection. We all villagers faced numerous problems that would push us to change living place. Now we are safe and protected from such kind of natural calamities and damage because of having forest area that is working as a guard shed. Community forestry is the main contributor to making this forest land as our guard"—RC 10

Thus, as suggested in the literature climate change could be addressed, at least to some extent, by tree plantations through community-based forestry in Comilla Sadar South Upazila.

5.4.1.3 Ecological Conservation

Community forestry has a tremendous role in fostering ecological conservation by creating habitats for biological species, maintaining biodiversity, and supporting related ecosystem services and functions. As two respondents said-

> "The role of community forestry to the environment is so tremendous, I think. It creates sanctuary for birds, and ensuring the sustainability of biodiversity thereby."—RC 18

"Ecologically, community forestry contributes to the environment such as conserving biodiversity, creating a sanctuary for local birds of various species that reduces the depletion of birds' species as well" – RC 30

Some respondents also noted that the species of birds are decreasing day by day because of deforestation. In fact, ecologically this trend is difficult to validate. Various species respond differently to forest types and age. In summary, farmers contend that community forests play a vital role in sustaining ecological conservation in Comilla Sadar South Upazila in terms of increasing sanctuary of birds through the planting of trees. Moreover, forest gardens offer additional habitat for wildlife. In my research area, there are four forest gardens (Plate 5) including Rajeshpur Forest Garden in Rajeshpur bit, Shuvanogor Forest Garden (Big), Shuvanogor Forest Garden (Small), and Boraipur Forest Garden in Joshpur bit.

Plate - 5.5: Boraipur Forest Garden, Shuvanogor Forest Garden (Big and Small), Rajeshpur Forest Garden (Source : Hassan, A B M Enamol, 2017)

These four forest gardens occupy about seven hundred acres and are valued as habitats for various types of wildlife. The wildlife and associated biodiversity play a strong functional role in the ecological integrity of the ecosystem. As a respondent said-

> "Moreover, community forestry could be a habitation of various wildlife like the fox, owl, snakes that are very important for keeping environment sound"—RC 29

In addition, community forestry also provides a significant source of fresh air and in such a way it keeps environment cool that is important for ecological conservation.

5.4.1.4 Natural Aesthetics

Community forestry in Comilla Sadar South Upazila increases the natural beauty of the area. In rural areas, aesthetics and views capes are important to consider because they serve as a backdrop as well as a reminder of the value of community forests. For example, many value the shade provided by trees as a way to protect against extreme temperatures. Natural beautification is mostly dependent on the road, roadside and field where these are occupied by well-organized tree plantations. These conditions for beautification are somewhat fulfilled by community forestry especially in my research area, as the main community forestry garden have been created near a roadside. All kinds of woodlot tree are being planted at the edge of the road, and the roadsides are being stabilized. Trees help to sustain the soil and to increase the aesthetics of the road. As my respondents said-

> "It makes our road clean and fine which would be good for the easy movement." RC---03

> "And increasing beautification of road and roadside. Besides, farmers can enjoy shadow of the tree and get rest after doing long time work in their land."—RC 10

Moreover, farmers in rural areas and passing individuals can enjoy the shade of trees where they can rest after doing long time labour; the respite from the hot sun helps keep both a sound body and mind. Seventeen percent of respondents (Appendix-IX, Table-07) were inclined to keep community forestry in every rural and urban area for the sake of natural beautification.

5.4.2 Social Network and Solidarity

Social networking and solidarity is another main contribution of community-based forest management that incorporates social networks, social solidarity, mutual consciousness, the institutional network, and cross-border relationships (Appendix – VIII; Table -08). These issues are discussed below:

5.4.2.1 Social Network

Community Based Forestry (CBF) increases intensity of social networks and the success of this forestry are largely dependent on the strength of social networking. Within these networks, enlisted beneficiaries represent the vital force of community forestry, and the beneficiaries accomplish most of the associated work through their strong networks. So, it is postulated that creating social networks has a great role in community forestry and its management. In Comilla Sadar South Upazila, thirty percent of respondents (Appendix-IX, Table-08) have a good interpersonal relationship and interact closely with each other for the sake of community forestry. The stakeholders and especially beneficiaries see high value in good interpersonal relationships as a means to improve their success in community forestry. A strong social network is supported and maintained through chatting, gossiping, and helping each other. As a respondent said-

> "We could increase our social network through the activities of community forestry, as we chat and gossip with each other regarding the different issues of community forestry. So, in such a way, our social network and mutual interaction are worming day by day" – RC 03

In their effort to sustain their forestry activities, they get together, share and disseminate information to increase knowledge and finally they work in the garden together for nursing tress and protecting the garden. As a respondent said-

"We always have a scope to get together. Other people are being encouraged to forestry to see the garden. It is true that our environment will be alive mostly because of tree plantation. Forestry could keep our soul and body good, fresh, and cool"— RC 04

According to the current performance and the productivity level of community forestry, figure 5.7 is presented to show the positive relationship between social network and performance level.
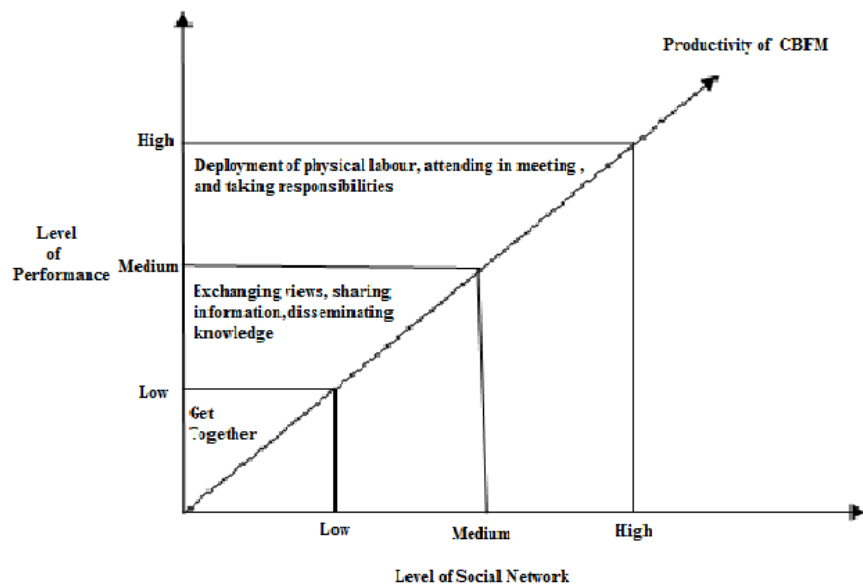
Fig-5.7: Relationship between the level of performance and level of social network (Formulated by the author)

The level of a social network is shown along the horizontal axis whereas the vertical axis shows the performance level. The upward line from left to right hand indicates that if the stakeholders increase or intensify their social network gradually by maintaining interconnectivity through getting together, exchanging views, and then employing physical labour in the garden, then the overall productivity of community forestry will be high.

Some respondents remarked that within networks it is easy to initiate a discussion or to connect with high class people, those who have important social and political influence and who are active in the community. These people act as vital stakeholders and are involved in taking and finalizing decisions. Examples include the UP chairman, member, or other political or

economically influential people. These interactions have been made possible only because of involvement in community forestry projects. A respondent's view is important in this reference-

"It increases our social relations and getting the scope to interact with the high-class people of society like Chairman, member or with any political person"—RC 09

"We are getting together through community forestry activities that keep us within a strong social network along with the upper class of the village"—RC 14

Moreover, the creation of the local market (discussed in 5.4.3.4) also strengthens the social network among villagers, especially between beneficiaries and non-beneficiaries (common people). In such a way, non-beneficiary people also have a chance to be informed about the vision, mission, aims, and objectives of community forestry in respect of local setting.

5.4.2.2 Social Solidarity

Community forestry and its concomitant managerial system also form social solidarity among the members that are somewhat more abstract and intense than a social network. It can be seen through the practice of harmony and social learning and the forming of brotherhood among the stakeholders. When the members get together in any place, they are accustomed to exchange of views and share various facts about their family and personal life. These kinds of personal discussions happen only within the community. A significant number of respondents answered that they feel very close to everyone and at the time of working, they come near to each other in the forestry garden. Some views herein are noteworthy-

"Because of community forestry, we could be more social, harmonious, and responsible to each other. This is our great scope to exchange views with others about environment both social and ecological. We also could be well-known to each other" – RC 04

"We are working and keep communication with each other as like we are the members of the same family" – RC 17

"Community forestry helps to build up friendship, solidarity and harmony among the people of the community. It concretes our brotherhood to each other that contributes to reducing corruption and deviance or any kind of illegal activities" – RC 19

By making harmony, the members and beneficiaries also practice a learning process. These learning contents are not limited to community forestry only but cover various types of village related issues such as forming a cooperative society, voting of the local government body, local political system, and economic facts. The beneficiaries create social learning and brotherhood in such a way. The social solidarity makes them enthusiastic to be cooperative and helpful in accomplishing the job successfully.

5.4.2.3 Mutual Consciousness

Community forestry also makes its stakeholders more responsible in their job as well as to other members of the project. Some beneficiaries are aware of their co-workers and they teach each other about community forestry and its significance for the society. Hence, consciousness indicates the emotional attachment and informal relationship to all members of the community forestry, whereas social networks somewhat signify formal and goal oriented relationships. These relationships are being maintained among both stakeholders and non-stakeholders (those are not related to community forestry). However, members are very inclined to keep watch on others members' sincerity on their assigned job, and on the condition of the garden whether it is good or bad. In my research area, everybody is mutually interdependent and mutually interconnected with each other in pursuance of community forestry activities. Sometimes, some beneficiaries donate money and trees of their portion for the social welfare. In this reference, a respondent's answer is important to be noted, as-

> "Sometimes we donate our tree for social welfare as I provided four (4) trees for the local Madrasha (Religious Institution). Moreover, we can increase our social relationship by attending in a seminar regarding the community forestry"—RC 20

In the study area, respondents have donated trees for the construction of a religious institution that is called Madrasha in their local language. There are also some respondents who indicated they donated money to both a community project to purchase strips and for increasing the protection of the garden and social welfare. This included activities like construction or renovation of roads, culverts, drains, and irrigation systems. Eventually, it could be said that the

stakeholders are conscious of community, environment, and state that is the ultimate result of community forestry. As a respondent said-

> "Our relationship is good and friendly. We as some beneficiaries are so interactive and conscious about each other"—RC 28

5.4.2.4 Cross Border Relationship

Bangladesh is a neighboring country of India. Comilla is a district situated in the eastern part of Bangladesh and one side of Comilla Sadar South represents an international border with India. There are three community forestry projects in this area (my research area) named Shuvanogor Forest Garden (large), Shuvanogor Forest Garden (small), and Rajeshpur Forest Garden, all of which are fully situated near the border between Bangladesh and India. The diagram (Fig. 5.8) shows the exact location of these forest gardens that play a significant role in securing the international borderline between Bangladesh and India.
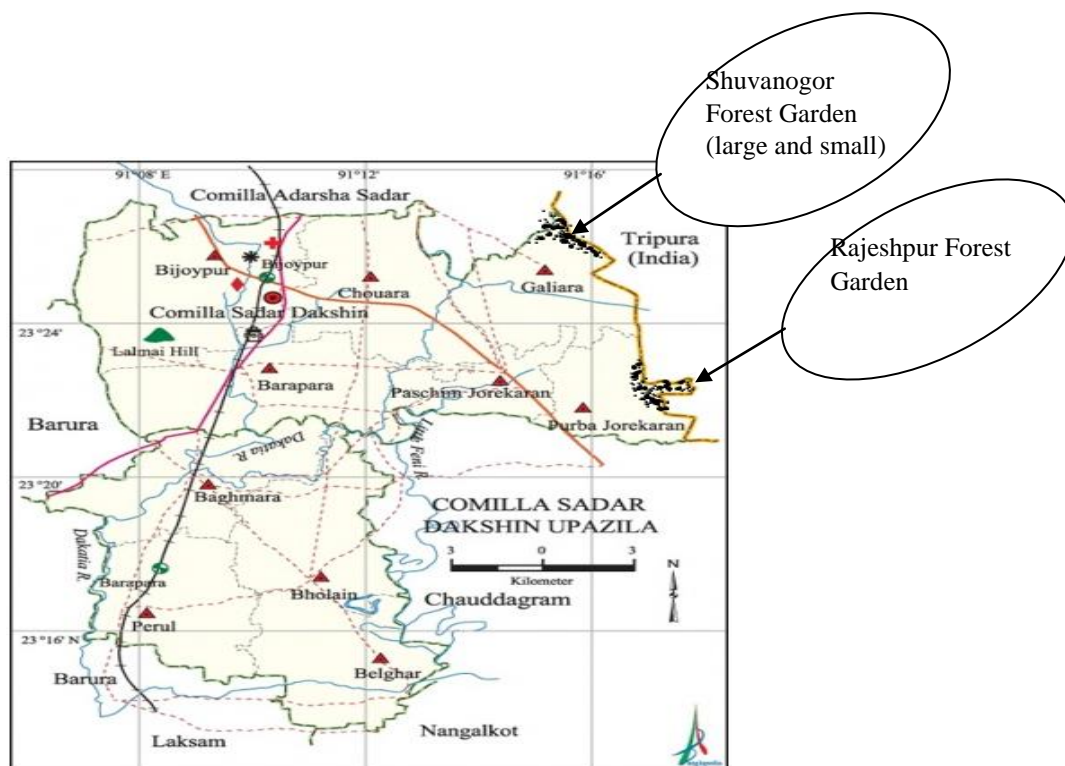
Fig – 5.8: Location of three-forest garden between Bangladesh and India border

Hence, a respondent's answer is noteworthy, as-

> "Moreover, this forest garden is just beside the Bangladesh-India border, and the garden works as the vanguard of this border"—RC 23

The main fact is that the forest garden makes a strong demarcation line that could be easily found when any problem arises. In such a way, community forestry fosters a good relationship between the people living near the border area of these two countries.

5.4.2.5 Institutional Networks

Community forestry also creates a scope for the beneficiaries of the project to be involved in the institutional networks. Hence, institutional networks solidify the relationship between beneficiaries and government agencies like officers of the BFD and the representatives of the local government. In Bangladesh, the root agency of the local government is the UP that is fully responsible for pursuing any kind of development work in a rural area on behalf of central government. Therefore, UP is a vital organ at the rural level in implementing policy and taking actions accordingly. It is headed by a chairman and members are elected. In fact, there is a great political influence on local government elections (chairman and member), and only the elite classes in terms of economic and political status usually get an opportunity to compete in elections. Moreover, these elite classes play a vital role in doing development work in the area that could affect all inhabitants of the village. Furthermore, the elite class is not always in touch with the poorer classes, the main beneficiaries of community forestry. A significant portion (ten percent) of my respondents think (Appendix-IX, Table-08) that it is easy to have more interactions with elite classes who are taking the lead role in doing plans of action. Respondents feel they could, in such a way, share real scenarios with them so that policies and actions favor them positively. Some views of the respondents should be noted below-

> "We can develop our social relationship with ruling class of the society like the chairman, member, or member of parliament or highly government officer etc."—RC 10

> "Community social forestry forms a group with beneficiaries those are intimated within a group and between groups with good linking and networking that creates interaction.

Moreover, community forestry creates for beneficiaries to be closed to government agencies like Forest Department and Local Government"—RC 30

Moreover, sometimes members of the parliament visit community forestry projects to see the condition and status of the project. This is a great scope for stakeholders (farmers) to share their expectations and problems with the government representative. Some respondents said that they have a good scope to have a close interaction with their Member of Parliament (MP) and thereby can discuss problems directly. As a result, local problems will get higher priority; this confers an advantage to local farmers as is a result of the institutional network, resulting from community forestry. Furthermore, the CBFM arranges a program presided by a Minister as a chief guest to disburse cheques to beneficiaries after completion of the tenure of forestry duration. This is another potential platform for beneficiaries to build up an institutional network with government agencies.

5.4.3 Economic Prosperity

Economic prosperity is another main contribution of community-based forest management that focuses on collection of revenues in support of local livelihoods, expenditures in the productive sector, government revenue collection, development of the local market, rural development, savings, capital formation and investment, increasing agricultural production (Appendix -VIII; Table -09). These issues are discussed below in more details.

5.4.3.1 Livelihood Opportunity

The first and foremost contribution of community forestry is to give support to beneficiaries in securing their livelihoods. The people living in the adjacent area of forestland are mostly dependent on forest resources for their livelihood. The community forestry in Comilla Sadar South contributes significantly to help the beneficiaries to make available sources of livelihood opportunities like short-term and long-term incomes seasonally and annually. For that reason, the

key informants of my research project viewed the community forestry as a source of generating personal income and a way to make a living that creates a secondary opportunity of getting financial solvency and self-sufficiency. More than one-third (thirty-seven percent) of respondent regard community forestry in Comilla Sadar South Upazila as a significant source of personal income and as a way to secure a future livelihood in the short term (Appendix-IX, Table-09). In this regard, two respondents' answers are noteworthy, as -

> "Poor people those are involved in community forestry get an opportunity to be financially solvent and self-sufficient" -- RC 29

> Community forestry contributes to the economic sustainability and that could be categorized into direct and indirect financial return. In direct return, it includes available sources of livelihood opportunities for beneficiaries" - RC 30

For some participants, to secure a livelihood, it is necessary to collect lumber over the whole year. Beneficiaries could gather dead leaves and branches of trees as lumber for their personal use that is fully free of cost. This additional source of revenue contributes to increasing everybody's personal income in the short term. Some respondents said-

> "We can also generate our income through selling lumber getting from damaged trees"— RC 01

> "Economically we are somewhat benefitted in the short term besides long-term income as for getting a lot of lumber every year"—RC 06

> "Involvement in community forestry as a beneficiary renders a possibility to have a lot of lumber in every year that is the short-term benefit"—RC 15

> "They also get a lot of lumber that could be used in their personal domestic utilization." -- RC 29

In fact, lumber is considered as an important source of getting livelihood opportunities due to its utility as domestic fuel. Comilla Sadar South Upazila is a rural area, and it is highly dependent on lumber and kerosene oil to cook food. As such, lumber is in high demand and expensive. In such a situation, getting lumber and firewood for free certainly could be a great support in everyday cooking. Twenty percent of respondents (Appendix-IX, Table-09) feel that collecting lumber makes a significant contribution to their livelihood. As some respondents said-

"Besides long-term benefits, beneficiaries also can get a lot of lumber for using it as fuel wood" -- RC 18

"Moreover, we get a lot of lumber to fulfill our domestic fuel need" -- RC 21

"…… got a lot of lumber in every year that I use in cooking food" -- RC 25

5.4.3.2 Expenditure in Productive Sector

Beneficiaries are very fortunate to have scope for financial accumulation through community forestry. It is a vision of every beneficiary to do a long-term investment in a productive way with money that they get from community forestry after completing the tenure. Most of the people have a plan to invest in a productive sector for the betterment of future generations and for enhancing the economic security. Because the beneficiaries can get a substantial cheque from their effort, they get a chance to spend that money productively like buying household utensils, the cow for the sake of land cultivation, and physical treatment. As some respondents said-

> "I have been benefitted economically by involving with community forestry. I got a cheque valued one lac twenty-two thousand (1, 22,000BDT) that was fully spent on my family's productive sector like purchasing a milky cow and buying some necessary home furniture" -- RC 03
>
> "It helps to get a big amount of money at a time that could be invested in the productive way" -- RC 21
>
> "…And the rest of the money I spent in my own purpose such as buying a commercial land in the local market and for my medical treatment" -- RC 24

About twenty-seven percent (Appendix-IX, Table-09) of my respondents spent their money they received from community forestry in a productive way.

Another important productive sector in my research area is the education sector, as the literacy rate of this area is low and the inhabitants are very inclined to have their children educated. In this case, poverty and lack of sufficient money are the main problems in supporting the

educationof family members. So, community forestry supports beneficiaries and allows them to afford an education for their children without hampering their regular expenditure.

> "Besides, two of my daughters are studying in secondary education, so I spent some money on their studies. It was much helpful to my family, I think" -RC 03

> "I, as a beneficiary, earned a significant amount of money through engaging with community forestry activities. It gets a lot of scopes to spend money to our children's education especially in purchasing reading materials" - RC 01

> "Moreover, I spent this money to fulfill my family's needs and children's education" – RC 05

In my total respondents, two participants (Appendix-IX, Table-09) could not continue to support their children's education. In the last year, they got a cheque from work in community forestry and could spend the money for the purpose of their children's education.

Paying loans and reducing liabilities are also productive means by which beneficiaries are very inclined to spend their money that they receive from community forestry. Ten percent (Appendix-IX, Table-09) of total respondents of this study paid off their loans and thereby reduced their liability with community forestry money. Some respondents' views are noteworthy here. As below-

> "I am economically benefitted and got a cheque of 175,000 (BDT) that is a huge amount for me. I spent this money on the marriage ceremony of my three daughters that was a great liability for me. I did overcome these challenges with the money of community forestry"—RC 22

Another respondent evaluates tree plantations through community forestry work and equates it to keeping a fixed deposit account in the bank. That is the planted tree could be considered as long-term cash money like deposited money in the bank account that certainly would be helpful during financial crises. As the respondent said-

> "I think it is as like as Fixed Deposit Account in a bank that could be used in giving the payment of the loan. In my personal life, I faced a case that was filed against me and confronted this conspiracy with the financial support of community forestry, and lastly, I got release. For that reason, I am so much grateful to the system of community forestry." – RC 10

Some respondents indicated that they used money from community forestry to pay their debts of groceries. On the other hand, there are about seventeen percent of respondents (Appendix-IX, Table-09) who mortgaged agricultural land with the money from community forestry; that is certainly a productive expenditure. Comilla Sadar South is a rural area, and most of the inhabitants are involved with agriculture and agricultural activities like producing crops, cultivating land to grow rice paddy. For doing these activities, land is in higher demand than for any other resource use in this rural area. Still, a significant segmentation of rural people who do not own land to cultivate, take land in mortgage from other landlords. This brings a great financial burden and ultimately can lead to a financial crisis. In this situation, the people involved with community forestry could have a chance to keep mortgage land for cultivation by utilizing the money that they get from selling trees of the forest garden. As two respondents' answers are being taken here as the reference, as follows-

> "Economically I am benefitted as I got a cheque valued 56,075/- (BDT) that was a big amount of money and was spent in a productive way like keeping land mortgage (40,000/- BDT) -- RC 27

> "I got a cheque valued tk. 56,000/- (BDT) that was spent in a productive way such as keeping agricultural land mortgage" -- RC 28

So, the above statement reveals the contribution of community forestry in doing expenditure in a productive way by keeping mortgage of cultivated land that ultimately contributes to increasing economic viability of beneficiaries as local stakeholders.

5.4.3.3 Government Revenue Collection

A significant role of community forestry is to contribute to revenue generation by the Bangladesh national government. Under current policy, Bangladesh established a clause of financial sharing of community forestry for the BFD, beneficiaries, owner of the land, and TFF. According to the Section-20 and Sub-Section-2 of the rules, the revenues will be distributed to all parties after completion of the rotation time on the basis of ownership of land, duration, and the classification of community forestry. In such a way, BFD would get 45% from its forest

woodlot forestland, 65% from Sal forestland, 10% from other institutional owned forestland (Social Forestry Rules-2004, 2010). The total amount of this money will be added to the national revenue collection of Bangladesh. Table 5.3shows a financial statement on revenue collection of the past two years of Comilla social forestry division. Some key informants also think that community forestry's contribution to the national revenue is commendable, given it is increasing gradually and has a good success rate in the collection. As they said-

"On the other hand, community forestry keeps the role in protecting and increasing the forestry and could enrich our revenue that is our national development" -- RC 29

"…and government gets revenue from log selling" -- RC 30

Table – 5.3: Collection of monthly revenue of Kotbari Range (Comilla Social Forestry Division) (USD)

Name of Month	2014-2015		2015-2016	
	Monthly Revenue	Cumulative	Monthly Revenue	Cumulative
July	00	00	1135.3	1135.3
August	76.93	76.93	2634.78	3770.08
September	23.67	100.6	2540.52	6310.6
October	23.67	123.73	6289.82	12600.42
November	00	123.73	8103.02	20703.44
December	430.70	531.3	432.95	21136.39
January	00	531.3	1691.45	22827.84
February	118.36	649.66	10833.41	33661.25
March	2664.38	3314.04	4898.23	38559.48
April	2067.85	5381.89	4342.06	42901.54
May	1954.34	7336.23	3893.95	46795.49
June	3002.92	10339.15	4962.94	51758.43

Source: Office of the Comilla Social Forestry Division, December 2017

Figure – 5.9: Showing graphical presentation of monthly collection of revenue of Kotbari Range (Comilla Social Forestry Division) (USD)
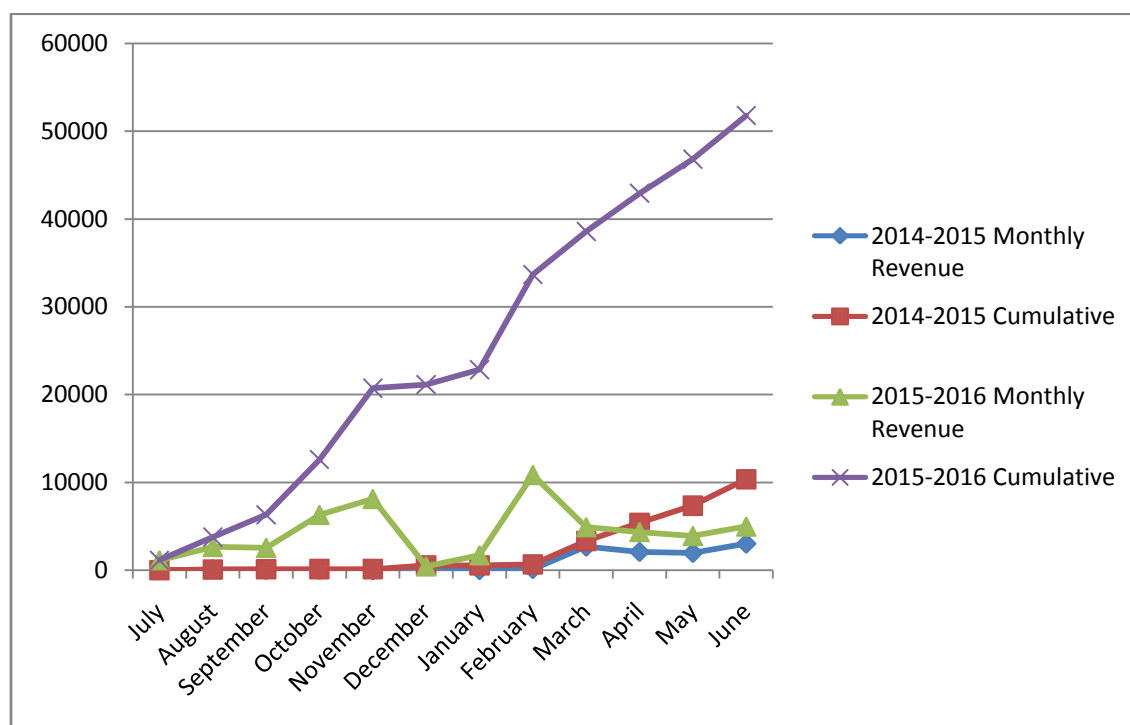
Source: On the basis of Table-5.3.

In summary, it is seen that the revenue collection of the forestry office is increasing monthly. The highest collection of revenue from community forestry of Comilla social forestry division occurred in the 2015-2016 fiscal year.

5.4.3.4 Development of Local Markets

Community forestry is also contributing to the development of local markets in rural Bangladesh. Comilla Sadar South Upazila is a rural area in which there are some local markets for community people for buying their dairy products. In this area, the local market is being created for buying and selling the lumber and firewood that is gathered by beneficiaries from community forest. Some beneficiaries of community forestry are also growing various vegetables in forest gardens. They produce a huge volume of vegetables like tomato, spinach, eggplant, and many more that

could be sold in the local market as their (beneficiaries) surplus production. The following captures the view of some respondents regarding the role of community forestry in developing local markets:

"We as beneficiaries get a lot of lumber that could be sold in the local market to get money in short-term income" -- RC 13

"Besides long-term benefit, beneficiaries also can get a lot of lumber for selling in the local market that could be helpful in generating the short term income"—RC 18

"In short-term economic advantage, we get a lot of lumber that could be sold in the local market, and we do it for 10 or 12 years. And after 12 years, we sell our whole forest garden and get a cheque for the big amount that is our long-term economic advantage for managing family's economic needs"—RC 20

"Moreover, I got a lot of lumber that I used and sold in the local market that contributes to my short-term income"—RC 27

"Moreover, I am used to plant some vegetables in the forest garden for the next three years of beginning of the project that I can use for my daily nutrition and also can sell the surplus production of vegetables in the local market"—RC 28

Some respondents also feel that the creation of a local market as a result of community forestry is a significant source of generating short-term income.

5.4.3.5 Rural Development

The ultimate goal of community forestry is to ensure the rural development of Bangladesh. As such, the major portion of this kind of forestry is situated in rural areas. In fact, the poorest people are given priority and enlisted as beneficiaries. This is justified because rural development and rural social structure mostly depend upon their economic status, employment opportunities as well as their strong social networks. So, most activities of community forestry are designed to enhance the standard of life of community people who belong to the bottom level of the economy. Rural development is also enhanced by UP because it is fully pledged to spend money in enhancing local infrastructural development like renovating road, setting up a deep

tube-well for secured drinking water, providing contraceptive methods for tackling over birth. As one of the key informants said-

> "Besides, our government, particularly local government, gets a significant amount of revenue from community forestry that could be spent in infrastructure development in rural areaslike the construction and renovation of roads, bridges and culverts"—RC 30

Thus, all forest-related work and UP investments ultimately contribute to rural development.

5.4.3.6 Savings, Capital Formation, and Investments

The practice of community forestry in Comilla Sadar South is somewhat fulfilling and sets the precondition for economic growth. It provides impetus and means for savings, capital formation and investments. There are two kinds of income that derive from community forestry, e.g. short-term (income from selling byproducts of tree-like abandoned branches, lumber, leaves, and fruits in local market) and long-term income (Income after selling the whole forest garden and to get this money, beneficiaries need to wait for ten to fifteen years). However, sometimes, short-term income motivates beneficiaries to save money for capital formation, and long-term income allows beneficiaries to invest money at a large volume. A significant number of beneficiaries were introduced to saving accounts held by commercial banks just after getting involved with community forestry projects. As a result, their attitudes about the need to save and generate returns on their income increased over time. Regarding savings, capital formation and investment, some respondents' answers are disclosed below-

> "Economically benefitted, as I got two lacs twenty thousand (BDT 2, 20,000/-) money from community forestry and that money I have invested in building up a market in my own land"—RC 07

> "It is a long-term project that definitely could be helpful for hardcore poor people in terms of increasing extra income that could be used in the formation of capital"—RC 09

> "Resourceful community forestry could make us financially benefitted in the long run and somebody also uses this big amount of money in their own business in term of commercial investment." –RC 17

"Financially, I have been benefitted. I got one cheque valued 55,000/- and my investment was 25,000/-. Now I am involved with the same project of second rotation and hope to be benefitted more. I do have a scope to get money to invest with the long-term plan in my business that is the great support for me" -- RC 05

"Beneficiary could be helpful economically because of getting such a big amount of money at a time. It could be invested with a long-term commercial plan of action"—RC 14

Beneficiary people mainly get a large amount of money after completion of the minimum period of the forest garden that would be sold through the tendering system. When they receive payment, it can be added to their savings account as a short-term deposit, and in the long run can be used to generate capital through investments. My results indicate that some respondents invested the money as a commercial investment to buy land for constructing a shop in the market. Other respondents with an existing business used this money to buy goods for their shops as a form of short-term income. Some others invested in agricultural land, constructing the house, and for renting a shop in the local market.

5.4.3.7 Increasing Agricultural Production

The forest gardens of some community forestry projects are being used to produce various vegetables and other types of short-term agricultural crops. In this regard, two respondents of Rajeshpur Forest Garden have been producing vegetables each year to fulfill their domestic needs. Moreover, they also sell some surplus vegetables after meeting their personal needs. As a respondent said-

"Enjoying long-term and short-term benefits as we can produce some agricultural crops (vegetables) that could fulfill our domestic needs" – RC 26

In fact, beneficiaries can produce these types of short-term vegetables in the first, second, and third year of creating the garden; after that, it is not possible to produce certain vegetables due to the shade of trees. However, this short-term vegetable production plays a significant role in

increasing the national production of vegetables. So, it is commendable that the population of Comilla Sadar South Upazila is getting benefits from community forestry in term of the production of vegetables.

5.4.4 Restoring Human Capital

Reviving human capital represents another contribution of community-based forest management that emphasizes good physical and mental health (Appendix -VIII; Table -10). As discussed below in details-

Human capital can be revived through the practice of community forestry. It could be an influential indirect indicator of community forestry like the need for individuals to maintain sound physical and mental health. It can also increase/improve the nutritional status of workers. As was noted during my field visit, it is mandatory to work physically in the garden given the need to cut grass, plow soil and water the trees. All of this works keep a person sound and fresh in terms of his/her physical and mental health. One of my respondents said-

> "Community forestry increases our human capital, i.e., develops our nutritional status through keeping the good function of lung, liver, brain, and stomach. We have 206 bones that need to get fresh air and water for maintaining their good functioning. Besides, Vitamin D and E that we get from the fresh air will develop brain and mental health" -- RC 07

Some respondents used their money in getting medical treatment that was very helpful for them. Many people live in Comilla Sadar South are poor, and it is very hard to get proper medical treatment because of their low financial status. In this case, community forestry programs allow many poor beneficiaries to get medical treatment for themselves and their family members. They said that it would be difficult for them to get medical treatment without the money that they get from community forestry. So, it can be said that community forestry in Comilla Sadar South definitely has a tremendous influence on physical health as well as mental health as part of human well-being.

There are about twenty-four respondents (Appendix-IX, Table-10) who feel that community forestry improves their mental health and increases their well-being. This view is reflected in the fact that those individual feel better spirituality because they are surrounded by a green environment. Some respondents said –

> "We feel some mental support and tranquility regarding future economic security when we get a cheque with a big amount"—RC 10

> "It influences our mind positively when we see any forestry or green zone. Our spirituality could be affected positively by engaging in community forestry activities as well"—RC 18

Furthermore, because community forestry in Comilla Sadar South contributes to individual livelihoods in terms of personal income, the beneficiaries are somewhat able to consume more nutritional food like fish, meat, milk, and eggs. As a result, the family diets are more balanced. As a respondent said regarding nutritional status, as-

> "As it increases one's income and it thereby develops our nutritional status through giving the opportunity of having more delicious and nutritional food in comparison to the past. And in such as the way, he or she could increase his or her human capacity in the sense of physical, mental and social aspects."—RC 19

Summary

The findings discussed above present the contribution of community forestry to the sustainability of communities in terms of environmental viability, social networking and solidarity, economic prosperity, and restoring human capital. In fact, the main vision of community forestry in Bangladesh is to strengthen the economic status of beneficiaries and to ensure environmental viability. It is evident that the rural areas of Bangladesh are very vulnerable in terms of economic and environmental aspects, and the rapid growth of human population increases continue to cause deforestation and degradation. Consequently, community forestry helps to address these challenges. Specifically, strengthening social networks and solidarity and promoting human

well-being, will improve productivity, enhance management and decision-making, in support of community forestry.

5.5 Challenges to Community-Based Forest Management

Despite the social, economic, and environmental benefits of community forestry and its promise as a viable approach to conservation and community development, serious gaps and constraints exist. These include problems with internal conflicts, political interference, unworkable regulatory frameworks, distrust, and corruption. In my study, I discovered some noticeable constraints (Appendix-VIII, Table-11) in Comilla Sadar South Upazila that at times rendered the project problematic and undermined the contribution of community forestry and its collaborative management. I discussed these constraints below in details.

5.5.1 Effectiveness of Bangladesh Forest Department

Bangladesh Forest Department is the main actor (stakeholder) in community forestry as it is the implementation agency of the Bangladesh Government. This government agency is responsible for community forest management in terms of policymaking, supervising, decision making, and monitoring. However, a number of respondents criticized this government body for its lack of honesty, and efficiency, as well as its propensity to break the rules and regulations. For example, it was the view of a few that in some instances there is an illegal contract between the garden purchaser and representative officers of the Forest Department in measuring the size of logs during the sale of woodlots. According to some respondents, the actual size of the logs is improperly scaled and intentionally measured as undersized. The implication is that money is redirected for personal gains. As a respondent said-

> "Moreover, the buyer of the garden does not measure the logs of tree precisely and accurately. And we are not getting the actual value of logs that ultimately makes us loser. This illegal work, which is the matter of concern, is being happened with a pre-plan taken by respective businessman and the representative officer of the Forest Department for enjoying bribery. For that reason, some beneficiary people want to be involved to tackle

such this illegal operation, but it is not possible for syndicate and political influence." -- RC 01

This kind of illegal activity in the long run impacts on both the beneficiaries and on government revenues. Some respondents viewed that representatives of BFD are not fully sincere in their assigned job and responsibilities. For that reason, a respondent said-

"Besides, the representative of Forest Department is not so sincere in their duties and responsibilities" -- RC 01

Moreover, there is evidence that sometimes the officer assigned by BFD intentionally tender to sell the immature trees for getting some extra money as bribery from the local businessman. This illegal work favors the business man who buys the trees with the comparatively low price. The BFD also are known to give priority illegally to so-called freedom fighters in enlisting them as beneficiaries whereas others were ignored in making the list of beneficiaries. Furthermore, some BFD officers have been known to submit fake reports for personal interest without visiting field and project. In other instances, respondents noted that there is a lack of efficiency because the forest officer does not make timely visits to the community forest. More serious, are cases where the officers attempt to bribe farmers with threats of filing false information. A respondent's view is noteworthy here, as-

"The representative of the Forest Department does not come timely. Sometimes, they avoid their responsibilities. Moreover, they claim for bribe otherwise they will report with fake information against any beneficiary or even management committee. Moreover, they submit fake transportation bill and it would be passed without any verification" -- RC 17

Another significant challenge is to break the existing rules and regulations for accomplishing the project that does not fare at all. They do it in terms of deployment of beneficiaries especially. As it is noted below-

"It is regrettable that these rules are not being followed and maintained properly. Nobody follows the rules. For example, Forest Department allotted one-kilometer road to 5000 beneficiaries where it should be only 1000 by rules" – RC 17

The officer deployed a great number of beneficiaries than is recommended to allow for bribery of those people that are breaking laws or are dishonesty. Furthermore, some members of the executive committee finalize their decision without consulting with other majority members. This violates the process of decision-making and the rules concerning the formation of a quorum. Hence, a respondent's view is noteworthy-

> "Sometimes, decision making is being taken under the practice of monopoly. It is just informed other members about taking the decision by phone. And everybody is bound to be agreed otherwise beneficiary will be threatened of elimination from the list" -- RC 10

In the matters considered above, BFD can play a stronger role in improving the practices of Community Forestry. Addressing gaps, removing barriers, and protecting the integrity of the management process are a prerequisite to good governance. Details on these challenges in rural Bangladesh are described below.

5.5.2 Obstacles Associated with Forest Side Landowners

Community forestry in CSSU is mostly situated in roadsides that are called roadside forest gardens. There are many agricultural lands on both sides of the road that are being hampered by tree plantations of community forestry. Landowners complain that their lands lose fertility and production is reduced because of shade from tree plantations. As a result, landowners are incurring the financial loss and do not want to have any community forestry on the roadside. This kind of impact motivates them to damage strips or to cut matures trees. According to respondents -

> "We are planting strip on both sides of the road, and the land of both sides of the road that would be badly affected by the shade of trees. In such a way, land loses its productivity and cannot produce enough crops. Therefore, this loss ultimately goes to the landowner who is always very inclined to make obstacles to tree plantation and project activities. Especially, this obstacle comes strongly if he/she could not be included as a beneficiary after showing their interest. But it could not be possible sometimes because of maintaining some specific criteria of social forestry rules" -- RC 01

"Landowners create a serious problem with this project. They are losing crops because of falling shadow from trees. So, the landowners take out a lot of strips. Especially, it is seen that maximum landowners want to be included officially in community forestry but it could not be possible because of maintaining some criteria of social forestry rules. And the landowner who is unsuccessful to be included in this project, most inclined to make obstacles in such a way" – RC 02

"Moreover, there are some obstacles we get from the adjacent landowners who claim their loss because of falling shade of the tree upon their land and losing crops etc." -- RC 20

Sometimes, landowners want to be listed as beneficiaries of community forestry but it is not possible based on current rules. Landowners out of frustration sometimes damage the trees of the garden. Most of the time it is not possible to identify the actual guilty party and so it remains a challenge to the community forestry project.

5.5.3 Political Interference

Political interference or political influence is another critical problem in community forestry management. Union Parishad (UP) is one of the main stakeholders in community forestry management and members are elected politically; in their respective positions, these members have a great potential to influence decision making in favor of economic or political gain. Moreover, some local people with political power or influence interfere in forestry management. For example, they attempt to influence the list of beneficiaries, tendering process, and money allotment. Also, some beneficiaries with ties to those with a political background or those that have a good relationship with the local political figure have been known to threaten other beneficiaries to eliminate the name from the list. Others cut the trees at night under the protection of individuals with political power. Several respondents said-

"Some political people cut many trees by pursuing political power. But there is no legal action has been taken against them. And no compensation, I get" -- RC 15

"Politically we are also facing some problems such as local political figure influences the decision to take in favor of them or for political gain" --RC 02

"We are facing political influence day by day in every sphere of project management" -- RC 20

In summary, the political person of local area abuses their political power in community forestry like beneficiaries' selection, place selection, and check distribution. They (political person) always try to manipulate decision of community forest management that could favor their personal interest. In such a way, the political influence creates a severe challenge in community-based forest management and its operation.

5.5.4 Constraints Created by Beneficiaries

Sometimes, beneficiaries are also problematic in management in terms of rule breaking, ignoring the responsibility of assigned job and duties. Moreover, many respondents noted that some powerful beneficiaries are involved in more than one project that can create conflict or constraints to better management of community forestry. Although there is no specific rule about the maximum number of projects in which a beneficiary can be involved, some respondents feel that one beneficiary should not be involved in more than one project. Some respondents think that a beneficiary could be involved in two projects maximum if the suitable beneficiary is not found. Some beneficiaries are not sincere enough and sometimes fully ignore their assigned duties that make the garden weak and unprotected. As a respondent said-

"Sometimes, cattle waste our trees but the management cannot take action against the owner of cattle because of having a kinship relationship with that person"—RC 21

"There are some problems and lacking in the maintenance of the garden. It is seen that every beneficiary is not equally sincere to the activity of community forestry"—RC 28

Comilla Sadar South Upazila is a rural area and the majority of inhabitants own many domestic animals like cows, cattle, goat, and sheep. These animals can cause significant damage to the trees in the garden if beneficiaries fail to care for their garden. Some beneficiaries are very diligent in caring for their forests while others fully ignore their responsibilities. Ironically, all have the same right to share the money equally after selling the garden. This unequal treatment

causes serious dissatisfaction among the beneficiaries, especially among those who are fully committed to their jobs. Another problem is creating a conflicting situation between the beneficiaries and landowners of the adjacent roadside garden that could rise during the distribution of cheque, lumber collection and nursing in the garden. As a result, some landowners damage the strip that seriously threatens the existence of community forestry. For example, there is a lot of conflict between landowners and beneficiaries because of tree plantation in roadside, and for damaging trees that make challenges to community forestry in the research area. As a respondent said-

> "There is a possibility to have a problem with local people during lumber collection, strip plantation, etc. Some conflicts also may come from landowner" - RC 15

This kind of conflict among the beneficiaries or between landowner and beneficiaries creates long-term problems that challenge community-based forest management.

5.5.5 Syndicates in Tendering Gardens

Community forestry in Comilla Sadar South Upazila may be complicated by the rise of syndicates, strong linkages between local officials, political leaders, local elites, and traders, designed to control the tendering process or management of gardens. The sale of gardens after the completion of tenure is the main objective of the beneficiaries. Dividends from such sales provide a livelihood for the beneficiaries. It is very disheartening that there are some dishonest players with connections to officials of BFD, as well as with local political persons, who create syndicates to take advantage of the tendering process. Some respondents' views are noteworthy here, such as-

> "There are a lot of barriers; we face in community forestry, whichshould be noted for your kind information as a researcher on this sector. First of all, the critical thing we have to face during tendering of our forest. There is a formation of the syndicate. When we make a schedule to sell a garden in open market by advertising in a tender notice, it is seen in every term to form a strong syndicate so that other businessman could not drop any tender openly. For this conspiracy, both beneficiary group and government lose their present market monetary value and revenue respectively" -- RC 01

This kind of illegal system in tendering of the garden within a syndicate culture is a loss to all related stakeholders including government revenue and beneficiaries. It is viewed by some respondents that the creation of syndicates imposes an indirect restriction on all businessmen so that all businessmen could not drop application. These syndicates gain by manipulating the price of the garden and in such a way they gain more bargaining power against sellers of the garden. Ultimately, the seller has to sell the garden at a lower price. Another respondent said in this regard, as follows-

> "Another problem that I observe is selling a garden for several times. The first party buys it at a very low price but he resells it to the third party on the high price and the third party also resells it to others at the extremely high price. It is so regretted that this extremely high price we don't get it for some mismanagement that makes the loss for the both parties e.g. government and beneficiaries" –RC 01

Eventually, the practices noted above are considered serious challenges to community forestry management. It also leads to long-term conflict among the stakeholders of forestry.

5.5.6 Challenge of People in Poverty

Beneficiary people are the vital forces of community forestry and the poor people under the maintenance of certain criteria as per existing community forestry rules should be given priority in the selection of beneficiaries. However, there are some alternative scenarios that the management committee has been practicing in the beneficiary selection process. For example, the people who are economically solvent or have a good intimacy with management committees or political influence in the local area may get priority or are certainly can get considered as a beneficiary. This kind of practice is in contradiction to the policies and rules established for community forestry and sustainable development in the region(s). As a respondent said-

> "I have been observing some problematic situations since my involvement with this project. As I saw, the people, who are financially lower, are not prioritized in selecting the beneficiary people. And I saw, some economically powerful people are involved with more than one community forestry project that is fully anti-social forestry rules"—RC 01

In many instances, beneficiaries who are comparatively higher in economic status always play a dominating role over other poorer beneficiaries in all aspects of management like decision making, money expenditure, and distributing strips for plantation. So, the poor, less educated and less informed segment of society are at a disadvantage and eventually this can result in long-term conflict among the beneficiaries of community forestry.

5.5.7 Financial Challenges

Financial capability is also another big challenge in community forestry. The main reason many projects face a financial crisis is that they are dependent on BFD for launching forestry projects. It is obvious that the funding support of BFD is not sufficient to accomplish all necessary works of forestry. It was seen that BFD provides the money only for buying strips but more investment is needed for nursing and protection of gardens like purchasing fertilizer, labour cost for nursing, buying bamboo for building fences to protect the resource. All these costs are the responsibility of beneficiaries, yet the majority of beneficiaries of the community forestry in Comilla Sadar South Upazila are poor and not able to meet the costs. Ideally, these costs should come from the BFD community forestry fund, but this organization is facing a financial crisis; this department is not capable of providing extra money for nursing and protecting gardens. Funding is therefore limited to the establishment and first rotation phase. This problem is also acute in a second rotation garden because the main funding source comes from the TFF of the first rotation garden on a ten percent basis. This amount is not enough to cover all work required from establishment of strip plantations to the full rotation where trees reach full maturity. Consequently, the responsibility of covering the cost as a result of extra expenditure falls to the beneficiaries, those least fitted to incur the costs.

5.5.8 Space Limitations

The scarcity of space is another big problem for launching new community forestry in Comilla Sadar South Upazila. Some respondents indicated that the population of this area is growing rapidly and it is rare to get an empty place for tree plantations. It was viewed as follows-

> "Now we are not getting enough space for a new tree plantation. Some places are so crowded and dense with squatters that are not favorable to plant and protect tree" -- RC19

One recognizable trend is many young people of this area are setting up retail businesses such as dealershipsin fertilizer, poultry farms, and restaurants on the roadside that occupy land that could be used for tree plantations. This places further demands on space.

5.5.9 Obstacles Associated with Development initiatives

Obstacles that come from the development works also represent other severe challenges in community forestry in Comilla Sadar South Upazila. Hence, it is found that the majority of roadside community forestry projects are created on roads owned by other organizations including national roads and highway, the Bangladesh Railway, Local Government Engineering Department and Union Parishad Roads. In this case, the problem is that these departments extend and widen roads that can damage roadside gardens. Oftentimes, no prior notice is given to community forestry management committee and even no compensation is provided to the affected beneficiaries. So this is a serious problem, as a respondent said-

> "Another problem we face is the extension of the road. The local government sometimes takes the plan to extend the road that causes to cut a lot of pre-matured and matured trees and the respective department does not make any compensation to us. As for example, Rural Electrification Board (REB) that cut a lot of tresses to set up its electrical poles" – RC 01

In addition, the Rural Electrification Board (REB), the energy supplier to rural areas, often destroys trees when it runs its electric lines and cables through the area. Ultimately, their works

make have the significant impact of community forests adding to the many obstacles faced by farmers.

5.5.10 Other Challenges

Additional challenges were also identified during my data collection such as lack of arrangement of timely meetings, which underlies decision-making. Furthermore, the community forestry in Comilla Sadar South has a lack of planning capacity in implementing projects, which can have a negative impact of consensus building. Moreover, this kind of decision-making system gives rise to a monopoly and to the practice of domination. Furthermore, economic status is often considered an important determinant in the decision-making process. Consequently, beneficiaries of lower economic status may be ignored in the final decision-making process. In other words, economically vulnerable people or beneficiaries are ignored where class, status, and power are determinants to be evaluated. The great challenge in Comilla Sadar South Upazila is a lack of proper training to beneficiaries. In fact, the success of community forestry is fully depended upon expertise and skill of beneficiaries that could be increased by giving proper and enough training to beneficiaries. It is regrettable that there is no training and few workshops for the beneficiaries of community forestry. So, there is no scope to enhance their forestry-related knowledge and their practical work. Some respondents replied that training could be arranged by NGOs, but currently it is fully ceased due to the financial crisis. In fact, there has been no training since the postponement of NGOs' involvement in community forestry management.

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Chapter Six

Conclusions and Recommendations

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6.1 Conclusions

The concluding chapter recaps the key issues arising from the research purpose, objectives, and answers to the research questions. The chapter also endeavors to provide implications of the research and argues for extending further research on community forestry in the context of developing countries. The purpose of the research was to explore the integrating processes of all stakeholders through participation and collaboration in community-based forestry. In addition, this work seeks to examine the contribution of community forestry to the sustainability of rural communities. Barriers that act as impediments to the implementationof the participatory approach are also addressed. Four objectives that were taken into account throughout the research: to investigate the institutionalized processes of stakeholders' participation in community based forest management; to ascertain the structures and intensity of collaboration that exists among all stakeholders in community-based forest management; to assess the contributions of community-based forestry in maintaining the sustainability of communities; and lastly to identify the challenges and difficulties to the implementation of participatory approach in community based forest management.

My results indicate the importance of stakeholder integration in community forestry. Participation and collaboration are required to improve accountability, equality, sincerity, and co-financing systems. These factors will contribute to the longevity of community sustainability in terms of environmental viability, social network and solidarity, economic prosperity, and maintaining human capacity. A summary of key findings and recommendations follow:

6.1.1 Stakeholders' Participation in Community-Based Forestry

In community forestry, beneficiary groups are one of the vital forces or actors mainly responsible for ensuring success; the main target of CBF is to create or support opportunities for the poorest people to improve their livelihood. In Comilla Sadar South Upazila (CSSU), I developed an overarching concept "Responsibilities and Contributions of Beneficiaries"

(Appendix-VIII; Table-01) following data organization and categorization. The overarching concept embraced four final themes that include nursing and protection of garden, participation in the meeting, maintaining communication and financial investment.

Beneficiaries participate mainly in community forestry by taking responsibility for nursing and protection of the trees and garden. In accomplishing this work, they are well connected with each other and participate in meetings to get information and also to inform other people about the present situation of forestry. Another important role is to support the project through financial involvement to cover the cost of fertilizing, cleaning, and protecting the garden.

The BFD is working in community forestry as an institutional stakeholder (representing the government) and is a key player in operations and management. The participation of this government agency is very important and laudable given it provides motivation and encouragement, supervision and monitoring, finalize decisions, and arranges for compensation (Appendix-VIII; Table-01). In fact, the vital role of BFD is to supervise and monitor the project to address the problems that the beneficiaries could face in running the project. For instance, some institutional problems in CSSU are very acute in community forestry especially in the roadside garden where REB makes barriers through cutting the trees for extending roads, wiring electric cables and to set up electric poles. So, in this case, BFD tries to arrange a negotiation to recover compensation on behalf of beneficiaries and for themselves. These kinds of initiatives are good participatory actions for improving the efficacy of community forestry in CSSU. Moreover, the responsibility of taking final decisions goes to the BFD especially in making the list of selected beneficiaries, money disbursement, the formation of executive body/committee, and lastly and importantly, tendering gardens. The BFD also arranges to collect money from the purchaser and has a program to distribute cheques to actual beneficiaries. These tasks are complex and need to be transparent. The BFD accomplishes all of these tasks and maintains transparency and accountability as much as possible.

Another institutional stakeholder in community forestry is UP, which is working as the agency of local government in the rural area. In CSSU, UP is automatically involved as a stakeholder. The roles and responsibilities of UP are noteworthy, as this agency assist with the project both directly and indirectly beginning with its inception. If anybody damages the tree or garden, UP ultimately supports the community-based forest management regarding legal action, pursuing

local judiciary system, and providing evidence. For example, UP helps to settle disputed matters and can motivate villagers to increase awareness among rural people; In turn, this can inspire farmers to plant, grow and maintain health plantations. Despite their contribution, there is some level of controversy associated with UP activities. Because UP enjoys five percent (MoEF, 2010, p. 20) of the total garden revenue. Therefore, some stakeholders expect a more effective role and more output from UP.

NGOs represent another vital organ of the participatory approach and have an important role in maintaining and ensuring the efficacy in the activities of community forestry. At the beginning of community forestry projects in rural Bangladesh, NGOs were actively involved in formulating the final list of beneficiaries. This institutional stakeholder also arranged training/workshops targeting beneficiaries on behalf of BFD. Presently, there is no active involvement of NGOs, because there is a view that people have already been trained enough and therefore are well aware of plantation practices. This kind of logic in reducing the role of NGOs undermines the role of key stakeholders and in the longer term may compromise the sustainability of local forest communities.

6.1.2 Collaboration in CBFM

In addressing the second objective of the research (ascertaining the structures and intensity of collaboration), I explored the practices of collaboration among all stakeholders (BFD, beneficiary, UP, NGOs). My results indicate that among the stakeholders; BFD, beneficiaries, and UP collaborate in community forestry, while there is no collaboration with NGOs and business entrepreneurs. However, interactive communication and consensus building processes are explored in this study as the outcome of collaboration. First and foremost, community forestry must select beneficiaries, and it is exceedingly challenging to make a list of beneficiaries. In making this list, therefore, BFD communicates as much as possible with other stakeholders including members of the community to ascertain the actual socio-economic condition of local people. This helps determine whether members meet the criteria to be selected as beneficiaries. Furthermore, all stakeholders are significantly collaborated in terms of formal and informal communication to accomplish the community forestry activities.

Another important aspect of collaboration is consensus building. The critical feature of community forestry in CSSU is the decision-making system. Because decision-making involves different stakeholders with different backgrounds, there is a high probability of creating a confrontation within or between management and stakeholders. Surprisingly, in most cases it is seen that there is no confrontation or conflict between the members of the management committee and other stakeholders. Thus, in the study area, consensus is usually achieved in most of the works, and there is little scope to have a long-term dialectical relationship; rather everybody is enjoying the project and the team works within a collaborative atmosphere.

There are some other strategic processes to be integrated into collaboration in community forestry management. These strategies are integration with existing community forestry rules. Presently, community forestry activities are being governed by "Social Forestry Rules-2004". All community forestry projects are expected to follow these rules in pursuing their activities. Most stakeholders of community forestry in CSSU are conscious of the rules and   almost everybody is enthusiastic to judge and evaluate the activities as per the rules and guidelines. Another strategy of community forestry in CSSU is that the management body is trying to maintain equality in gender and economic status. However, in the research area, there are a very few women who are interested to be involved in community forestry. Nevertheless, the management committee searches for females who can be included in community forestry projects. On the other hand, the management body tends to give priority to people who are economically solvent to ensure protection of the garden. This kind of activity is contradictory to existing community forestry rules.

 Finally, the current learning practices in community forestry in CSSU are partly based on a collaborative process. My findings show that previous learning processes were institutional, e.g., some NGOs pledged to conduct training and workshop for beneficiaries suggesting collaboration between BFD and NGOs. Presently, no NGO is involved, but there is an informal learning system among beneficiaries involving good communication and networking whereby they teach and learn by themselves. This kind of learning system could be referred to an informal system of collaboration in community forestry.   Moreover, co-financing systems are also based on strong collaboration between BFD and beneficiaries that allow for the establishment and management of gardens.

6.1.3 Contributions of CBFM

The third objective of the research was to assess the contributions of CBFM in maintaining the sustainability of communities. In attaining this objective, I explored four components of community sustainability including environmental viability, economic prosperity, social networking and solidarity, and restoring human capacity. My results suggest that environmental viability and economic prosperity are the main outputs of community forestry in CSSU. In fact, the primary goal of community forestry is to support the poorest people or forest dependent people in terms of attaining livelihood opportunities in the short term and long term. Hence, short-term livelihoods are dominated in CSSU through gathering of lumber for cooking or selling in the local market. On the other hand, beneficiaries and other stakeholders like UP and BFD will get a significant amount of money after completing the tenure of the garden that affects their capital expenditure in the long term. Environmental sustainability is another important feature of community forestry. Such forests can help reduce environmental degradation, produce oxygen, reduce soil erosion, and increase possibility of rainfall. In addition, community forestry in CSSU also contributes to reducing climate change by minimizing carbon dioxide in atmosphere and cyclone. Furthermore, it also contributes to ecological conservation and increasing natural beautification like creating a sanctuary for birds, a habitation for wildlife, increasing the durability of roadside and providing shade to passersby. Two other benefits of community forestry that can contribute to a more sustainable community include stronger social network and solidarity that results in interpersonal relationship, exchanging views, harmony, and responsibility to others. As well, human capacity is also being restored through improved physical and mental health along with improved nutritional status.

6.1.4 Implications of Constraints in CBFM

At the last stage of Chapter Five "Findings and Analysis," I revealed a significant number of challenges to address the fourth objective of the research. The fourth and final objective is to examine challenges to the implementation of the participatory approach in CBFM. The factors that influence implementation are diverse and some problems are more acute than others. Among those that were evident in this study include political interference, syndicate culture in tendering the garden, damage caused by forest side landowners, and lack of sincerity by beneficiaries.

Almost every interviewee pointed to these problems and especially to the illegal work of officials who are sheltered by political leaders. Because CSSU is a rural area and village politics is very acute and there are significantly influences on most developmental work within the study area. Moreover, all beneficiaries are not equally sincere in their duties, and especially those who are economically solvent in comparison to others. They never come or visit the garden but like to enjoy the economic advantages equally with those who contribute fully. This often creates an internal problem among the beneficiaries. Moreover, forest side landowner and other institutional projects also create problems like damaging trees or picking up strips for their personal use or institutional interests like road extension and wiring electric cables. In addition, some problems like lack of public awareness, financial crisis, deficiency of enough space, and lack of proper training for management body and beneficiaries also diminish project outcomes.

6.2 Recommendations

6.2.1 Recommendations for CBFM

Community-based forestry is based on stakeholder integration notably strong participation and collaboration that are required to be more progressive and stronger. For that reason, I proposed a number of recommendations (Appendix-VIII; Table-12) reflecting the perception of local stakeholders and their suggestions along with the articulation of literature reviews.

6.2.1.1 Ensuring Participatory Approach

The main actors of the participatory approach need to be incorporated actively through constructive engagement in CBFM to have the maximum efficacy from its collaborative functions. Presently, only three organs of the participatory approach; community people, government, and community leaders are involved in community forestry. Two important organs; NGOs and business entrepreneurs are significantly ignored in management. Therefore, it is recommended that these two organs (NGOs and business entrepreneurs) should be involved, and simultaneously other organs (beneficiaries, BFD, UP) that are already involved should be more

resourceful and run in the proper way. My recommendations below address the maintenance of all bodies of the participatory approach.

6.2.1.1.1 Reviving participation of NGOs

Forest managers in rural Bangladesh need to reactivate the involvement of NGOs. At the very beginning of launching community forestry, NGOs were actively engaged for arranging training /workshop for beneficiaries and members of the management committee. Subsequently, the role of NGOs has been virtually depleted because of bureaucratic practice though they are still involved in community forestry rules. Every beneficiary and key informants believe that NGOs participation should be reactivated to ensure good management and logistic support. NGOs are working with community people, and they have valuable information along with financial conditions that could be used in making beneficiary lists. Some respondents think that there is no arrangement of training and workshop in community forestry due to inactivity of NGOs in management.

6.2.1.1.2 Increasing UP's responsibility and accountability

UP, as an agency of local government, is involved in community forestry but their involvement could be categorized as an indirect or sleeping organ of the whole body. It is clearly stated that they have no active contribution in project management though they get a significant portion of money after selling the garden. Most respondents are dissatisfied to see the performance of UP. In fact, UP's involvement is very negligible, but it enjoys full right to share money. However, UP has much potential scope to improve community forestry; this could be maintained through the arrangement of proper training for both beneficiaries and the managing body. Moreover, UP could sanction money or donate strips (seedlings) for tree plantations. Furthermore, UP should increase accountability especially to the community forestry management body about the usage of money that it gets from forestry projects.

6.2.1.1.3 Increasing Role of Forest Departments

The forestry department works as a local supervisory actor on behalf of the Bangladesh Government. This department is fully responsible for administrative and field level activities like supervising, monitoring, evaluating, and finalizing decisions taking into account stakeholders' opinions. To maintain forestry activities properly, BFD should increase the workforce by recruiting personnel with forestry, biology or botany expertise. Many respondents and key informants said that officers, who visit their project, have no academic background and are unable to diagnose tree problems. Moreover, a Block Supervisor should have scientific knowledge to allow diagnoses of tree problems) and should have better contact with beneficiaries. Presently, a Bit Officer is responsible for supervising and visiting a lot of gardens and sometimes it is hardly possible to accomplish their job within their assigned time and schedule due to long distances from one garden to another. So, in this case, assigned officers should have facilities of good transportation like a motorbike for having easiest transportation and communication. In addition, the officer of BFD should be honest in making the beneficiary list and tendering the garden to secure maximum profit and common interest rather than personal interest. They should also be sincere in tendering the garden in time especially when a garden gets to full maturity. In summary, officers of BFD should be more pro-active in performing their assigned duties.

6.2.1.1.4 Inclusion of Landowner and Women

Landowners of the roadside forestry garden could be considered as beneficiaries. Almost every beneficiary and key informant viewed that many landowners are losing their valuable crops due to the shade of trees. In this case, the inclusion of landowners in community forestry as beneficiaries could have compensation for their loss and also would have more incentive to reduce the damage of trees. Women should also be encouraged to be more involved in community forestry as a means of achieving gender balance. My findings show few women are involved in forestry and forestry management in CSSU. Most are excluded because of archaic traditional views regarding female roles and activities. It is strongly recommended that women could be integrated into forestry should be encouraged more and more to come in forestry activities for having the true development of society.

6.2.1.1.5 Inclusion of business entrepreneurs

Business entrepreneurs in CSSU, as a vital organ of a participatory approach, are fully absent in community-based forest management though they are directly involved in every sphere of community forestry. For example, the local businessmen supply the strips (seedlings) for tree plantation, and after the completion of tenure, they submit tender for purchasing the garden. So, they are financially involved with community forestry initiatives from inception but they are not engaged in forestry management. If entrepreneurs and business interests are to be involved in future community forest, it is critical that a strong sense of social responsibility emerge. Ethical practices, transparency, and accountability are perquisites to better community forestry in Bangladesh. Therefore, business involvement in community-based forest management can be positive but forestry rules and policy must not be violated if the participatory approach is to be effective.

6.2.1.1.6 Proper Selection of Beneficiaries

Beneficiaries are the vital force and the main target population of community forestry. Beneficiaries are also largely responsible for ensuring productive results and thereby the overall success of projects. For that reason, their selection is critical and must strictly conform to community forestry rules. There are important criteria based on   socio-economic conditions that have to be maintained in selecting beneficiaries. In CSSU, many respondents expressed their dissatisfaction that beneficiaries are not being selected properly and the managing committee ignores many of poorer people who are fully eligible to be beneficiaries. It is clear that such illegal activity can hamper the main vision and practice of community forestry. Moreover, it negatively affects public sentiment. For that reason, the selection process of beneficiaries should be improved through better monitoring and management. One possibility is for management committees to establish accountability accords among the various stakeholders. These accords can focus on stakeholder responsibilities, principles, quality, and could help ensure the selection process.

6.2.1.2 Increasing Capacity Development

The stakeholders involved in community forestry need to build additional capacity to ensure community forestry projects can lead to more sustainable rural communities. Beneficiaries should be focused mainly on developing a strategic approach to capacity development. Two primary ways could be followed in increasing capacity development including the arrangement of training/workshops and launching motivational and research initiatives. Because many beneficiaries lack strong academic backgrounds, they need to be aware of the importance of tree plantations and the link to environmental sustainability. Training /workshops aimed at strategic planning, forest management and financial matters could significantly improve their understanding of the complex interactions and dynamics involved in community forestry. On the other hand, there should also be more applied research focusing on the problems, solutions, prospective, and efficacy of community forestry. This research, including social and natural science could diagnose problems and offer solutions to day-to-day and to long term challenges. Moreover, the main actor of community forestry projects should take a lead and motivate the beneficiaries for being sincere and punctual in their responsibilities. Ultimately, these kinds of activities increase capacity development of all involved stakeholders and strengthen the link between community forestry and community sustainability.

6.2.1.3 Minimizing Political Influence

Political influence is regarded as a significant hindrance in community forestry in CSSU. Every sphere of community forestry is affected by unscrupulous political intervention. For example, political activity interferes in the beneficiary selection process, tendering the garden and all other implicated works that impede the main vision of community forestry. For that reason, every stakeholder should be conscious about minimizing political influence in community forestry. It can be minimized through increasing accountability of all engaged stakeholders, improving monitoring, and increasing public awareness.

6.2.1.4 Institutional Negotiation

Institutional negotiation is an important element in community forestry of CSSU. In most of the cases, BFD uses the land of other organization like BR, LGED, and UP, and there should have

good collaboration between BFD and land owned organizations for the sake of convenient management. Sometimes, owners of the land develop their property by extending roads or constructing structures that can hamper the community forestry project and ultimately beneficiary people will be affected financially. To address this problem, BFD, landowners, management committees and stakeholders should work cooperatively and collaboratively through arranging internal negotiation to minimize the losses of beneficiaries.

6.2.1.5 Increasing Logistic Support and Governmental Budget

BFD should increase necessary logistic support and financial budget for community forestry. Some respondents said that BFD does not provide any maintenance cost needed for nursing and protecting the garden. In this case, there is a financial deficiency that the managing committee faces and they try to fulfill this deficiency. However, BFD could provide additional funds to maintain this cost. Moreover, the allocation of money that BFD provides in creating first rotation garden is too low to maintain all costs. So, BFD also should increase the first allocation of money in community forestry. Furthermore, government could pursue or motivate any donor to allocate money in community forestry.

6.2.1.6   Silviculture Improvements

In some areas that depend on community forestry, there is potential to improve production through improved silviculture regimes. Some respondents noted that trees are not being planted based on scientific guidelines. The standard is that one thousand strips should be planted in a mile, but sometimes the numbers exceeds three thousand strips. Apart from tree density there is also potential to improve the forest by investigating the viability of other tree species, use of various nutrient regimes, and better ways to protect the resource.

6.2.1.7 Recovering Governmental Land

Some government owned land is used illegally by local people who are politically sheltered. In such cases, the responsible governmental department should be sincerer in reclaiming the land for community purposes. Particularly, BFD should conduct a survey to determine the illegally

grabbed or abandoned land that should be recovered immediately for afforestation and reforestation.

6.2.1.8 Context-Based Policy Formulation

Context should be considered in the case of any policy formulation regarding community forestry. To consider the context, policymakers should visit communities and field operations and interact directly with local stakeholders, especially those who will be most affected due to the implementation of the project. Hence, policy makers could evaluate the public judgment, their sentiment, and perceptions. On the basis of their discussions and evaluation, improved policies can be formulated.

6.2.2 Recommendation for Further Research

More research is required in future to understand the roles and challenges faced by all stakeholders involved in community forestry. The present practices of local communities in some areas of Bangladesh undermine the important organs of the participatory approach such as NGOs and business entrepreneurs. Future research needs to address the reason for the diminished role of NGOs. Research is also required to highlight the positive benefits of including business entrepreneurs. The present research based on a qualitative approach focused on four objectives to uncover the present scenario of community forestry. The first objective is related to the process of stakeholders' participation in community forest management. Hence, future research could focus more on stakeholders' participation, its nature and functionality along with formal and informal participation. The second objective is pertinent to the intensity of collaboration. In fact, collaboration has various dimensions, and future researchers could incorporate other factors like power sharing, information and knowledge sharing, and resource sharing of collaboration in community forestry. The third objective of the research is to assess the contribution of community forestry to community sustainability. Lastly, the fourth objective is to examine the challenges and difficulties in the implementation of the particiapatory approach in CBFM. By design, the current research is based on social science and largely ignores the pure scientific measurement of the outcome of community forestry. In this case, future researchers could emphasize quantitative scientific assessments and report accurate and precise data for

evaluating community sustainability. Future work can also incorporate or expand on vulnerability studies, economic analysis or climate change adaptation etc. Moreover, these four research objectives could be addressed in future research in another rural area of Bangladesh to enriching the literature on this important topic.

References

Abbotsford. (2013). Community sustainability strategy: shaping our future. City of Abbotsford, retrieved from www.abbotsford.ca/sustainability.

Adhikari, U. (2011). Women in forest management: A case study of Dharapani women community forest (Master's Thesis). Pokhara Universit, Bharatpokhari VDC, Kaski, Nepal.

Agrawal, A. and Gupta, K. (2005, July). Decentralization and participation: the governance of common-pool resources in Nepal's Terai. World Development, 33(7), 1101-1114. Retrieved from https://www.sciencedirect.com/science/article/pii/S0305750X05000690.

Agarwal, B. (2001). Participatory Exclusions, Community Forestry, and Gender: An Analysis for South Asia and a Conceptual Framework. World Development 29 (10), 1623-1648. Retrieved from http://siteresources.worldbank.org/INTENERGY/Resources/ backgroundmaterial1.pdf

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

Agger, A., and Lund, D. H. (2017). Collaborative innovation in the public sector-new perspectives on the role of citizens? Scandinavian Journal of Public Administration. 21 (3), 17-37. Retrieved from www.researchgate.net/publication/320064546.

Al-Amin, M & Hasan, M. (n.d). Bangladesh: Participatory forest management in degraded
     forests : Perspective REED+ in Bangladesh.Retrieved from www.apfnet-
     ktc.cn/upload/201409011529415232.pdf.

Ali, S.S., Choudhury, A.H., and Magno, V.C. (1990). Thana afforestation and nursery
     development project. Course Design No.05, Social Forestry Afforestation Course for
     Thana(Upazila) Agriculture Officers. Forest Department, Ministry of Environment and
     Forest, United Nations Development Programmes, Food and Agriculture Organization of
     the United Nations. Dhaka, Bangladesh.

Ali, Y., Islam, M., Hossain, A.A., and Sultana, M.R. (2010). National report to the Ninth Session
     of the United Nations Forum on Forest. Retrieved from
     http://www.un.org/esa/forests/pdf/national_reports/unff9/Bangladesh.pdf

Alam, M. (2009). Evolution of forest policies in Bangladesh: A critical analysis. International
     Journal of Social Forestry (IJSF), 2(2), 149-166. Retrieved from www.ijsf.org/dat/ art/
     ijsf_vol2_no2_03_alam_forest_policies_bangla.pdf.

Ansell, C., and Torfing, J. (2014). Public Innovation through collaboration and design, Oxon and
     New York: Routledge.

Anderson, N.G., and Horter, W. (2002). Connecting lands and people: Community forests in
     British Columbia. Dogwood Initiative. Retrieved from https://dogwoodbc.ca/wp-
     content/uploads/2016/08/Connecting-Lands-and-People_sm.pdf

Arannayk Foundation [AF]. (2013). Climate resilient participatory afforestation and reforestation
     project. Environmental Management Framework (EMF). Retrieved from

http://www.arannayk.org/pdf/current_projects/130513%20Environment%20Management %20Framework_Afforestation%20Project.pdf

Asare, A. (2000). Community involvement in forest management. The experience of the forestry services division of Ghana. CFMU, Kumasi, Ghana.

Asian Development Bank. [ADB]. (2004). Effectiveness of participatory approach: Do the new approaches offer an effective solution to the conventional problems in rural development projects? Operations Evaluation Department, Asian Development Bank. Retrieved from https://www.adb.org/documents/effectiveness-participatory-approaches do-new-approaches-offer-effective-solution.

Atkinson, P., Coffey, A., and Delamont, S. (2001). A debate about our canon. Qualitative Research, 1(1) 5-21. Retrieved from http://journals.sagepub.com/doi/abs/ 10.1177/ 146879410100100101

Ayles, B.G., Bell, R., and Hoyt, A. (2007). Adaptive fisheries co-management in the Western Canadian Arctic. Fisheries Joint Management Committee. Retrieved from https://fjmc.ca/wp-content/uploads/2017/03/Ayles-et-al-2007-Adaptive-co-management-Chapt-7.pdf

Ayles, B., Porta, L., and Clarke, R.M. (2016). Development of an integrated fisheries co-management framework for new and emerging commercial fisheries in the Canadian Beaufort Sea. Marine Policy, 72, 246-254. dx.doi.org/10.1016/j.marpol.2016.04.032.

Babbie, E. (1998). The practice of social research. Wadsworth Publishing Company. USA.

Bangladesh Bureau of Statistics (BBS). (2007). Statistical Year Book of Bangladesh, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

Bangladesh Bureau of Statistics [BBS]. (1993). Government of the People's Republic of Bangladesh. Retrieved from www.bbs.portal.gov.bd/sites/default/files/files/ bbs. portal...bd/.../CPI

Bandaratillake, H. M. (2002). ADB forestry sector strategic framework: Forest Department perspective. Battaramulla, Sri Lanka: Forest Department.

Bason, C. (2010). Leading public sector innovation: Co-creating for a better society. Bristol/Portland: The Policy Press.

Bahuguna, V.K. (2001). Production, protection and participation in forest management: an Indian perspective in achieving the balance. Forests in a Changing Landscape. 16th Commonwealth Forestry Conference, Fremantle, Western Australia.

Banaszak-Holl, J, Zinn, J. S., and Mor, V. (1996). The impact of market and organizational characteristics on nursing care facility service innovation: A resource dependency perspective. *Health Services Research,* 1996, Vol. 31(1), 97-117. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1070105

Banglapedia (n.d.) Comilla Sadar Dakshin Upzila. National Encyclopedia of Bangladesh. Retrieved from http://en.banglapedia.org/index.php?title=Comilla_Sadar_Dakshin _Upazila

Bangladesh Population Census. (2001). Retrieved from www.bbs.gov.bd

Bangladesh Bureau of Statistics [BBS]. (2011). Population and Housing Census 2001.
      Community Report: Comilla. Retrieved from http://203.112.218.65:8008/ WebTest
      Application /userfiles/Image/PopCen2011/Comilla.pdf

Banik, H. (2014). An overview of social forestry in Bangladesh. Retrieved from
      www.theguardianbd.com/an-overview-of-social-forestry-in-bangladesh.

Barroso, M.M. (n.d.). Reading Freire's works: Are Freire's ideas applicable to Southern NGOs?
      Retrieved from http://eprints.lse.ac.uk/29193/1/IWP11Barroso.pdf

Barrow, E., Clarke, J., Grundy, I., Jones, K. R., & Tesssema, Y. (2002). An analysis of
      stakeholder power and responsibilities in community involvement in forest
      management in Eastern and Southern Africa. Nairobi: International Union for
      Conservation of Nature-East Africa Regional Office. Retrieved from
      https://library.conservation.org/Published%20Documents/2009/2002%20IUCN.%20St
      akeholder%20Power%20in%20Community%20Involvement%20in%20Forest%20Mg
      mt,%20Africa.pdf.

Basiago, A.D. (1999). Economic, social, and environmental sustainability in development theory
      and urban planning practice. The Environmentalist, 19, 145-161. Retrieved from
      https://www.amherst.edu/system/files/media/0972/fulltext.pdf

Baten, M.A., Khan, N.A., Ahammad, R., & Missbahuzzaman, K. (2010). Village common
      forests in Chittagong Hill Tracts, Bangladesh: Balance between conservation and
      exploitation. Unnayan Onneshan. Retrieved from
      www.unnayan.org/reports/VCF1.pdf.

Beauforte Sea Partnership (2009). Integrated ocean management plan for the Beaufort sea: 2009 and beyond. Beaufort Sea Planning Office, Inuvik. Retrieved from www.beaufortseapartnership.ca /wp-content/uploads/2015/04/Integrated-Ocean-Management-Plan-for-the-Beaufort-Sea.pdf

Becker, E., and Jahn, T. (1999). Sustainability and social sciences: A cross- disciplinary approach to integrating environmental considerations into theoretical reorientation. Paris, Zed books.

Benin, S. & Pender, J. (2006). Collective action in communitymanagement of grazing lands: The case of the highlands of Northern Ethiopia. *Environment and Development Economics*, 11,127-149. doi: https://doi.org/10.1017/S1355770X05002688.

Blaikie, P. (2006). Is small really beautiful? Community-based natural resource management in Malawi and Botswana. World Development. 34(11), 1942-1957. doi.org/10.1016/j.worlddev.2005.11.023

Beratan, K.K. (2014). Summary: Addressing the interactional challenges of moving collaborative adaptive management from Theory to Practices. *Ecology and Society*, 19(1), 46. http://dx.doi.org/10.5751/ES-06399-190146.

Bernard, H.R. (2000). Social research methods. Thousand Oaks, CA: Sage

Bertaux, D. (1981). From the life-history approach to the transformation of sociological practice. In Betaux, D.(Ed.). *Biography and society*: The life history approach in the social sciences. London: Sage.

Bharathie, K.P. (1985). Stabilization of rural communities through community forestry in Sri Lanka. Retrieved from https://www.cabdirect.org/cabdirect/abstract/19861833758.

Brannen, J. & Moss, G. (2012). Critical issues in designing mixed methods policy research.
American Behavioral Scientist. 56(6), 789-801. doi : 10.1177/0002764211433796

Bray, D.B, Merino-Perez, L & Barry, D.(Eds.). (2005). The community forests of Mexico.
University of Texas Press. Retrieved from https://books.google.ca/books?
id=92KxDAAAQBAJ&pg=PA106&lpg=PA106&dq=human+capital+and+communit
y+forest&source.

Brendler, T. & Carey, H. (1998, March). Community forestry, defined. *Journal of Forestry*,
96(3), 21-23. Retrieved from www.ingentaconnect.com/contentone
/saf/jof/1998/00000096/00000003/art00008

Brown, D. (n.d.). Prospects for community forestry in Liberia: Implementing the national forest
policy. Sustainable Development Institute. Retrieved from
https://www.odi.org/resources/docs/5694.pdf

Brown, L.D. (1980). Planned change in under-organized systems. In Cummings, T.D. (ed.).
Systems theory for organizational development. New York: John Wiley & Sons Ltd.

Brown, D., Malla, Y., Kate, S., and Springate-Baginski, O. (2002). From supervising subjects to
supporting citizens: recent developments in community forestry in Asia and Africa.
Natural Resources Perspectives. 75, London. Overseas Development Institute.

Brundtland, H.G. (1987). Report of the world commission on environment and development:
Our common future. Retrieved from http://www.un-documents.net/our-common-
future.pdf

Bruner, C. (1991). Thinking collaboratively: ten questions and answers to help policy makers improve children's services. Washington, D.C.: Education and Human Services Consortium. Retrieved from http://archives.ubalt.edu/bcps/pdfs/ R0008_ BCPS_ S04_ B01_F060.pdf

Bryman, A., and Bell, E. (2016). Social research methods. Fourth Canadian Edition. Don Mills, Ontario: Oxford University Press.

Buchy, M., Ross, H., and Proctor, W. (2000). Enhancing the information base on participatory approaches in Australian natural resource management: Commissioned research under the Land & Water Australia's Social and Institutional Research Program. Land & Water Australia, Canberra.

Bullock, R.C. (2006). An analysis of community forest implementation in British Columbia, Canada (Master's Thesis). Wilfrid Laurier University, Waterloo, ON.

Burns, R.B. (2000). Introduction to research methods. London: Sage.

Cabezas, H., and Fath, B.D. (2002). Towards a theory of sustainable systems. *Fluid Phase Equilibria*. 3-14, 194-197. Retrieved from http://www.homepages.ucl.ac.uk/~ucessjb/ S3% 20Reading/cabezas%20and%20fath%2002.pdf

Cadman, T., Maraseni, T., Ma, H.O., & Casero, F.L. (2016). Five years of REDD+ governance: The use of market mechanism as a response to anthropogenic climate change. *Forest Policy and Economics*, 79, 8-16, http://dx.doi.org/10.1016/j.forpol.2016.03.008.

Carney, D. (ed.). (1998). Sustainable rural livelihoods. What contribution can we make? DFID, London, UK.

Carlsson, L. & Berkes, F.(2005). Co-management: Concepts and methodological implications. *Journal of Environmental Management*, 75, 65-76. doi: 10.1016/j.jenvman.2004.11.008

Cash, D. W., Adger, W., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L., & Young, O (2006). Scale and cross-scale dynamics: Governance and information in a multilevel world. *Ecology and Society*, 11(2), 8. Retrieved from https://www.ecologyandsociety.org/vol11/iss2/art8/

Castro, C.P., and Magno, V.C. (1992). Thana afforestation and nursery development project. Field Document No. 15. Course Notes on Social Forestry Orientation Course for Village Leader/Social Workers. Forest Department, Ministry of Environment and Forests, Asian Development Bank, United Nations Development Program, Food and Agriculture Organization. Dhaka, Bangladesh.

Carney, D. (1998). Sustainable rural livelihoods: What contribution can we make? London: Department for International Development. Retrieved from https://www.cabdirect.org/ cabdirect/abstract/19991810326? Start=850

CFM-Working Group of FSCC. (2003). Framework for collaborative forest management in Nepal. Ministry of Forest and Soil Conservation. Kathmandu, Nepal.

Chambers, R. (1995). Paradigm shifts and the practice of participatory research and development. Retrieved from https://opendocs.ids.ac.uk/opendocs/ bitstream/handle/ 123456789/690/rc81.pdf? sequence=1&isAllowed=y

Chaskin, R.J. (1999). Defining community capacity: A framework and implications from a comprehensive community initiative. The Chapin Hall Centre for Children at the

University of Chicago. Retrieve from http://www.saintlukesfoundation.org/wp-content/uploads/2013/07/41.pdf

Charnley, S. & Poe, M. R. (2007). Community forestry in theory and practice: Where are we now? *Annual Review of Anthropology*, 36, 1-389. Retrieved from http://www.annualreviews.org/doi/abs/10.1146/annurev.anthro.35.081705.123143

Cheng, A.S. (2006). Build it and they will come? Mandating collaboration in public lands planning and management. *Natural Resources Journal*, 46, 841-858. Retrieved from http://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=1297&context=nrj

Chhetri, R.B. (2006). From Protection to Poverty Reduction: A Review of forestry Policies and Practices in Nepal, 5(1), Journal of Forest and Livelihoods. Retrieved from www. forestaction.org.

Chopra, K., Kadekodi, G.K., and Murty, M.N. (1990). Participatory development: People and common property resource. New Delhi: Sage. Retrieved from https://www.cabdirect.org /cabdirect/abstract/19926714519

Chowdhury, S. A. (2004). Participation in forestry: A study of people's participation on the social forestry policy in Bangladesh: myth or reality (Master's thesis). Public Administration, Department of Administration and Organization Theory, University of Bergen, Norway. Retrieved from https://bora.uib.no/bitstream/handle/ 1956/1494/Masteroppgave-chowdhury.pdf?sequence=1&isAllowed=y

CIDT. (n.d.). Participatory approaches. Center for International Development and Training. Retrieved from http://www2.wlv.ac.uk/webteam/international/cidt/ cidt_ participation.pdf.

Claridge, T. (2004). Designing social capital sensitive participation methodologies. Social

      Capital Research. Retrieved fromhttps://www.socialcapitalresearch.com/wp-content/

      uploads/2013/01/Social-Capital-and-Participation-Theories.pdf

Clarkson, M.B.E. (1995). A stakeholder framework for analyzing and evaluating corporate social

      performance. *Academy of Management Journal,* 20(1), 92-118. Retrieved from

      https://www.researchgate.net/...corporate_social_performance.../A_Stakeholder_Fram

Colbry, S., Hurwitz, M., and Adair, R. (2014). Collaboration theory. *Journal of Leadership*

      Education. doi: 10.12806/V13/I4/C8

Cobb, D., Ayles, B. and Mathias, J. (2006). Marine environmental quality workshop report.

      Canada/Inuvialuit Fisheries Joint Management Committee. Retrieved from

      https://fjmc.ca/wp-content/uploads/2016/08/Cobb-et-al.-2006_FJMC-Technical-Report-

      2006-02b.pdf

Collaboration for Environmental Evidence. (n.d.). Benefits of community forest management. A

      systematic review for conservation and environmental management. Retrieved from

      www.environmentalevidence.org/wp-content/uploads/2014/07/BriefSR48.pdf

Community Forests: Growing Prosperity at Home. (n.d.). Retrieved from

      https://novascotia.ca/natr/forestry/community-forest/pdf/communityForests.pdf

Community Development Division. (2012). Community development program goals and

      objectives. Retrieved from https://www.cityofmadison.com/ cdbg/documents/

      Framework2013-2014FINAL03232012.pdf

Counsell, S. (2006). Forestgovernance in the Democratic Republic of Congo: An NGO perspective. FERN, UK. Retrieved from loggingoff.info/wp-content/uploads/2015/09/84.pdf.

Creswell, J.W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J. (2003). Research design: Qualitative, quantitative, and mixed methods approaches (2nd ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J. (1998). Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks, CA: SAGE Publications, Inc.

Cultural Survey Report of Comilla Sadar Dakshin Upazila (2007). Retrieved from http://en.banglapedia.org/index.php?title=Comilla_Sadar_Dakshin_Upazila

Curphy, G. J. (1992). An empirical investigation of the effects of transformational and transactional leadership on organizational climate, attrition, and performance. In K. E. Clark, M. B. Clark, & D. R. Campbell (Eds.), Impact of leadership (pp. 177-187). Greensboro, NC: The Center for Creative Leadership.

Davidar et al. (2010). Assessing the extent and causes of forest degradation in India: Where do we stand?. Biological Conservation, 143(12), 2937-2944. doi.org/10.1016/j.biocon.2010.04.032

Denzin, N.K., and Lincoln, Y.S. (Eds.). (2005). The sage handbook of qualitative research (3rd ed.), Thousand Oaks, CA: Sage Publications.

Dev, O. P., Yadav, N.P., Baginski, O.S., and Soussan, J. (2003, July). Impacts of community forestry on livelihoods in the middle hills of Nepal. Journal of Forest and Livelihood, 3(1),64-77.

Dexter, K.V. (2016). Emerging in partnerships for forest governance in the Democratic Republic of the Congo. 2016 World Bank Conference on Land and Poverty. Retrieved from https://www.conftool.com/landandpoverty2016/.../Van_Dexter-642-642_paper.pdf

DFID. (1999). Sustainable livelihoods guidance sheets. Retrieved from http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf.

DFID. (2011, August). Bangladesh: independent impact assessment of the chars livelihoods programme-phase 1. Final Report. Department for International Development. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/ attachment_data/file/204635/Evaluation-chars-livelihoods-prog-bangladesh.pdf

DFID. (2012, July). Formative evaluation of world food programme's livelihoods programme, Karamoja, Uganda. Final Report. Department for International Development. Retrieved from https://assets.publishing.service.gov.uk/government/ uploads/system /uploads/ attachment_data/file/204624/WFP-livelihoods-prog-Karamoja-Uganda.pdf

Dinbabo, M.F. (2003). Development theories, participatory approaches and community development. Bellville: Institute for Social Development, University of the Western Cape. Retrieved from https://www.researchgate.net/publication/ 319316323_ Development_Theories_Participatory_Approaches_and_Community_Development

Donaldson, T., and Preston, L.E. (1995). The stakeholder theory of corporation: Concepts, evidence and implication. *Academy of Management Review*, 20(1), 65-91. Retrieved from https://edisciplinas.usp.br/pluginfile.php/2715807/mod_resource/content/1/Ficha %201_ DonaldsonPreston1995.pdf

Dongol, C.M., Hughey, K.F.D., and Bigsby, H.R. (2002). Capital formation and sustainable
community forestry in Nepal. *Mountain Research and Development*, vol. 22(1), 70-77.
Retrieved from http://lib.icimod.org/record/10954/files/6016.pdf

Duinker, P.N., Matakala,P.W., Chege,F. & Bouthillier,L.(1994). Community forests in Canada:
An overview. *The Forestry Chronicle*, 70(6).

Dunster, J.A. (1989). Establishing the Geraldton Community Forest. Phase 1- Concepts and
background information. Dunster and Associates, Guelph, On.

Duraiappah, A. K., Roddy, P., & Parry, J. (2005, June). Have participatory approaches increased
capabilities? Retrieved from http://www.iisd.org/pdf/2005/ economics_participatory
_approaches.Pdf

Dworkin, S.L. (2012). Sample size policy for qualitative studies using in-depth interviews. Arch
Sex Behav. 41: 1319-1320. doi 10.1007/s10508-012-0016-6

Eade and Williams. (1995). The Oxfam handbook of development: Aging with wisdom
and dignity. Focus on gender, Vol. 2(1).

Eschooltoday. (n.d.). Forest preservation. Retrieved from http://eschooltoday.com/forests/what-
is-forestry.html

Encyclopedia (n.d.) Forest and forestry. Retrieved from https://encyclopedia2. Thefreedictionary
.com/ Forest+and+forestry

Engida, T.G. & Teshoma, A. J. (2012). The socio-economic effects of community forest
   management: Evidence from Dendi District, Ethiopia. *International Affairs and Global
   Strategy*, 4. Retrieved from www.mysciencework.com/publication/show

Erdogan, R. (2013). Stakeholder involvement in sustainable watershed management. Retrieved
   from http://dx.doi.org/10.5772/55798

European Commission. (2003). Policy formulation and implementation. Retrieved from
   www.eltis.org/sites/eltis/files/kt9b_wm_en_6.pdf.

Eyben, R., Ladbury, S. (1995). Popular participation in aid-assisted projects: why more in theory
   than practice? In 'Power and Participatory Development'. (Ed. S Wright). Intermediate
   Technology Publications: London.

Edet, S.I., Samuel, E.S., & Titus, E. E. (2014). Level of community participation in the
   conservation of natural resources in Akamkpa local government area, southern cross river
   state, Nigeria. *Journal of Research & Method in Education*. 4(4), 30-35. Retrieved
   fromhttp://www.iosrjournals.org/iosr-jrme/papers/Vol-4%20Issue-4/Version-
   2/G04423035.pdf

FMB (Forest Management Bureau). (2005). Philippine Forestry Statistics-2005. Department of
   Environment and Natural Resources, Quezon City, Philippines. Retrieved from https://
   drive.google.com/file/d/0B1G5mTNoDPOFZkgzdWphVWpOZnM/view

FAO. (1978). Forestry for local community development. *Forestry Paper*, 7. Rome: FAO.
   Retrieved from http://www.sciepub.com/reference/180521

FAO. (2015).Community-based forestry.Retrieved from www.fao.org/forestry/en

FAO.(n.d.).Participatory forestry.Retrieved from www.fao.org/forestry/37920-
01ee117e8a6b0891ec62ac7f11f7dae4e.pdf

FAO. (1999). Pluralism and sustainable forestry and rural development. Proceedings of an
international workshop, 9-12 December 1997. Rome. Retrieved from
https://digitallibrary . un.org/ record/404071?ln=en

Fast, H., Mathias, J., and Storace, F. (1998). Marine conservation and Beluga management in the
Inuvialuit settlement region. Retrieved from http://waves-vagues.dfo-mpo.gc.ca/
Library/235419.pdf

Feurer, M., Gritten, D., and Than, M.M.(2018). Community forestry for livelihoods: Benefitting
from Myanmar's Mangroves. *Forests*, 9,150. Retrieved from www.mdpi.com/1999-
4907/9/3/150/pdf

Folkesson, M. & Green, E. (2008). How the community affects a community-based forest
management: Based on a case study in Tanzania. Retrieved from www.diva-
portal.org/smash/get/diva2:114204/FULLTEXT01.pdf

Forestry Sector Project (FSP). (2007). Participatory Forestry Newsletter, Bulletin 3, Forest
Department, Dhaka. Cited in   Zaman et al. (2011). Reckoning Participatory Forest
Management in Bangladesh: Study from its Implementation Perspective. Journal of
Agricultural Science, Vol.3, No.3, Pp. 233-239, doi:10.5539/jas.v3n3p233.

Fontaine, C., Haarman, A., and Schmid, S. (2006). The stakeholder theory. Retrieved from
https://pdfs.semanticscholar.org/606a/828294dafd62aeda92a77bd7e5d0a39af56f.pdf

Futureoxford. (2015).A Community Sustainability Plan, Retrieved from

      http://www.futureoxford.ca/ CommunitySustainabilityPlan.aspx

FNR [Forestry and Natural Resources]. (n.d.). What is a forestry? Retrieved from

      https://forestry.ca.uky.edu/what-is-forestry

Franke, N., and Shah, S. (2003). How communities support innovative activities: An exploration

      of assistance and sharing among end users. *Research Policy*, 32(1), 157-178.

      doi.org/10.1016/S0048-7333 (02)00006-9

Frega, R. & Silva, F. C. (2009). Pragmatism and the social sciences: A century of influences and

      interactions. *European Journal of Pragmatism and American Philosophy*. Retrieved

      from https://philpapers.org/archive/FREPAT-5

Freeman, R.E. (2004). A stakeholder theory of modern corporations (7th ed.). *Ethical Theory*

      and Business. http://academic.udayton.edu/LawrenceUlrich/Stakeholder%20Theory.pdf

Freeman, R. E., and Evan, W.M. (1990). Corporate governance: A stakeholder interpretation.

      Journal of Behaviour Economics, 19 (4), 337-59. doi.org/10.1016/0090-5720 (90)90022-

      Y

Freeman, R.E. (1984). Strategic management: A stakeholder Approach. Boston, MA: Pitman.

Friedman, A.L., and Miles, S. (2006). Stakeholders: Theory and Practice. Oxford University

      Press.

Furlong, E. A. (n.d). Agenda Setting. Retrieved from www. Samples.jbpub.com.

Gabay, M. & Alam, M. (2017).Community forestry and its mitigation potential in the
       anthropocene : The importance of land tenure governance and the threat of
       Privatization. *Forest Policy and Economics*, 79, 26-35,
       dx.doi.org/10.1016/j.forpol.2017.01.011

Gack, N. (2007). Participatory approach to development: An analysis of the experiences of
       development projects in Sudan (Doctoral Dissertation).Available from
       http://mro.massey.ac.nz/handle/10179/1455

Ghosh, D. K. (1993). Social forestry training manual. BARC- Winrock International, Agro-
       forestry & Participatory Forestry Research and Training Support Program, Dhaka,
       Bangladesh.

GC. [Government of Canada].(n.d.). Effective interactive communication. Retrieved from
       https://www.canada.ca/en/revenue-agency/corporate/careers-cra/information-moved/cra-
       competencies-standardized-assessment-tools/canada-revenue-agency-competencies-april-
       2016/effective-interactive-communication.html

Goal Formulation. (n.d.). Goals for community development. Retrieved from
        http://www.itasca.com /DocumentCenter/Home/View/1047

Government of the Peoples Republic of Bangladesh. [GoB]. (2016). Success in Social Forestry,
       Bangladesh Forest Department. Retrieved from www.bforest.gov.bd

Government of Bangladesh [GoB]. (2011) Bangladesh Social Forestry Policy-2004. Retrieved
       from www.mofe.gov.bd

Government of the Peoples Republic of Bangladesh [GoB]. (2010). Bangladesh Social Forestry
      Policy-2004. Retrieved from www.mofe.gov.bd

Government of New Brunswick. (2008). Community sustainability plan in New Brunswick.
      Environment and Local Government.Retrieved from http://www2.gnb.ca/content/gnb
      /en/departments/elg/environment/content/community_sustainability_plans.html

Gravesen, N. (2015). Taking a participatory approach to development and better health. WHO
      Regional Office for Europe, Copenhagen Ø, Denmark. Retrieved from
      http://www.euro.who.int/__data/assets/pdf_file/0007/294064/Taking-participatory-
      approach-development-health-malmo-skane.pdf?ua=1

Gray, B. (1989). Collaborating: Finding common ground for multiparty problems. Jossey-Bass,
      San Francisco.

Gray, B., and Wood, D.J. (1991). Collaborative alliance: Moving from practice to theory.
      Journal of Applied Behavioral Science, Vol. 27(1), 3-22. Retrieved from
      http://journals.sagepub.com/doi/pdf/10.1177/0021886391271001

Grifoni, P., Guzzo, T. & Ferri, F. (2014). Environmental sustainability and participatory
      approaches: The case of Italy. *Journal of Sustainable Development*, 7(3). doi:
      10.5539/jsd. v7n3p1

Gruber, J.S.(n.d.). Key principles of community based natural resource management: A synthesis
      and interpretation of identified effective approaches for managing the commons.
      Retrieved from https://pdfs.semanticscholar.org/b514/ca5a89eac15cb40abfff12c391
      0330110fd8.pdf

Guiang, E.S., Borlagdan, S. B., & Pulhin, J.M. (2001). Community-based forest management in the Philippines: A preliminary assessment. Institute of Philippine Culture, Ateneo de Manila University. Retrieved from http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/7541/CBFM%20Preliminary%20Assessment.pdf?sequence=1

Guest, G., Bunce, A., and Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1). 59-82. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/1525822X05279903

HMG. (2000). Statistical Pocket Book. National Planning Commission, Kathmandu, Nepal. Retrieved from http://cbs.gov.np/index.php?route=information/search&filter_Name =statistical%20pocket%20book%202000

Haley, M. (2001). Community forests. From dream to reality in the British Columbia. In: Forests in a changing landscape. 16th Commonwealth Forestry Conference, Fremantle, Western Australia, Pp. 217-220.

Harrison, S. and Suh, J. (2004, December). Progress and prospects of community forestry in developing and developed countries. Small Scale Forest Economics Management and Policy, 3(3), 287-302. Retrieved from https://link.springer.com/article/ 10.1007 %2 Fs11 842-004-0021-2

Hassan, A B M E. (2015). NGOs and their implications in promoting social development in Bangladesh. Sociology and Anthropology, 3(1), 24-36. doi: 10.13189/sa.2015.030104

Hausler, S. (1993). Community forestry: a critical assessment, the case of Nepal. *The Ecologist*, 23(3):84–90.

Hay, K., Aglukark, D., Igutsaq, D., Ikkidluak, J., and Mike, M. (2000). Final report on the Inuit bowhead knowledge study. Retrieved from http://www.nwmb.com/en/ publications/bowhead-knowledge-study

Healey, J.F. (2010). Diversity and Society: Race, Ethnicity, and Gender (3rd ed), Pine Forge Press, p. 53, Thousand Oaks, California, USA.

Hollenbeck, J. R., Beersma, B., and Schouten, M. E. (2012). Beyond team types and taxonomies: A dimensional scaling conceptualization for team description. *Academy ofManagement Review, 37*(1), 82-106. Retrieved from https://journals.aom.org/ doi/full/ 10.5465/amr.2010.0181

Holcombe, S. (1995). Managing to Empower: The Grameen Bank's Experience of Poverty Alleviation. Zed Books Ltd: London, UK. Retrieved from https://www.cabdirect.org/ cabdirect/abstract/19951812419

Hossain, S. (n.d). Participatory forest management in Bangladesh. Retrieved from https://pub.iges.or.jp/pub_file/2ws-3-banglapdf/download

Hoare, A.L. (2010). Community–based forest management in the Democratic Republic of Congo: A fairytale or a viable REDD Strategy? Forests Monitor. Retrieved from www.forestsmonitor.org/uploads/.../REDD_fairytale_paper_final_version.pdf,

Hosseini, S.J.F. (2011). Affective factors in improving sustainable forest management in Iran. *Annals of Biological Research*. 2(5). 263-268. Retrieved from

http://www.scholarsresearchlibrary.com/ articles/affective-factors-in-improving-sustainable-forest-management-in-iran.pdf

Hutton, J.M. and Williams, N.L. (2003). Sustainable use and incentive driven- conservation: Realigning human and conservation interests. Oryx, 37(2), 215-226. doi: 10.1017/S0030605303000395

Imagine Halton Hills. (2013).Integrated community sustainability strategy. Town of Halton Hills.Retrieved from http://www.haltonhills.ca/Sustainability Strategy/ pdf/ 1_Imagine%20 Halton % 20 Hills % 20Sustainability% 20Strategy_Finalpdf

Institute of Higher Education Policy. (2012) Pathways to College Network. Retrieved from http://www.ihep.org/research/initiatives/pathways-college-network

Islam, K.K and Sato, N. (July, 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. doi: 10.2989/20702620.2012.701434

Islam, K.K., Kimihiko, H., Takahiro, F. & Sato, N. (2011). Confronting people-oriented forest management realities in Bangladesh: An analysis of actors' perspective. *International Journal of social Forestry*, 4(2), 153-179. Retrieved from http://ijsf.org/dat/art/vol04/ijsf_vol4_no2_03_islam_forest_management_bangladesh.pdf

IUCN. (2006). Forest Ownership and Decentralized Forest Management. Bangkok, Thailand: Forest Conservation Program, IUCN.

Jashimuddun, M. & Inoue, M. (2012). Community forestry for sustainable forest management: Experiences from Bangladesh and policy recommendations. *FORMATH*, 11: 133-166. Retrieved from http://formath.jp/publication/book/vol11/Vol11/Vol11_133-166.pdf

Jennings, J. (2005). Community-Based Organizations and the Nonprofit Sector in Massachusetts: Where Do We Go From Here? Urban and Environmental Policy and Planning, Tufts University, Medford, Massachusetts.

Jick, D.T. (1979, December). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24(4). Retrieved from http://www.pm.lth.se/fileadmin/_migrated/content_uploads/Jick_1979__Mixing_qualitative_and_quantitative_methods_-_Triangulation_in_action.pdf

Johnson, R.B. & Onwuegbuzie, A.J. (n.d.). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.   Retrieved from www.socsci.uci.edu/~castellj/fieldstudies/webdocs/F.../MixedMethodsResearch.pdf

Johnston, R. (2007). Geography and geographers: Anglo-American human geography since 1945. London: Edward Arnold. Progress in Human Geography, 31(1), 43-52. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0309132507073529

Kajembe, G.C., Monela, G.C., andMvenaZ.S.K. (2003). Making community-based forest management work: A case study of Duru-Haitemba village forest reserve, Babati, Tanzania. Retrieved from http://treesforlife.info/fao/Docs/P/y4807b/Y4807B15.pdf

Kalland, F. and Paetilae, A. (1993). The green change. Metsateho, Helsinki, Finland. 29 pp.

Keating, M. (1993). *The Earth Summit's agenda for change*. Geneva: Centre for Our Common Future, viii, x, 12-13, 63-67.

Kelly, D. (2001). Community participation in rangeland management: a report for the Rural Industries Research and Development Corporation. (RIRDC: Barton ACT). Retrieved fromhttps://rirdc.infoservices.com.au/downloads/01-118

Keenan, R.J. (2015). Climate change impacts and adaptation in forest management: A review. *Annals of Forest Science*, 72, 145-167.doi: 10.1007/s13595-014-0446-5

Khan, M.M. (n.d). Bangladesh: Social Forestry: An appropriate approach for rehabilitation of degraded forest and sustainable forest management- A case study in Mymensingh Forest Division, Bangladesh. Retrieved from www.apfnet-ktc.cn/upload/201409011529415232.pdf

Khan, N.A. (2001). Social forestry versus social reality: Patronage and community-based forestry in Bangladesh. International Institute for Environment and Development, Gatekeeper Series no. 99. Retrieved from http://pubs.iied.org/pdfs/6353IIED. pdf

Kelly, K., and Van Vlaenderen, H. (1995). Evaluating participation processes in community development. Evaluation and Program Planning. 18, 371-383. Retrieved fromhttp://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.8431&rep=rep1&type=pdf

Kahn, M. (1995). Concepts, definitions, and key issues in sustainable development: the outlook for the future. Proceedingsof the 1995 International Sustainable DevelopmentResearch Conference, Manchester, England, Mar. 27-28, Keynote Paper, 2-13.

Khan, M.M.(n.d.). Functioning of local government (Union Parishad): Legal and Practical Constraints. Democracy watch. Retrieved from http://www.dwatch-bd.org/L&P constraints.pdf

Kothari, U. (2001). Power, knowledge and social control in participatory development, in B. Cooke and U. Kothari (eds). Participation: The New Tyranny. London and New York: Zed Books Ltd.

Kumsap, K., and Indanon, R. (2016). Integration of community forest management and development activities: Lessons learned from Ubon Ratchathani province. *Kasetsart Journal of Social Sciences*, 37, 132-137. dx.doi.org/10.1016/j.kjss.2016.08.002

Lai, L. S. (1997). A synergistic approach to project management in information systems development. *International Journal of Project Management*, 15(3), 173-179. Retrieved from https://doi.org/10.1016/s0263-7863(96)00061-0

Lasco, R.D. & Pulhin, J.M. (2006). Environmental impacts of community-based forest management in the Philippines. *International Journal of Environment and Sustainable Development*, 5(1), 46-56.

Lee, E. & Krasny, M.E. (2016). Adaptive capacity in community forest management: A systematic review of studies in East Asia. *Environmental Management*, 59, 34-49. doi: 10.1007/s00267-016-0767-2

Lewis, A., Doidge, W., and Suppa, S. (2006, April). Update of traditional knowledge on polar bears at Inukjuank and Puvirnutuq, Nunavik. The Nunavik Marine Region Wildlife Board. Retrieved from http://www.nmrwb.ca/index.php/en/resources/files/cat_view/38-uploads/42-southern-hudson-bay-polar-bear-management/50-additional-undertakings

Loukola, O., and Kyllönen, S. (2005). The philosophies of sustainability. In Anneli Jalkanen and Pekka Nygren (eds.) (2005). Sustainable use of renewable natural resources — from principles to practices. University of Helsinki, Department of Forest Ecology Publications 34.

Lynam, J.K., and Herdt, R.W. (1989). Sense and sustainability: Sustainability as an objective in international agricultural research. *Agricultural Economics*, Vol. 3, 381-398. doi.org/10.1016/0169-5150 (89)90010-8

Mallik, A.U., and Rahman, H. (1994). Community forestry in developed and developing countries: A comparative study. *The Forestry Chronicle*, Vol.70 (6), 731-735.

Mallik, A.U., Rahman, H. & Park, Y.G. (1995). Community forestry: Revitalizing an age-old practice of sustainable development. *The Journal of Korean Forestry Society*, 84(4), 525-535.

Mariner, J. C.et al. (2011) Integration of participatory approaches into surveillance systems. *Revue Scientifique et Technique* 30:653–659

Manzini, E., & Staszowski, E.(Eds.). (2013). Public and collaborative exploring the intersection of design, social innovation, and public policy. Design Network. Retrieved from http://www.designagainstcrime.com/files/publications/pub_2013_public_and_colla borative.pdf

Mazur, R.E. & Stakhanov, O.V. (2008). Prospects for enhancing livelihoods, communities, and biodiversity in Africa through community-based forest management: a critical analysis. *Local Environment*, 13(5), 405-421. doi: 10.1080/13549830701809700

Mathur, H.M. (1995). The role of social actors in promoting participatory development at local level: A view from India.

Matiku, P., Caleb, M., & Callistus, O. (2013). The impact of participatory forest management on local community livelihoods in the Arabuko-Sokoke Forest, Kenya. *Conservation and Society*, 11(2), 112-129. Retrieved from https://dlc.dlib.indiana.edu/dlc/.../ ConservatSoc112112-6298912_172949.pdf

MacBride Commission (1980). Many voices one world. International Commission for the Study of Communication Problems. Page 254.   Retrieved from http://unesdoc.unesco.org/images/0004/000400/040066eb.pdf

Maser, C. (1997). Sustainable community development, principles and concepts. USA. St. Lucie Press. Retrieved from https://www.popline.org/node/167995

Matose, F. and Clarke, J. (1993). Who is the guardian of the indigenous forests? Cited in Matiku, P. et al. (2013). The Impact of Participatory Forest Management on Local Community Livelihoods in the Arabuko-Sokoke Forest, Kenya. Conservation and Society, 11(2), Pp.112-129. doi: 10.4103/0972-4923.115724

Mia, A. L. (n.d). Participatory forestry approaches in Bangladesh: The perspective of Mymensingh Forest Division. Retrieved from www.fao.org/docrep/ARTICLE/ WFC/XII/0293-C1.HTM#fn1

Menzies, N.K. (2003). Partners in Governing the Forests: Reviewing Community-Based Forest

        Management. XII World Forestry Congress. Retrieved from http://www.fao.org/docrep/

        ARTICLE/WFC/XII/0777-A4.HTM#P10_167

Mirovitskaya, N. and Ascher, W. (2001.) Guide to sustainable Development and Environmental

        Policy, Duke University Press, Box 90660, Durham, NC 27708-0660.

Misa, M. & Hossain, F.M.M. (n.d.). Report of the field survey on the sustainable forest

        management in Bangladesh. Retrieved from www.envr.tsukuba.ac.jp /~jds/ pdf/

        report_bangladesh201108.pdf

Mitchell, R.K., Buren, H.J.V., Greenwood, M., & Freeman, R.E. (n.d.). Stakeholder inclusion

        and accounting for stakeholders. Journal of Management Studies. Retrieved from

        https://www.ronaldmitchell.org/publications/JMS%20AFS%20PREPUB.pdf

McQuerrey, L. (n.d.). Effective interactive communication. Retrieved from

        http://smallbusiness.chron.com/effective-interactive-communication-57776.html

MoEF [Ministry of Environment and Forest]. (2010). Social Forestry Rules-2004. Forest

        Department, Forest Building, Agargaon, Dhaka.

Molinas, J. (1998). The impact of inequality, gender, external assistance and social capital on

        local level cooperation. *World Development*, 26(3), 413-431. doi.org/10.1016/S0305-

        750X(97)10066-3

Mongabay. (n.d.). Bangladesh. Retrieved from http://rainforests.mongabay.com/
         20bangladesh.htm

Moran, E. and E. Ostrom (2005) Seeing the forest and the trees: Human-environment
         interactions in forest ecosystems. Cambridge, MA: MIT Press.

Motherway, B. (2006, March). The role of community development in tackling poverty in
         Ireland: A literature review for the combat poverty agency. Retrieved from
         http://www.combatpoverty.ie/publications/TheRoleOfCommunityDevelopment-
         LiteratureReview_2006.pdf

Muhammed, N. et al. (2008). Forest Policy and Sustainable Forest Management in Bangladesh:
         An Analysis from national and International Perspectives, 36, New Forests. Retrieved
         from http://link.springer.com/ article/10.1007/s11056-008-9093-8.

Mustafa, M.M. (2002). A Review of Forest Policy Trends in Bangladesh: Bangladesh Forest
         Policy Trends, Policy Trends Report. Retrieved from https://pub.iges.or.jp/ pub_file/
         08bangladeshpdf/download? token=7TO8WVIC

Marshall, B, Cardon, P., Poddar, A., and Fontenot, R. (2013). Does sample size matter in
         qualitative research? A review of qualitative interviews in research. *Journal of Computer
         Information Systems*. Retrieved from https://pdfs.semanticscholar.org/
         36e5/5875dadb4011484f6752d2f9a9036b48e559.pdf

Mango, V.C., Ali, S.S., Castro, C.P., and Choudhury, A.H. (1992).   Introduction to Social
Forestry. Afforestation and Nursery Development Project., Field Document -02. FD,
MoEF, ADB, UNDP, FAO. Dhaka, Bangladesh.

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews.
Forum: Qualitative Social Research, 11(3), Art.8. Retrieved from www.qualitative-
research.net

McElroy, M., Jorna, R.J., and Van Engelen, J. (2007). Sustainability quotients and the social
footprint. John Wiley and Sons Ltd. And The European Research Press Ltd. Retrieved
from http://sustainableorganizations.org/Sustainability-Quotients-Social-Footprint.pdf

McElroy, M., Jorna, R.J., and Van Engelen, J. (2006). Rethinking social capital theory: A
knowledge management perspective. *Journal of Knowledge Management*, 10(5),124-126.
doi.org/10.1108/13673270610691233

McIlveen, K. & Bradshaw, B. (2009, February). Community forestry in British Columbia,
Canada: the role of local community support and participation. Local Environment,
14(2), 193-205. doi:10.1080/13549830802522087.

Miles, M.B., and Huberman, A.M. (1994). Qualitative data analysis: An expanded sourcebook
(2[nd]ed.). Thousand Oaks, California: SAGE Publications.

Mohan, G., and Stokke, K. (2000). Participatory development and empowerment: the dangers of
localism. *Third World Quarterly*. Vol. 21(2), 247-268.

Mohammad, N. (2013). Empirical Findings in the Forest law and Policy in Bangladesh, 2(2), Agriculture, Forestry and Fisheries, Science Publishing Group. Retrieved from article.sciencepublishinggroup.com/pdf/10.11648.j.aff.20130202.11.pdf.

Muhammed, N. et al. (2005). Reckoning Social Forestry in Bangladesh: Policy and Plan Versus Implementation. *Forestry*, 78(4). Retrieved from forestry.oxfordjournals.org › Oxford Journals › Science & Mathematics.

Monsi, N.I. (2014). Communities' role in sustainable forest management in Cameroon: Managers or Participants? Ritsumeikan Asia Pacific University.

Mustafa, M.M. (2002). A Review of Forest Policy Trends in Bangladesh: Bangladesh Forest Policy Trends, Policy Trends Report. Retrieved from https://pub.iges.or.jp/ pub_file/ 08bangladeshpdf/download?token=7TO8WVIC.

Nachmias, C. F., and Nachmias, D. (1997). Research methods in the social sciences. St. Martins Press Inc. 175 Fifth Avenue, New York. NY 10010.

National Report to the Ninth Session of the United Nations Forum on Forests. (2010). Retrieved from individual.utoronto.ca/srb16/BiswasChoudhury2007.pdf.

Ndekha A., Hansen E.H., Molgaard, P., Woelk, G., and Furu, P. (2003). Community participation as an interactive learning process: experiences from a schistosomiasis control project in Zimbabwe. Acta Tropica 85, 325-338. doi.org/10.1016/S0001-706X(02)00256-5

Nelson, N., and Wright, S. (1995). Participation and power. In 'Power and participatory development'. (Ed. S Wright). (Intermediate Technology Publications: London). doi: 10.3362/9781780445649

Neefjes, K. (2000). People defining their environment: A future of change, in K. Lee, A. Holland and D. McNeil (eds). Global Sustainable Development in the Twenty-first Century. Edinburgh: Edinburgh University Press.

Negassa, A. (2007). The Role of Trust Among Actors in Common-Pool Resource Management: Empirical Evidence in Participatory Forest Management in Ethiopia. Cited in Takahashi, R. & Todo, Y. (2012). Impact of Community –Based Forest Management on Forest Protection: Evidence from an Aid-Funded Project in Ethiopia. doi: 10.1007/s00267-012-9887-5.

Nguyen-Khoa, S, Smith, L, and Lorenzen, K. (2005). Adaptive, participatory and integrated assessment of the impacts of irrigation on fisheries: Evaluation of the approach in Sri Lanka. Working paper, 89. Colombo, Sri Lanka: International Water Management Institute. Retrieved from http://ageconsearch.umn.edu/bitstream/92016/2/WOR89.pdf

Niaz, A.K., & Mustafa, M.M. (n.d.). The state of forestry in Bangladesh. Retrieved from http://ruchichowdhury.tripod.com/state_of_forestry_in_bangladesh.htm

Nie, M., and Metcalf, P. (2015). The contested use of collaboration and litigation in national forest management. Bolle Center for People & Forests. University of Montana. Retrieved from http://www.cfc.umt.edu/bolle/files/Nie_Metcalf_Bolle_Litigation_Perspective_Oct%202015.pdf

Nilsson, S. (2005). Experiences of policy reforms of the forest sector in transition and other countries. *Forest Policy and Economics*. 7(6), 831-847.doi:10.1016/j.forpol.2004.04.001.

Noble, H., and Smith, J. (2014). Qualitative data analysis: a practical example. Evid Based Nurs, Vol. 17(1), 2-3. doi. 10.1136/eb-2013-101603.

Nunavut Wildlife Management Board (1997) Nunavut Wildlife Management Board Annual Report: 1996-1997. Retrieved from https://www.nwmb.com/.../annual-reports/1805-1996-1997-annual-report-eng-inuk

Nunavut Wildlife Management Board (1999) Nunavut Wildlife Management Board Annual Report: 1998-1999. Retrieved from https://www.nwmb.com/.../annual-reports/1805-1998-1999-annual-report-eng-inuk

Overseas Development Administration. [ODA]. (1995). A guide to social analysis for projects in developing countries. HMSO, London.

Odera, J. (2004). Lessons learnt on community forest management in Africa, National Museums of Kenya, Nairobi, Kenya. Retrieved from www.afforum.org/sites/default/files/English /English_118.pdf

O'Looney, J. (1994). Modeling collaboration and social services integration: A single state's experience with developmental and non-developmental models. *Administration in Social Work.* Volume 18(1), 61-87.

O'Looney, J. (1996). Redesigning the work of human services. Westport, Connecticut: Quorum Books.

Ondrik, R. S. (1999). Participatory Approaches to National Development Planning, Asian development Bank, retrieved from http://siteresources.worldbank.org/ INTEASTASIAPACIFIC/Resources/226262-1143156545724/Brief_ADB.pdf

Openuni [Open University]. (n.d.). Participatory theories and approaches. Retrieved from openuni-clsu.edu.ph/openfiles/modules/rd805/.../Participatory%20theories.doc

Orgugo, P. O., Mogoi, J.N., Obonyo, E., and Oeba, V. O. (2008). Examining the roles of community forest associations in the decentralization process of Kenyan forests. Kenya Forestry Research Institute. Retrieved fromciteseerx.ist.psu.edu/viewdoc/download? doi=10.1.1.510.2555&rep=rep1...

Pandey, S.S; Cockfield, G. and Maraseni, T.N. (2016). Assessing the Roles of Community Forestry in Climate Change Mitigation and Adaptation: A Case Study from Nepal. Forest Ecology and Management, 360, 400-407, http://dx.doi.org/10.1016/ j.foreco. 2015.09.040

Paudel, N.S. (2011). Community-based forestry and livelihoods in the context of climate change adaptation. Asia-Pacific Network for Global Change Research. Retrieved from www.apn-gcr.org/resources/files/original/739eb6475f3e968e78217a6975131598.pdf

Paudyal, D. (2007). Collaborative forest management in Nepal: stepping towards managing productive forests of Terai with social inclusion. Retrieved from https://www.nepjol.info/index.php/INIT/article/viewFile/2683/2377

Paul, S. (2005). Community participation in development projects. The World Bank Experience – Readings in Community Participation. Washington, D.C. Retrieved

fromhttp://documents. worldbank.org/curated/en/850911468766244486/pdf/multi-page.pdf

Papik, R., Marschke, M., and Ayles, G.B. (2003). Inuvialuit traditional ecological knowledge of fisheries in rivers west of the Mackenzie river in the Canadian Arctic. Fisheries Joint Management Committee. Retrieved from https://fjmc.ca/wp-content/uploads/ 2016/08/ Papik-et-al.-2003_FJMC-Technical-Report-2003-04.pdf

Petheram, R.J., Stephen, P., and Gilmour, D. (2004). Collaborative forest management: A review. *Australian Forestry*. 67(2), 137-146. Retrieved from https://www.researchgate.net/ publication/255590269_Collaborative _forest_management_A_review.

Petheram, R.J., Stephen, P., and Gilmour, D. A. (2004). Collaborative forest management: A review. Institute of Land and Food Resources, University of Melbourne. 111. Retrieved from www. Landfood.unimelb.edu.au/resman/review.html.

Poffenberger, M. (ed.). (2000). Communities and forest management in South Asia. A Regional Profile of the Working Group on Community Involvement in Forest Management. IUCN, Gland, Switzerland. Retrieved from https://portals.iucn.org/library/sites/ library/ files/ documents/2000-054.pdf

Pokharel, B.K. (n.d.). Community Forestry and People's Livelihoods. *Journal of Forestry and Livelihood*. Retrieved from http://www.forestaction.org/app/webroot/ js/tinymce/ editor/plugins/filemanager/files/6.%20Bharat.pdf

Pulhin, J.M., Dizon, J.T. & Cruz, R.V.O. (2008). Tenure reform on Philippine forest lands. Retrieved from http://iasc2008.glos.ac.uk/conference% 20papers/ papers/P/Pulhin_ 1233.pdf

Pulhin, J.M. (1996). Community forestry: Paradoxes and perspectives in development practice. Ph.D. Dissertation. The Australian National University, Canberra, Australia.

Rahman, L.M. (2012). Gender Positive Changes in Benefit- Sharing in social Forestry Projects in Bangladesh, Bhutan+10: Gender and Sustainable Mountain Development in a Changing World International Conference, ICIMOD, Bhutan. Retrieved from www.icimod.org/ resource/ 8826.

Rahman, M.M. et al. (2005). Homestead Forest Resources and Their Role in Household Economy: A Case Study in the Villages of Gazipur Sadar Upazila of Central Bangladesh; cited in Alam, M. (2009). Evolution of Forest Policies in Bangladesh: A Critical Analysis. Retrieved from www.ijsf.org/dat/art/vol02/ijsf_vol2_no2_03_ alam_forest_ policies_bangladesh.pdf.

Rahman, M.M. et al. (2006). Role of Homestead Forests in Household Economy and Factors Affecting Forest Production: A Case Study in Southwest Bangladesh; cited in Alam, M. (2009). Evolution of Forest Policies in Bangladesh: A Critical Analysis. Retrieved from www.ijsf.org/dat/art/vol02/ijsf_vol2_no2_03_alam_forest_policies_bangladesh.pdf.

Rasul, G.(2007). Political ecology of the degradation of forest commons in the Chittagong Hill Tracts of Bangladesh. 34(2), 153-163. doi.org/10.1017/S0376892907003888

Rebugio, L.L., Carandang, A.P., Dizon, J.T., Pulhin, J.M., Camacho, L.D., Lee, D.K., and
Peralta, E.O. (n.d.). 19 promoting sustainable forest management through community
forestry in the Philippines. Forest and Society –Responding to Global Drivers of Change.
Retrieved from https://www.iufro.org/download/file/5906/4668/355-368_pdf/

Ribot, J.C. (2004). Waiting for democracy: The politics of choice in natural resource
decentralization. Washington DC: World Resources Institute. Retrieved from
pdf.wri.org/wait_for_democracy.pdf

Rawlani, A.K. and Sovacool, B. K. (2011). Building responsiveness to climate change through
community based adaptation in Bangladesh. Mitigation Adaptation Strategies for Global
Change,16: 845. https://doi.org/10.1007/s11027-011-9298-6

Rosenbaum, W. A. (2011). Environmental Politics and Policy. CQ Press, Washington, D.C

Robinson, D. (2017). The economic theory of community forestry. Retrieved from
https://books.google.ca/books?id=QQo9DAAAQBAJ&pg=PA62&lpg=PA62&dq.

Robinson, E.L. (2010). The cross-cultural collaboration of the community forest. *Canadian
Anthropology Society*, Vol.52(2), 345-356.

Salam, A., Noguchi, T, and Koike, M. (1999). The causes of forest cover loss in the hill forests
in Bangladesh. GeoJournal, 47(4), 539-549.Retrieved from
https://link.springer.com/article/10.1023/A:1006947203052

Sandelowski, M. (1995). Focus on qualitative methods: Sample size in qualitative research. *Research in Nursing & Health*, 18, 179-183. Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1002/nur.4770180211.

Savage, G.T., Nix, T.W., Whithead, C.J., and Blair, J.D. (1991). Strategies for assessing and managing organizational stakeholders. *Academy of ManagementExecutives*, 5(2). 61-75. Retrieved from https://www.researchgate.net/publication/ 233735907_ Strategies_ for_ Assessing_and_Managing_Organizational_Stakeholders

Schallau, C.H. (1989). Evolution of community stability as a forestry issue: time for the dry dock. In   Duinker, P.N., Matakala, P.W., Chege, F.&Bouthillier, L. (1994). Community forests in Canada: An overview. *The Forestry Chronicle*,70(6).

Schreckenberg, K., Luttrell, C., and Moss, C. (2006). Participatory Forest Management: An Overview, retrieved from www.odi.org/sites/ odi.org.uk / files/ odi- assets/ publications – opinion   - files/ 3781. Pdf

Schmitz, C.L., Stinson, C.H., & James, C. D. (2010). Community and Environmental Sustainability: Collaboration and Interdisciplinary Education. *Critical Social Work*,11(3). Retrieved from http://www1.uwindsor.ca/criticalsocialwork/community-and-environmental-sustainability-collaboration-and-interdisciplinary-education

Selsky, J.W. (1991). Lessons in community development: An activist approach to stimulating inter-organizational collaboration. *The Journal of Applied Behavioral Science*.Vol. 27(1), 91-115. https://doi.org/10.1177/0021886391271005

Sillitoe, P. (2002). Participant Observation to Participatory development: making Anthropology Work in P. Sillitoe, A. Bicker and J. Pottier (eds). Participating in development: Approaches to Indigenous Knowledge. London and New York: Routledge.

Stieglitz, F.V. (n.d.). Impacts of Social Forestry and Community-Based Forest Management. Retrieved from www.fao.org/3/a-x7760b/X7760B06.pdf

Sunseri, T. (2005). Something Else to Burn: Forests Squatters, Conservationists, and the State in Modern Tanzania. *Journal of Modern African Studies*, 43(4), Pp.609-640.

Servaes, J. (n.d.). Participatory communication (research) from a Freirean perspective. Retrieved from citeseerx.ist.psu.edu/viewdoc/download? doi=10.1.1.505.5555&rep=rep1

Sharma, N. P. (1992). *Managing the world's forests looking for balance between conservation and development (English)*. Washington, D.C.: World Bank Group. Retrieved from http://documents.worldbank.org/curated/en/714631488517243634/Managing-the-worlds-forests-looking-for-balance-between-conservation-and-development

Shackleton, S., and Campbell, B. (2001). Devolution in natural resources management. Institutional arrangements and power shifts. A synthesis of case studies from Southern Africa. CIFOR, Bogor. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/ download? doi=10.1.1.920.8844&rep=rep1&type=pdf

Smit, B., Pilifosova, O. (2001). Adaptation to climate change in the context of sustainable development and equity. In: McCarthy JJ (ed) Climate change 2001: impacts, adaptation and vulnerability. IPCC working group II. Cambridge University Press, Cambridge, pp. 877–912

Snow, D. (2001). Coming home: An introduction to collaborative conservation. In Philip B., Snow D., and Wetering, S. V.(Eds.). (2001). Across the great divide: Explorations in collaborative conservation and the American West. Washington, D.C., Island Press.

Stephen, P. (2003). A tourist's tales of collaborative forestry from the Pacific North West of America. In Petheram, R.J. (ed.). Proceedings of a community forestry forum, Creswick Campus, The University of Melbourne, Victoria. Retrieved from www.forestry.unimelb. edu.au/CFM.

Strengers, B.J., Van Minnen, J.G., and Eickhout, B. (2008). The role of carbon plantations in mitigating climate change: potentials and costs. *Climatic Change*,88: 343. https://doi.org/10.1007/s10584-007-9334-4

Sundaram. S. (2002). Rural Development. Himalaya Publishing Homes, New Delhi.

S T [Sustainability Theories]. (n.d.). Retrieved from www.berkshirepublishing.com/assets.../ sustainability/ Spirit_SustainabilityTheory.pdf

Taylor, G.S. (n.d.). What is community development? Agrilife Extension. Retrieved from http://agecoext.tamu.edu/files/2013/08/What-is-Community-Devo.pdf

Takahashi, R. and Todo, Y. (2012). Impact of community-based forest management on forest protection: Evidence from an Aid – Funded Project in Ethiopia. *Environmental Management*, 5o, Pp. 396-404, doi 10.1007/s00267-012-9887-5.

Techavijitsarn, W., Kovitaya, M., and Ratana-Ubol, A. (2015). The development of a community learning model for self-management in conserving community forests. *Procedia- Social and Behavioral Sciences*, 191, 2325-2328. Retrieved from https://www.researchgate.net / publication/282536421_The_Development_of_a_Community_Learning_Model_for_Self -Management_in_Conserving_Community_Forests.

Teitelbaum, S.(Ed.). (2016). Community forestry in Canada: Lessons from policy and practice. UBC Press, The University of British Columbia, Vancouver.

The Forest Act. (1927). The People's Republic of Bangladesh. Retrieved from www. bdlaws.minlaw.gov.bd

The Republic of Rwanda (2013). National strategy for community development and local economic development strategy. Retrieved from http://www.minaloc.gov.rw/ fileadmin/documents/Minaloc_Documents/community_development_and_local_ec onomic_development_strategy_January_2013.pdf

Township Vision. (n.d.). Community development goals and objectives. Retrieved from http://eastpennsboro.net/wp-content/uploads/CP_ch_4_ Community_Development _Goals_and_Objectives.pdf

Tsai, T.A. (2014). Strategies of building a stronger sense of community for sustainable neighborhoods: Comparing neighborhood accessibility with community empowerment programs. Sustainability, 6, 2766-2785. doi: 10.3390/su6052766

Trochim, W.M.K. (2009). Research Methods. Dreamtech Press.

Tikare, S., Youssef, D., Donnelly-Roark, P., and Shah, P. (2001). Organizing participatory processes in the PRSP. Retrieved from https://www.internationalbudget.org/wp-content/uploads/Organizing-Participatory-Processes-in-the-PRSP.pdf

Tyani, M. (2007). Society and sustainable management of natural ecosystems. Proceedings of International Conference on Forest Society and Sustainable Development, Casablanca, Morocco.

Treue, T. (2001). Politics and Economics of Tropical High Forest Management: A Case Study of Ghana; In Forest Sciences, Vol: 68, Kluwer Academic Publishers.The Netherlands.Retrieved on cabdirect.org/abstracts/20036793176

Union Councils of Bangladesh (n.d.). Retrieved from https://en.wikipedia.org/wiki/Union_councils_of_Bangladesh

Wade-Berg, J.A., and Robinson-Dooley, V. (2015). Perceptions of collaboration and service integration as strategic alternatives: An examination of social service nonprofit organizations in the late 1990s. *Journal of Public Management & Social Policy*, 20(2), 119-136. Retrieved fromhttps://search.proquest.com/docview/1980072990/ fulltextPDF/ CBAF58D41DB6427FPQ/1?accountid=12378

Weekes-Vagliani, W. (1995). Participatory development and Gender in H. Schneider and M. Liberties(eds). Participatory Development from Advocatory to Action. Paris: OECD.

White, A. & Martin, A. (2002). Who owns the world's forests? Forest Tenure and Public Forests in Transition, Forest Trends, Washington DC, USA.

White, A. (1981). Community participation in water and sanitation: concepts, strategies and methods. (IRC: The Hague). Retrieved from https://www.ircwash.org/sites/default/files/205.1-81CO-2570.pdf

White, S. (1996). Depoliticizing development: The uses and abuses of participation. *Development in practice*, Vol. 6(1), 6-15. Retrieved from www.tandfonline.com/doi/pdf/10.1080/0961452961000157564?needAccess=true

Widok, A. (2009). Social sustainability: theories, concepts, practicability. EnviroInfo. Environmental Informatics and Industrial Environmental Protection: Concepts, Methods and Tools. Retrieved from http://enviroinfo.eu/sites/default/files/pdfs/vol122/0043.pdf

Willis, J.W. (2017). Worldviews, paradigms, and the practice of social science research. doi :http://dx.doi.org/10.4135/9781452230108

Wily, L.A. (2002). The political economy of community forestry in Africa – Getting the power relations right. *Forests, trees and people*, 46, 4-12.

Winnegge, R. (2005). Participatory approach in integrated watershed management. *FWU*, Vol.3, 187-202, Topics of Integrated Watershed Management-Proceedings. Retrieved from https://www.uni-siegen.de/zew/publikationen/volume0305/winnegge.pdf

Williamson, O.E. (1991). Comparative economic organizations: The analysis of discrete structural alternatives. *Administrative Science Quarterly*. Vol. 36(2), 269-296. Retrieved from https://business.illinois.edu/josephm/BA549_Fall%202012/ Session%202/2_ Williamson%20(1991).pdf

Wondolleck, J., and Yaffee, S. (2000). Making collaboration work: Lessons from innovation in natural resource management, Washington, D.C, Island Press.

Wood, D.J., and Gray, B. (1991). Toward a comprehensive theory of collaboration. *Journal of Applied Behavioral Science*. Vol.27(2), 139-162. Retrieved from http://journals. sagepub. com /doi/10.1177/0021886391272001

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., and Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science, 330*, 686-688.Retrieved from http://www.chabris.com/Woolley2010a.pdf

World Bank (2001). Participation in development assistance. Washington, D.C, The World Bank Publications.

World Bank. (1994). A strategy for the forest sector in sub-saharan Africa. Africa Technical Department Series. Retrieved from http://documents.worldbank.org/curated/ en/ 802821468742853336/A-strategy-for-the-forest-sector-in-sub-Saharan-Africa

Wortley, D.R. (2003). Community- based forest management planning in the Yukon: The difficulties of government transfer of responsibility and authority to community agencies (Master's dissertation). University of Alberta, Edmonton, Alberta.

WRM [World Rainforest Movement]. (n.d.). The definition of forest. Retrieved from http://wrm.org.uy/oldsite/forests/Definition_of_Forest.pdf

Wyatt, S. et al. (2010). Collaboration between aboriginal peoples and the Canadian forestry industry: A dynamic relationship. A State of Knowledge Report. Sustainable Forest Management Network. Retrieved from http://www.cfs.nrcan.gc.ca/ pubwarehouse/pdfs/ 32280.pdf

Yin, R.K. (2003). Case study research: Design and methods. Thousand Oaks, California: Sage Publications.

Yin, R.K. (2009). Case study research: Design and methods. 4th edition. Los Angeles: Sage Publications.

Yanow, D. (2007). Interpretation in policy analysis: on methods and practice. *Journal of Critical Policy Studies*, Vol.1(1). doi.org/10.1080/19460171.2007.9518511

Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly, 10*(2), 285-305. Retrieved from https://ucarecdn.com/a8e6e721-0eb6-4c5b-8144-8eb4037f1fab/

Zaman, S.et al. (2011). Reckoning Participatory Forest Management in Bangladesh: Study from Its Implementation Perspective. *Journal of Agricultural Science*, 3(3). Retrieved from www.ccsenet.org/journal/index.php/jas/article/viewFile/8798/8581

Zimmerman, B., and Dart, R. (1998). Charities Doing Commercial Ventures: Societal and Organizational Implications. Trillium Foundation and the Canadian Policy Research Networks, Inc.

Zoysa, M.D. & Inoue, M. (2008). Forest governance and community-based forest management in Sri Lanka: The Past, present and future Perspectives. *International Journal of Social Forestry*, 1(1), 27-49. Retrieved from www.ijsf.org/dat/art/vol01/ijsf_ vol1_no1_02_ zoysa_srilanka.pdf

Semi-structured questionnaire for interview

Rethinking the Participatory Approach in Community-Based Forest Management: Strengthening Community Sustainability in Bangladesh

Statement of Confidentiality

My name is A B M Enamol Hassan. I am currently a Master's student at Memorial University of Newfoundland, Grenfell Campus, Canada and conducting research for my Master's Degree in Environmental Policy. I would like to cordially invite you to participate in an interview for my study on "**Rethinking the Participatory Approach in Community-Based Forest management: Strengthening Community Sustainability in a Rural AreaBangladesh**". The information and testimony that you will provide through a semi-structured questionnaire will only be used for research purposes and will be treated with the highest confidentiality. You have the right to decline the invitation, reject the participation, and withdraw from the interview (at any stage) without giving any reason.

Questionnaire to examine Participatory Approach to Community-Based Forestry

1. How does community-based forestry contribute to the sustainability of the community, to what extent? What are major aspects?
2. What is your opinionabout the existing community forestryrules of Bangladesh?
3. What matters do you discuss in the communication with other stakeholders for maintaining activities in the context of community forestry, and how?
4. With regard to overall forest management, how and to what extent do you reach agreement among stakeholders? What kind of conflicts regarding issues of community forestry appear? Which confliction solutions are taken?
5. How do the stakeholders maintain their sharing responsibilities in community forestry?
6. With reference to participation in community forest management, please give your opinion on issues of equality, for example, in terms of gender and economicstatus?

7. Do you see a learning process about community-based forestry in terms of maintaining documentation, nursing the tree plantation and its protection? What are the features?

8. How do stakeholders contribute to the decision making in a community forestry project?

9. What are the actual financial sources for running a community-based forestry project?

10. How is accountability achieved, especially with regard to the relation between the management committee and the stakeholders?

11. How do you assess collaborative efforts? How do they contribute to success?

12. How do you judge the performance of the management committee? Please give some reasons.

13. What are main mechanism and constraints to run the community forestry project?

14. Please tell me your recommendationsfor promoting the activities of community forestry.

Thank you for your kind support!!!

Informed Consent Form

Title: Rethinking the Participatory Approach in Community-Based Forest Management**:**
Strengthening Community Sustainability in a Rural Area of Bangladesh

Researcher: *A B M Enamol Hassan*

Graduate Research Assistant, Environmental Policy Institute,
Grenfell Campus, Memorial University of Newfoundland,
abmehassan@grenfell.mun.ca

You are invited to take part in a research project entitled *"Rethinking the Participatory Approach in Community-Based Forest Management: Strengthening Community Sustainability in Bangladesh"*

This form is part of the process of informed consent. It outlines the basis of my proposed research and the nature of your participation. It also describes your right to withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, ***A B M Enamol Hassan***, if you have any questions about the study or if further information is required.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction

My name is A B M Enamol Hassan, I am a candidate of the Master of Arts in Environmental Policy at Memorial University of Newfoundland (MUN), Grenfell Campus. As part of my Master's thesis, I am conducting this research under the supervision of Dr. Andreas Klinke and Dr. Wade Bowers for fulfilling the partial requirement of my present degree.

The general purpose of the research is to explore the processes integrating stakeholders through participation and collaboration in community-based forestry in a district (Comilla) of Bangladesh. In addition, the research also tries to understand how sustainable forestry contributes to the overall sustainability of communities by depicting relations and barriers to implement participatory approaches.

Explanation: I focus on three main components: 1) Processes (especially with regard to participatory approaches) integrating stakeholders (for example, Beneficiary Group, Local Government, Forest Department, NGO, and Business Entrepreneurs). I will explore processes integrating stakeholders by means of participation and collaboration concepts; 2) Identifying barriers in the implementation of participatory approaches in community forestry; and 3) Understanding the contribution of community forestry to overall community sustainability in terms of environmental, economic, and social aspects.

 Your Role in the Study

You are invited to participate in this research because of your role and function in community forestry. As a relevant actor in community forestry you would provide a valuable perspective of and a highly appreciated insight into the structure and arrangement of community-based forest management. Your participation in this study involves an interview based on semi-structured questions about collaboration and participation of stakeholders in the community context. The interview will take approximately 60 minutes.

Withdrawal from the study:

As a participant, you have the right to decline participation, to answer any particular question or withdraw from the survey (at any stage) without giving any reason. You also have the right to withdraw your participation even after completing the interview. It is importantly to note that you will no longer be able to withdraw once the findings are published in the form of the master thesis.

Possible benefits:

An important benefit of this study is that the data and information generated could inspire and illuminate further research. Furthermore, the findings of this study provide necessary information for local stakeholders that might be helpful in future decision making, for example in designing or rearranging existing plans of action on community forestry management. Such findings will significantly advance community-based forestry in Bangladesh and elsewhere.

Possible risks:

There are no obvious risks associated with your participation in this research. The small potential risk due to disclosing some financial information will be mitigated because the study will ensure anonymity; participant names will not be stored or associated with any data collected during the study. Moreover, the report will be prepared only by aggregating data. Finally, your participation is entirely voluntary and there will be no negative consequences should you decide to withdraw from the study, or refrain from answering certain questions.

Storage of Data:

The data and information that you provide will be stored in a locked filing cabinet and also preserved electronically in a password protected database. The data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research.

Questions:

You are welcome to ask any question at any time during your participation in this research. If you would like to have more information about this study, please contact: A B M Enamol Hassan via emailabmehassan@grenfell.mun.caor by telephone at 709-216-9540.

GC-REB Approval Statement:

The proposal for this research has been reviewed by the Grenfell Campus-Research Ethics Board and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the GC-REB through the Grenfell Research Office (GCREB@grenfell.mun.ca) or by calling (709) 639-2399.

Consent:

Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw from the study at any time, without having to give a reason, and that doing so will not affect you now or in the future.
- You understand that any data collected from you up to the point of your withdrawal will be destroyed.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your signature:

I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

☐ I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation at any time.

A copy of this Informed Consent Form has been given to me for my records.

_____   _____

Signature of participant   Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

_____   _____

Signature of Principal Investigator   Date

GRENFELL CAMPUS | MEMORIAL UNIVERSITY

Research Ethics Board
University Drive, Corner Brook, NL Canada A2H 5G4
Tel: 709-639-2399 Fax: (709) 637-2885 http://www.grenfell.mun.ca/research-ethics-board

December 14, 2017

Reference number: 20181086

Dear Mr. Hassan,

Thank you for your application for ethical clearance for your proposal *Rethinking the Participatory Approach in Community-Based Forest Management: Strengthening Community Sustainability in Bangladesh*. The Grenfell Campus Research Ethics Board (GC-REB) has reviewed your application and finds your proposal in ethical compliance with the Tri-Council Guidelines. This clearance is given with the understanding that any necessary site-specific ethics approvals have been granted.

Your approval for this project expires on December 14, 2018. To remain in compliance with Article 6.14 (Continuing Research Ethics Review) of the Tri-Council Policy Statement on Ethics in Human Research (TCPS2), should your project continue past that date, you are required to renew your ethics approval before that time. As well, please note that any changes to the proposed study will need to be cleared by the GC-REB first.

The Board wishes you success with your research.

Best wishes,

Daniel Nadolny

Daniel Nadolny, Ph.D., Chair

IMPORTANT REMINDERS – PLEASE READ:

Student Project(s): you must maintain active ethics clearance until the final version of your thesis/dissertation has been approved by your department / the School of Graduate Studies.
If you have graduated prior to receiving this notice, please note that you are still required to submit an annual update indicating completion of your project and requesting closure of your ethics clearance.

GRENFELL CAMPUS, MEMORIAL UNIVERSITY
20 University Drive, Corner Brook, NL, Canada, A2H 5G4
Tel: 709 637 6200   Fax: 709 639 8125
www.grenfell.mun.ca

FIND YOUR CORNER

Recruitment Letter

Attn:

Mr./Miss/Mrs. ……………

My name isA B M Enamol Hassan, I am a studentin the Master of Arts in Environmental Policy program at the Environmental Policy Institute at Memorial University of Newfoundland, Grenfell Campus.I am conducting a research project entitled "*Rethinking the Participatory Approach in Community-Based Forest Management: Strengthening Community Sustainability in Bangladesh*" for my*Master's* degree under the supervision of*Dr. Andreas Klinke and Dr. Wade Bower.* The purpose of the study isto explore processes integrating stakeholders through participation and collaboration in community-based forestry. In addition, I address how sustainable forestry contributes to the overall sustainability of ruralcommunities.

I am contacting you to invite you to participate in aninterview with questions on community-based forest management. Participation will requireapproximately 60 minutesof your time and will be held at a location that is convenient for you.

If youare interested in participating in this study, I would be pleased to hear from you. Please let me know if and when you might be available.

If you have any questions about me or my project, please contact me by email at abmehassan@grenfell.mun.ca,or by phone at88 01639 476347.

Thank-you in advance for considering my request,

A B M Enamol Hassan
Graduate Research Assistant
MA-Environmental Policy Institute
Memorial University, Grenfell Campus
20 University Drive, Corner Brook, NL A2H5G4
Phone: 01639 476347 (Bangladesh)
709- 216 – 9540 (Canada)

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as your rights as a participant, you may contact the Chairperson of the ICEHR at icehr.chair@mun.ca or by telephone at 709-864-2861.

Sampling Frame

No.	Name of Beneficiaries	Name of Community Forestry Project
1	Momotaz Uddin	Rajeshpur Bit
2	Shah Alom	Rajeshpur Bit
3	Alkos Mia	Rajeshpur Bit
4	Abdul Hoque	Rajeshpur Bit
5	Delowara Begum	Rajeshpur Bit
6	Momotaz Mojumder	Rajeshpur Bit
7	Abdul Khaleque	Rajeshpur Bit
8	Siddiqur Rahman	Rajeshpur Bit
9	Ayub Ali	Rajeshpur Bit
10	Mamunur Rashid	Rajeshpur Bit
11	Moktol Hossain	Rajeshpur Bit
12	Abdul Khaleque	Joshpur Bit (Shuvanogor Garden-Small)
13	Jamal Uddin	Joshpur Bit (Shuvanogor Garden -Big)
14	Mostofa Kamal	Joshpur Bit (Shuvanogor Garden -Big)
15	Obaidur Rahman	Joshpur Bit (Shuvanogor Garden -Big)
16	Beauty Akter	Joshpur Bit (Shuvanogor Garden -Big)
17	Abdul Aziz	Joshpur Bit (Shuvanogor Garden -Big)
18	Abdul Karim	Joshpur Bit (Shuvanogor Garden -Big)
19	Shamsul Haq	Joshpur Bit (Shuvanogor Garden -Big)
20	Morshed	Joshpur Bit Shuvanogor Garden -Big)
21	Abu Taher	Joshpur Bit (Shuvanogor Garden -Big)
22	Farid	Joshpur Bit (Shuvanogor Garden -Big)
23	Rafique	Joshpur Bit (Shuvanogor Garden -Big)
24	Osman Ali	Joshpur Bit (Shuvanogor Garden -Big)

25	Shah Alam	Joshpur Bit (Shuvanogor Garden -Big)
26	Shabid Ali	Joshpur Bit (Shuvanogor Garden -Big)
27	Abdul Momin	Joshpur Bit (Shuvanogor Garden -Big)
28	Maetullah	Joshpur Bit (Shuvanogor Garden -Big)
29	Robban Ali	Joshpur Bit (Shuvanogor Garden -Big)
30	Bachhu Mia	Joshpur Bit (Boraipur Garden)
31	Saleha	Joshpur Bit (Boraipur Garden)
32	Master Momin	Joshpur Bit (Boraipur Garden)
33	Md. Fazlul Haque (Kajol)	Kheaish Primary School to Borochor Calvert Roadside Garden
34	Md. Humayon Kabir	Kheaish Primary School to Borochor Calvert Roadside Garden
35	Md. Abdul Kaiyum	Kheaish Primary School to Borochor Calvert Roadside Garden
36	Md. Mostafizur Rahman	Kheaish Primary School to Borochor Calvert Roadside Garden
37	Shohel Ahammod Bhuian	Kheaish Primary School to Borochor Calvert Roadside Garden
38	Md. Monjil Haque	Kheaish Primary School to Borochor Calvert Roadside Garden
39	Md. Shah Alom	Kheaish Primary School to Borochor Calvert Roadside Garden
40	Ms. Shafia Begum	Kheaish Primary School to Borochor Calvert Roadside Garden
41	Md. Abdul Norek	Kheaish Primary School to Borochor Calvert Roadside Garden
42	Md. Siddiqur Rahman	Kheaish Primary School to Borochor Calvert Roadside Garden
43	Md. Mahmudul Hassan	Kheaish Primary School to Borochor Calvert Roadside Garden
44	Md. Owadud Member	Kheaish Primary School to Borochor Calvert Roadside Garden
45	Md. Faruk Ahammod	Kheaish Primary School to Borochor Calvert Roadside Garden
46	Md. Ehsanul Kabir	Kheaish Primary School to Borochor Calvert Roadside Garden
47	Md. Ayeth Ali	Kheaish Primary School to Borochor Calvert Roadside Garden
48	Md. Abul Hashem	Kheaish Primary School to Borochor Calvert Roadside Garden
49	Md. Shamsul Haque	Kheaish Primary School to Borochor Calvert Roadside Garden
50	Md. Ohudur Rahman	Kheaish Primary School to Borochor Calvert Roadside Garden
51	Md. Hanif	Kheaish Primary School to Borochor Calvert Roadside Garden

52	Md. Jahangir Aliom	Kheaish Primary School to Borochor Calvert Roadside Garden
53	Abdul Malek	Bagmara to Bhucci Bazar Roadside Garden
54	Abu Taher Majumder	Bagmara to Bhucci Bazar Roadside Garden
55	Joynal Abedin	Bagmara to Bhucci Bazar Roadside Garden
56	Mahmuda Akhter	Bagmara to Bhucci Bazar Roadside Garden
57	Lokman Hossain	Bagmara to Bhucci Bazar Roadside Garden
58	Din Mohammad (Shujon)	Bagmara to Bhucci Bazar Roadside Garden
59	Masudur Rahman	Bagmara to Bhucci Bazar Roadside Garden
60	Tasnuva Bobi	Bagmara to Bhucci Bazar Roadside Garden
61	Rafiqul Islam	Bagmara to Bhucci Bazar Roadside Garden
62	Abdul Barik	Bagmara to Bhucci Bazar Roadside Garden
63	Foez Ullah	Bagmara to Bhucci Bazar Roadside Garden
64	Abul Hossain	Bagmara to Bhucci Bazar Roadside Garden
65	Shofiqur Rahman	Bagmara to Bhucci Bazar Roadside Garden
66	Ripon Hossain	Bagmara to Bhucci Bazar Roadside Garden
67	Abu Taher	Bagmara to Bhucci Bazar Roadside Garden
68	Aminul Islam	Bagmara to Bhucci Bazar Roadside Garden
69	Abdul Motin Mollah	Bagmara to Bhucci Bazar Roadside Garden
70	Sayed Kamruzzaman	Bagmara to Bhucci Bazar Roadside Garden
71	Toyub Ali	Bagmara to Bhucci Bazar Roadside Garden
72	Ahsan Ullah	Bagmara to Bhucci Bazar Roadside Garden
73	Mostafa Kamal Mintu	Bagmara to Bhucci Bazar Roadside Garden
74	Shohidul Islam	Bagmara to Bhucci Bazar Roadside Garden
75	Nasrin Akhter	Bagmara to Bhucci Bazar Roadside Garden
76	Ruhul Amin	Bagmara to Bhucci Bazar Roadside Garden
77	Bacchu Mia	Bagmara to Bhucci Bazar Roadside Garden
78	Abul Hashem Bhuiyan	Bagmara to Bhucci Bazar Roadside Garden

79	Shumon Mia	Bagmara to Bhucci Bazar Roadside Garden
80	Abul Hossain	Bagmara to Bhucci Bazar Roadside Garden
81	Shohel Chowdhury	Bagmara to Bhucci Bazar Roadside Garden
82	Mojibur Rahman	Bagmara to Bhucci Bazar Roadside Garden
83	Jamal Hossain	Bagmara to Bhucci Bazar Roadside Garden
84	Tajul Islam	Bagmara to Bhucci Bazar Roadside Garden
85	Amirul Islam	Bagmara to Bhucci Bazar Roadside Garden
86	Md. Jashim Uddin	Bagmara to Bhucci Bazar Roadside Garden
87	Ms. Nargis Ahter (Shima)	Bagmara to Bhucci Bazar Roadside Garden
88	Abu Taher	Holdia South Hajotia to Betagaon Roadside Garden
89	Abdul Motin	Holdia South Hajotia to Betagaon Roadside Garden
90	Abdul Barik	Holdia South Hajotia to Betagaon Roadside Garden
91	Mahmuda Akhter	Holdia South Hajotia to Betagaon Roadside Garden
92	Siddikur Rahman	Holdia South Hajotia to Betagaon Roadside Garden
93	Johirul Islam	Holdia South Hajotia to Betagaon Roadside Garden
94	Jahangir Hossain	Holdia South Hajotia to Betagaon Roadside Garden
95	M R Fakruddin Noyon	Holdia South Hajotia to Betagaon Roadside Garden
96	Jashim Uddin	Holdia South Hajotia to Betagaon Roadside Garden
97	Amir Hossain	Holdia South Hajotia to Betagaon Roadside Garden
98	Md. Abdul Malek	Vucci to Bangla Bazar Roadside Garden
99	Shofiul Ahamed (Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
100	Md. Golam Sarwar	Vucci to Bangla Bazar Roadside Garden
101	Md. Abu Taher	Vucci to Bangla Bazar Roadside Garden
102	Md.Shofi Ullah	Vucci to Bangla Bazar Roadside Garden
103	Md. Abul Hashem(Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
104	Md. Kala Mia(Freedom	Vucci to Bangla Bazar Roadside Garden

	Fighter)	
105	Mahmuda Akhter	Vucci to Bangla Bazar Roadside Garden
106	Md. Mir Hossain	Vucci to Bangla Bazar Roadside Garden
107	Md. Harun-Ur-Rashid	Vucci to Bangla Bazar Roadside Garden
108	Abu Mohammed Saleh Asif	Vucci to Bangla Bazar Roadside Garden
109	Md. Zainul Abedin(Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
110	Md. Abul Khaer	Vucci to Bangla Bazar Roadside Garden
111	Abu Ahmed Shams Ifaz	Vucci to Bangla Bazar Roadside Garden
112	Md. Ali Ashraf (Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
113	Md. Abdul Mannan (Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
114	Md. Abul Kashem	Vucci to Bangla Bazar Roadside Garden
115	Md. Babul Mia(Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
116	Md. Masud Rana	Vucci to Bangla Bazar Roadside Garden
117	Md. Shirajul Haque (Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
118	Tashfia Binte Taher	Vucci to Bangla Bazar Roadside Garden
119	Md. Mojibur Rahman	Vucci to Bangla Bazar Roadside Garden
120	Kazi Golam Zilani	Vucci to Bangla Bazar Roadside Garden
121	Md. Abul Hossen	Vucci to Bangla Bazar Roadside Garden
122	Nurul Islam (Freedom Fighter)	Vucci to Bangla Bazar Roadside Garden
123	Md. Masudur Rahman	Vucci to Bangla Bazar Roadside Garden
124	Md. Jamal Hossen	Vucci to Bangla Bazar Roadside Garden
125	Jafor Ahammed	Vucci to Bangla Bazar Roadside Garden
126	Anjuman Ara Bobi	Vucci to Bangla Bazar Roadside Garden

127	Kawosar Ahammed	Vucci to Bangla Bazar Roadside Garden
128	Humayon Kabir	Horishchor Circular Road to Atiti Roadside Garden
129	Motaleb Hossain	Horishchor Circular Road to Atiti Roadside Garden
130	Billal Hossain	Horishchor Circular Road to Atiti Roadside Garden
131	A T M Noman Mojumder	Horishchor Circular Road to Atiti Roadside Garden
132	Md. Mohiuddin Foysal	Horishchor Circular Road to Atiti Roadside Garden
133	Eunus Mia	Horishchor Circular Road to Atiti Roadside Garden
134	Md. Saiful Islam	Horishchor Circular Road to Atiti Roadside Garden
135	Afroza Begum	Horishchor Circular Road to Atiti Roadside Garden
136	Saleh Ahmed	Horishchor Circular Road to Atiti Roadside Garden
137	Md. Mahbubul Alom	Horishchor Circular Road to Atiti Roadside Garden
138	Nazrul Islam	Horishchor Circular Road to Atiti Roadside Garden
139	Mazharul Islam	Horishchor Circular Road to Atiti Roadside Garden
140	Rabeya Akhter Lovely	Horishchor Circular Road to Atiti Roadside Garden
141	Abu Taher	Horishchor Circular Road to Atiti Roadside Garden
142	Rohima Akhter	Horishchor Circular Road to Atiti Roadside Garden
143	Mahfuzul Alom	Horishchor Circular Road to Atiti Roadside Garden
144	Dr. Shah Alom	Lalmai Tower to Joynogor Mosque Roadside Garden
145	Md. Abu Taher Mazumder	Lalmai Tower to Joynogor Mosque Roadside Garden
146	Md. Rafiqul Islam	Lalmai Tower to Joynogor Mosque Roadside Garden
147	Sri Omar Krishno Bonik	Lalmai Tower to Joynogor Mosque Roadside Garden
148	Md. Sohrab Majumder	Lalmai Tower to Joynogor Mosque Roadside Garden
149	Md. Kamal Hossain	Lalmai Tower to Joynogor Mosque Roadside Garden
150	Md. Nurul Islam	Lalmai Tower to Joynogor Mosque Roadside Garden
151	Ms. Ruzina Akhter	Lalmai Tower to Joynogor Mosque Roadside Garden
152	Md. Harun-Ur-Rashid	Lalmai Tower to Joynogor Mosque Roadside Garden

153	Md. Delwar Hossain	Lalmai Tower to Joynogor Mosque Roadside Garden
154	Md. Elias Mia	Lalmai Tower to Joynogor Mosque Roadside Garden
155	Sri Gopal Debonath	Lalmai Tower to Joynogor Mosque Roadside Garden
156	Md. Baharul Alom(Shohagh)	Lalmai Tower to Joynogor Mosque Roadside Garden
157	Md. Iman Hossen	Lalmai Tower to Joynogor Mosque Roadside Garden
158	Md.Nizam Uddin	Lalmai Tower to Joynogor Mosque Roadside Garden
159	Md. Ahmad Ullah	Lalmai Tower to Joynogor Mosque Roadside Garden
160	Md. Robiul Hossen	Lalmai Tower to Joynogor Mosque Roadside Garden
161	Md. Motaleb Hossen	Lalmai Tower to Joynogor Mosque Roadside Garden
162	Md. Jashim Uddin	Lalmai Tower to Joynogor Mosque Roadside Garden
163	Md. Saidur Zaman (Shaon)	Lalmai Tower to Joynogor Mosque Roadside Garden
164	Md. Tofael Ahmed Mojumder	Lalmai Tower to Joynogor Mosque Roadside Garden
165	Md.Nazmul Haque	Lalmai Tower to Joynogor Mosque Roadside Garden
166	Md. Alomgir	Lalmai Tower to Joynogor Mosque Roadside Garden
167	Md. Jashim Uddin	Lalmai Tower to Joynogor Mosque Roadside Garden
168	Md. Khorshed Alom Mojumder	Lalmai Tower to Joynogor Mosque Roadside Garden
169	Md. Harun-Or-Roshid Mojumder	Lalmai Tower to Joynogor Mosque Roadside Garden
170	Sadia Alom	Lalmai Tower to Joynogor Mosque Roadside Garden
171	Md.Shahjahan	Lalmai Tower to Joynogor Mosque Roadside Garden
172	Md. Abu Taher (Roni)	Lalmai Tower to Joynogor Mosque Roadside Garden
173	Rehana Begum	Lalmai Tower to Joynogor Mosque Roadside Garden
174	Md. Kamrul Hassan	Lalmai Tower to Joynogor Mosque Roadside Garden
175	Md. Abdul Motin Mollah	Lalmai Tower to Joynogor Mosque Roadside Garden
176	Md. Humayon Kobir	Joynogor to Laksham Junction Roadside Garden

177	Md. Johirul Islam	Joynogor to Laksham Junction Roadside Garden
178	Md. Jamal Hossain Mojumder	Joynogor to Laksham Junction Roadside Garden
179	Md. Shoriful Islam	Joynogor to Laksham Junction Roadside Garden
180	Md. Shah Alom	Joynogor to Laksham Junction Roadside Garden
181	Md. Harun-Ur-Roshid	Joynogor to Laksham Junction Roadside Garden
182	Md. Abdul Malek	Joynogor to Laksham Junction Roadside Garden
183	Md. Mizanur Rahman	Joynogor to Laksham Junction Roadside Garden
184	Md. Mobarok Hossain	Joynogor to Laksham Junction Roadside Garden
185	Md. Abdullah-Al-Mamun	Joynogor to Laksham Junction Roadside Garden
186	Md. Joynal Abedin	Joynogor to Laksham Junction Roadside Garden
187	Md. Enayeth Hossain	Joynogor to Laksham Junction Roadside Garden
188	Md. Jafor Iqbal	Joynogor to Laksham Junction Roadside Garden
189	Ms. Shahnaj Begum	Joynogor to Laksham Junction Roadside Garden
190	Md. Parveen Akhter	Joynogor to Laksham Junction Roadside Garden
191	Din Mohammad	Joynogor to Laksham Junction Roadside Garden
192	Kollayan Mitro Shingh(Roton)	Joynogor to Laksham Junction Roadside Garden
193	Md. Nazrul Islam	Joynogor to Laksham Junction Roadside Garden
194	Md. Omar Faruque	Joynogor to Laksham Junction Roadside Garden
195	Md. Ahsan Ullah	Joynogor to Laksham Junction Roadside Garden
196	Md. Dilruba Akhter	Joynogor to Laksham Junction Roadside Garden
197	Ms. Nurunnahar	Joynogor to Laksham Junction Roadside Garden
198	Md. Aman Ullah Aman	Joynogor to Laksham Junction Roadside Garden
199	Md. Faruque	Joynogor to Laksham Junction Roadside Garden
200	Abu Zafor Md. Saleh	Joynogor to Laksham Junction Roadside Garden
201	Ms. Afroza Begum	Joynogor to Laksham Junction Roadside Garden
202	Sentu Shaha	Joynogor to Laksham Junction Roadside Garden

203	Md. Adom Ali	Joynogor to Laksham Junction Roadside Garden
204	Tulshi Rani Shaha	Joynogor to Laksham Junction Roadside Garden
205	Sabina Yasmin	Joynogor to Laksham Junction Roadside Garden
206	Muhammad Iqbal Hossain	Joynogor to Laksham Junction Roadside Garden
207	Busnessman	Bagmara Bazar
208	NGO's Representative	Holdia Mohila Unnoyon Shongstha (Holdia Woman Development Organization)
209	Divisional Forest Officer	Comilla Social Forestry Division
210	Forester	Comilla Social Forestry Division
211	Bit Officer	Rajeshpur Eco-park
212	Union Parishad Member	Bagmara Union

Appendix - VI

Organogram of Comilla Social Forestry Division

| Divisional Forest Officer (DFO) |
| ↓ |
| Assistant Conservator of Forest (ACF) |
| ↓ |
| Range Officer (RO) |
| ↓ |
| Deputy Range Officer (DRO) |
| ↓ |
| Forester/Bit Officer |
| ↓ |
| Forest Guard |

(Source: Office of the Comilla Social Forestry Devision, 2017)

Coding Tables

Table -01: Development of Final Themes and Overarching Concepts showing shared responsibilities of all stakeholders

NGOs		
Broad Initial Themes	Final Themes	Overarching Concept
Raising public awareness and consciousness	Raising Public Awareness and Motivation	Participation of NGOs
Organizing training and workshop	Capacity Development Activities	
NGOs involvement is necessary	Coordinating Management	
Providing extra logistic support		
Good supervision and deliberating motivational speech		
Perfect selection of beneficiary		
Bangladesh Forest Department (BFD)		
Broad Initial Themes	Final Themes	Overarching Concept
Motivating and encouraging the beneficiaries	Motivation and Encouragement	Leading Roles of BFD
Monitoring financial matter Perfect supervision of forestry project activities	Supervision and Monitoring	
Regular inspection of forestry project Fruitful discussion with beneficiaries		
Effective suggestions and proper guidelines		
Maintaining official jobs related to community forestry		
Finalizing decision	Finalizing Decision	
Arranging compensation from respective organizations Remedial Action	Arrangement of Compensation	
Providing financial support	Arranging Financial Disbursement	
Union Parishad (UP)		

Broad Initial Themes	Final Themes	Overarching Concept
Settling up disputed matter in favor of community forestry	Settling up disputed matter	Integration of Union Parishad
Rigorous legal support in favor of community forestry	Formal and Informal Support	
Providing informal support to community forestry		
Involvement of community police to protect the garden		
Keeping community forestry as agenda in monthly meeting		
Indirect financial support		
Distribution of strips for tree plantation		
Pursuing people in tree plantation	Motivating Local people	
Beneficiary Group		
Broad Initial Themes	Final Themes	Overarching Concept
Nursing trees regularly Protect the garden regularly Attending in meeting and Giving Opinion Arranging guard to protect the garden Maintaining communication Sharing in financial matter	Nursing and Protection of Trees and Garden Participation in Meeting Maintaining Communication Financial Investment for Production	Responsibilities and Contribution of Beneficiaries

Table -02: Development of Final Themes and Overarching Concepts showing the implications of interactive communication

Broad Initial Theme/ Category Development	Final Themes	Overarching Concepts
Selection of actual beneficiaries Selection of Placement	Policy wise Selection Process	
Regular Maintenance of Garden Protection and Nursing the Garden Emphasizing Strip Plantation	Plantation and Regular Supervision	

Arrangement of meeting timely Keeping meeting minutes minutely Proper evaluation of members' opinion Active Engagement Making Consciousness	Regular Arrangement of Meeting	Interactive Communication
Effective Negotiation Attempt to take legal action Problem Solving Discussion	Negotiation and Legal Action	
Communication with Local Government Informal communication among the members Steady Communication	Formal and Informal Contract	

Table -03: Development of Final Themes and Overarching Concept showing the implications of consensus building

Broad Initial Themes/Category Development	Final Themes	Overarching Concepts
Considering diversity and plurality of thinking in taking decision	Diversity and Plurality of Thinking	Consensus Building
Priority to skills, experience, and professionalism of Stakeholders	Agreement upon the consideration of expertise in management	
Assurance of Maximum Participation of Members Importance on common interest of beneficiaries	Maximum Participation and Common Interest	
Dissemination of Information to all stakeholders	Dissemination of Information	
Achieving Agreement Decision for All	Consent-based Decision	
Stakeholders Presence Deserving Opinion Concern to Problems	Evaluation of members' opinion	
No Conflict because of diversified opinion	Absence of Dialectical Relationship	

Table -04: Development of final themes and overarching concepts showing the maintenance of equality on the basis of Gender and Economical Status

Gender		
Broad Initial Themes	**Final Themes**	**Overarching Concepts**
Rare participation of woman	Rare Participation of woman	Woman in Community-Based Forest Management
Traditional and conservative thinking		
Priority to females in management	Priority to Females in Management	
Expectation on females' participation		
No inequality on the basis of gender		
Enthusiastic to be involved		
Economical Status		
Broad Initial Themes	**Final Themes**	**Overarching Concepts**
No special priority of economical position	Economical Influence Free Management	Economical Position in Community-Based Forest Management
Economical influence free management		
Evaluation of performance	Evaluation of Performance	
Practice of equality		

Table -05: Development of final themes and overarching concepts showing the learning system in CBFM

Broad Initial Themes	**Final Themes**	**Overarching Concepts**
learning system through training and workshop	Formal Learning System	Learning Process in Community-Based Forestry
Agenda based training		
Self –learning	Informal Learning System	
Informal learning system		

Table-06: Development of final themes and overarching concepts showing co-financing system in community forestry

Broad Initial Themes	**Final Themes**	**Overarching Concepts**
Available sources of financial accumulation	Institutional Investment	
Personal investment of beneficiaries	Personal investment	
No conflict on financial matter		
Institutional Investment from Government Revenue	Transparent and publicly disclosed	Co-financing System
Transparent and publicly disclosed		

Table-06: Development of final themes and overarching concepts showing accountability of CBFM

Broad Initial Themes	Final Themes	Overarching Concepts
Keeping record/ documentation of all statements	Proper Maintenance of Documentation	Maintaining Accountability in Management
Publicly disclosure of all dealings	Disclosure of all Reports	
Disclosure in meeting		
Responsible to answer of any queries	Highest Level of Sincerity and Responsibility	
Sincerity to duties		

Table-07: Development of final themes and overarching concepts showing environmental viability of CBFM

Broad Initial Themes /Category Development	Final Themes	Overarching Concepts
Evaporating Oxygen Reducing Soil Erosion Increasing Possibility of Precipitation	Reducing Environmental Degradation	Environmental Viability
Reducing Carbon dioxide Reducing Cyclone	Reducing Climate Change	
Creating Sanctuary for Birds Habitation of Wildlife Availability of Fresh Air and keeping Environment Cool	Ecological Conservation	
Increasing Durability and beautification of Road and Roadside Providing Shadow	Natural Beautification	

Table-08: Development of final themes and overarching concept showing social network and solidarity in CBFM

Broad Initial Themes /Category Development	Final Themes	Overarching Concepts
Good Interpersonal Relationship Scope to Get Together Scope to Exchange Views Increasing Social Network	Social Network	
Creating Social Solidarity, harmony and Social Learning Creating Brotherhood	Social Solidarity	

	Mutual Consciousness	Social Network and Solidarity
Making Responsible to Others Donation in Social Welfare	Mutual Consciousness	Social Network and Solidarity
Scope to Exchange Views Scope to be closed to government agencies	Institutional Network	
Securing International Land Boarder	Cross Boarder Relationship	

Table-09: Development of final themes and overarching concept showing economical prosperity in CBFM

Broad Initial Themes /Category Development	Final Themes	Overarching Concepts
Generating Personal Income and livelihoods Collecting Lumber Fulfilling Domestic Fuel Needs	Collection of Livelihoods	Economic Prosperity
Expenditure in Productive Sector and Business Expenditure on Education Paying loan and Liability Mortgaging Agricultural Land	Expenditure in Productive Sector	
Government Revenue	Government Revenue Collection	
Development of Local Market	Development of Local Market	
Rural Infrastructural Development	Rural Development	
Return in Cash Formation of Capital Long term Investment Reducing pesticide usage in crop lands	Savings, Capital Formation and Investment	
Producing Vegetables in Garden Making Crop Land Free of Insects	Increasing Agricultural Production	

Table-10: Development of final themes and overarching concept showing reviving human capital in CBF

Broad Initial Themes /Category Development	Final Themes	Overarching Concept
Contributing to Physical health functioning Contributing to Mental Health Increasing Nutritional Status	Good Physical and Mental Health	Reviving Human Capital

Table-11: Development of final themes and overarching concept showing constraints in CBF and its management

Broad Initial Themes	Final Themes	Overarching Concept
Lack of Efficiency Lack of Honesty Not maintaining rules and regulation	Unprofessional Dealings of FD	Constraints
Financial Loss of Roadside Landowner Obstacles from landowner	Obstacles from Forest side landowner	
Abuse of Political Power Bad influence of local leadership	Political Interference	
Tendency to break the rule Ignoring respective duties and responsibilities Creation of coercive situation	Constraints created by beneficiaries	
Making Syndicate in tendering of garden	Making Syndicate in tendering garden	
Ignorance of hard core poor people	Ignorance of hard core poor people	
No Public awareness	Lack of Public awareness	
Financial crisis	Financial crisis	
Deficiency of enough space	Deficiency of enough space	
Lack of good management	Lack of managerial capacity	
Economical Position as a determinant factor Still needs to be equalized on the basis of class, status, and power Ignorance of economically vulnerable people	Economical Position as a determinant factor	
No training	Lack of training	
Ill-treatment of financial matter	Financial Ill-treatment	

Table-12: Development of final themes and overarching conceptsproposing recommendations for CBFM

Early Descriptive Codes	Broad Initial Themes	Overarching Concepts
Reviving participation of NGOs	Reviving participation of NGOs	Ensuring Participatory Approach
Increasing UP's responsibility and accountability	Increasing UP's responsibility and accountability	
Increasing pro-activity of Bangladesh Forest Department in terms of recruiting man power and capacity development	Increasing Pro-activity of Forest Department	
Making schedule to tender the forest garden timely		
Consideration of landowner within the project	Inclusion of Landowner and Woman	
Inclusion of woman		
Inclusion of business entrepreneurs for financial support	Inclusion of business entrepreneurs	
Selection of beneficiaries on the basic of needs as well as capacity to protect the garden	Proper Selection of Beneficiaries	
Following rule as much as possible in selecting beneficiaries		
Beneficiaries should be active		
Arrangement of training/workshop	Arrangement of training/workshop	Increasing Capacity Development
Increasing motivation of community people	Motivational and Research works	
Pursuing research works		
Including the content of community forestry from primary level to secondary level education		
Reducing political influence in all spheres of management	Reducing political influence	Tackling Political Influence
Institutional negotiation with other organizations	Institutional negotiation	Institutional negotiation
Increasing logistic support and governmental budget	Increasing logistic support and governmental budget	Increasing logistic support and governmental budget
Scientific plantation of tree	Scientific plantation of tree	Scientific plantation of tree
Recovering governmental land	Recovering governmental land	Recovering governmental land
Context based policy formulating	Context based policy formulating	Context based policy formulating

Appendix IX

Percentage Tables

Table- 01: Stakeholders' opinion on community forestry rules

Stakeholders' Opinion	No. of Observation	Percentage
Well known	17	56.67
Unknown	8	26.67
Well-known and have collection	11	36.67
Well-known but not have collection	6	20.00
Conformity between rule and practice	21	70.00
Disparity between rule and practice	4	13.33

Table-02: Respondents' view in favor of women's participation

Woman's Participation	No. of Observations	Percentage
Rare participation of woman	14	46.67
Traditional and conservative thinking	11	36.67
Priority to females in management	21	70.00
Expectation on females participation	19	63.33
Enthusiastic to be involved	8	26.67
No inequality on the basis of gender	12	40.00

Table-03: Respondents' view on equality on the basis of economical position

Economical Position	No. of Observations	Percentage
No special priority of economical position	18	60.00
Economical position as a determinant factor	11	36.67
Still needs to be equalized on the basis of class, status, and power	9	30.00
Economical influence free management	17	56.67
Evaluation of performance	18	60.00
Ignorance of economically vulnerable people	13	43.33

Table-04: Showing learning system in Comilla Sadar South CBFM

Learning System	No. of Observations	Percentage
Formal learning system through training and workshop	14	46.67
Agenda based training	12	40.00
Self –learning	18	60.00
Informal learning system	16	53.33
No training	9	30.00

Table-05: Showing co-financing system in CBFM

Financial Matter	No. of Observations	Percentage
Available source of financial accumulation	16	53.33
Personal investment of beneficiaries	14	46.67
No conflict on financial matter	18	60.00
Institutional Investment from Government Revenue	26	86.67
Transparent and publicly disclosed	17	56.67
Ill-treatment on financial matter	8	26.67

Table -06: Showing maintenance of accountability of CBFM

Maintenance of Accountability	No. of Observations	Percentage
Keeping record/ documentation of all statements	15	50.00
Publicly disclosure of all dealings	21	70.00
Disclosure in meeting	16	53.33
Responsible to answer of any queries	24	80.00
Sincerity to duties	18	60.00
Accountability	19	63.33
No Accountability	5	16.67

Table -07: Showing environmental viability of CBF

Environmental Viability	No. of Observation	Percentage
Availability of Fresh Air and keeping Environment Cool	11	36.67
Evaporating Oxygen	14	46.67
Reducing Soil Erosion	4	13.33
Reducing Carbon dioxide	13	43.33
Increasing Durability and beautification of Road and Roadside	2	6.67
Great Chance of Precipitation	1	3.33
Reducing Climate Change	5	16.67
Reducing Cyclone	1	3.33
Creating Sanctuary for Birds	2	6.67
Increasing Humus in Soil	1	3.33
Increasing Possibility of Precipitation	2	6.67
Securing International Land Boarder	1	3.33
Habitation of Wildlife	1	3.33
Providing Shadow	5	16.67

Table -08: Showing social network and solidarity in CBF

Social Network and Solidarity	No. of Observation	Percentage
Good Interpersonal Relationship	9	30
Scope to Get Together	3	10
Making Responsible to Others	1	3.33
Scope to Exchange Views	2	6.67
Scope to be closed to government agencies	3	10
Increasing Social Network	7	23.33
Creating Social Solidarity, Harmony, and Social learning	6	20
Creating Brotherhood	1	3.33
Donation in Social Welfare	1	3.33

Table -09: Showing environmental prosperity in CBF

Economical Prosperity	No. of Observation	Percentage
Return in Cash	4	13.33
Expenditure in Productive Sector and Business	8	26.67
Expenditure on Education	2	6.67
Generating Personal Income and livelihoods	11	36.67
Government Revenue	3	10.00
Collecting Lumber	6	20.00
Rural Infrastructural Development	1	3.33
Formation of Capital	4	13.33
Long term Investment	2	6.67
Paying loan and Liability	3	10.00
Fulfilling Domestic Fuel Needs	1	3.33
Producing Vegetables in Garden	1	3.33
Mortgaging Agricultural Land	5	16.67
Development of Local Market	1	3.33
Making Crop Land Free of Insects	1	3.33
Reducing pesticide usage in crop lands	1	3.33

Table -10: Showing environmental prosperity in CBF

Human Capital	No. of Observation	Percentage
Contributing to good health function	3	10
Contributing to Mental Health	7	23.33
Increasing Nutritional Status	2	6.67

Appendix X

Bangladesh Social Forestry Rules

THE FOREST ACT, 1927

(ACT NO. XVI OF 1927).

[*21st September, 1927*]

[1] An Act to consolidate the law relating to forests, the transit of forest- produce and the duty leviable on timber and other forest-produce.

WHEREAS it is expedient to consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce; It is hereby enacted as follows:-

Formation of village forests

28. (1) The Government may assign to any village community the rights of Government to or over any land which has been constituted a reserved forest, and may cancel such assignment. All forests so assigned shall be called village forests.

(2) The Government may make rules for regulating the management of village-forests, prescribing the conditions under which the community to which any such assignment is made may be provided with timber or other forest-produce or pasture, and their duties for the protection and improvement of such forest.

(3) All the provisions of this Act relating to reserved forests shall (so far as they are not inconsistent with the rules so made) apply to village-forests.

Social Forestry

[20] [28A. (1) On any land which is the property of the Government or over which the Government has proprietary rights, and on any other land assigned to the Government by voluntary written agreement of the owner for the purpose of afforestation, conservation or management through social forestry, the Government may establish a social forestry programme under sub-section (2).

(2) A social Forestry programme is established when the Government by one or more written agreements assigns rights to forest-produce or rights to use the land, for the purposes of social forestry, to person assisting the Government in management of the land.

(3) Notwithstanding any other provision of law, agreements under sub-section (2) concerning Government-owned lands need not be registered in the local records of right to lands, and no party to such an unregistered agreement may be divested of rights solely by execution of a subsequent assignment of rights by the Government to another person.

(4) The Government may make rules to set out standards for social forestry agreements and programme, and such standards shall at a minimum

> (i) require agreements to include or make reference to an agreed-upon management plant for the social forestry programme;

> (ii) guarantee participants an equitable share of proceeds in return for labour invested;

> (iii) in the case of agreements contemplating timber harvest, require the duration of agreements to include the expected principal harvest;

> (iv) allow transfer of benefits and obligations under agreements between spouses, and, when a participant dies, under the laws of succession to his heir, and govern other transfers;

> (v) allow creation and dissolution of management committees representing participants in particular programmes, and empower the management committees to impose fine on participants for violation of agreement; and

> (vi) allow persons to petition the Government for 'undertaking' social forestry programme.

(5) The Government may make rules to set out other requirements or guarantees for agreements, including

> (i) duties of participants to assist forest officers; and

> (ii) any other matter concerning formation or operation of social forestry programmes.

(6) Rules made under this section may recognize different classes of social forestry programmes, and the Government may make different rules for different classes or programmes.

(7) The Government may publish guidelines and forms for social forestry agreements.

Effect of other of law on social forestry

28B. (1) For the purposes of section 26 and 34, the exercise of any right granted by a social forestry agreement under section 28A shall be considered to be done with permission in writing of the Forest-Officer.

(2) Section 80 shall not apply to private lands subject to a voluntary written agreement under section 28A, unless such agreement itself allows the Government to invoke all or part of section 80.

(3) Section 81 shall not apply to participants in social forestry projects under section 28A.]

[19] The words `OF VILLAGE-FOREST AND SOCIAL FORESTRY` were substituted, for the words `OF VILLAGE-FORESTS` by section 5 of the Forest (Amendment) Act, 2000 (Act No. X of 2000).

[20] Sections 28A and 28B were inserted by section 6 of the Forest (Amendment) Act, 2000 (Act No. X of 2000)

Meeting Minute regards to Fund Management Sub-Committee and STD account (In Bengali)

Formation of Fund Management Committee

Opening STD Account

Agrani Bank, Comilla

Joint Account

STD Account

বিভিন্ন সনে সৃজিত বাগানের তালিকা
সদর দক্ষিণ উপজেলা

চার্লনোট৪

বাগানের তথ্যাদি ঃ

ক্রমিক নং	বাগান সৃজনের আর্থিক সন	বাগানের অবস্থান	পরিমাণ (কিঃমিঃ)	বাগানের প্রকৃতি
১.	১৯৯৪-৯৫	বোয়ারা বাজার হইতে দুর্লভপুর পাকা রাস্তা পর্যন্ত	১.০০	সংযোগ সড়ক
২.	১৯৯৪-৯৫	জেলখানা বাড়ী হইতে ঘাট কলোনী পর্যন্ত	২.০০	সংযোগ সড়ক
৩.	১৯৯৫-৯৬	বনশতলা হইতে শ্রীপুর পর্যন্ত	১.০০	সংযোগ সড়ক
৪.	১৯৯৫-৯৬	শ্রীপুর হইতে কালীর বাজার হয়ে নোয়াপাড়া পর্যন্ত	২.০০	সংযোগ সড়ক
৫.	১৯৯৬-৯৭	কালীর বাজার হইতে জোলাই মাদ্রাসা হয়ে সুয়াগঞ্জ ব্রীজ পর্যন্ত	৫.০০	সংযোগ সড়ক
৬.	১৯৯৬-৯৭	ফুলতলী (লক্ষীপুর) হইতে পূর্বানী পুর কালভার্ট পর্যন্ত	৮.০০	সংযোগ সড়ক
৭.	১৯৯৬-৯৭	লালবাগ হইতে রাজেশপুর পর্যন্ত	২.০০	সংযোগ সড়ক
৮.	১৯৯৬-৯৭	যশপুর ব্রীজ হইতে শ্রীমন্তপুর বাজার পর্যন্ত	২.০০	সংযোগ সড়ক
৯.	১৯৯৬-৯৭	লক্ষীপুর (ভুমরীয়া) কালভার্ট হইতে লোহীপুরা কালভার্ট পর্যন্ত	২.০০	সংযোগ সড়ক
১০.	১৯৯৬-৯৭	দিশাবন্দ দক্ষিণ পাড়া হইতে মন্তপুর চৌমুহনী পর্যন্ত	২.০০	সংযোগ সড়ক
১১.	১৯৯৬-৯৭	রাজাপাড়া হইতে লক্ষীনগর কালভার্ট পর্যন্ত	২.০০	সংযোগ সড়ক
১২.	১৯৯৬-৯৭	শাকতলা হইতে বিশ্বরোড এবং সুয়াগঞ্জ হইতে কুমিল্লা বাইপাস সড়ক	৬.৫০	সওজ
১৩.	১৯৯৭-৯৮	শ্রীমন্তপুর হইতে রেল সড়ক পর্যন্ত	১.০০	সংযোগ সড়ক
১৪.	১৯৯৭-৯৮	লক্ষীপুর হইতে লক্ষীনগর পাকা রোড (কাজীপাড়া পর্যন্ত)	২.০০	সংযোগ সড়ক
১৫.	১৯৯৭-৯৮	পুরাতন চট্টগ্রাম সড়ক হইতে বামিশা পর্যন্ত	২.০০	সংযোগ সড়ক
১৬.	১৯৯৯-২০০০	মিলগেইট হইতে আদিনামুড়া পর্যন্ত	১.০০	সংযোগ সড়ক
১৭.	১৯৯৯-২০০০	হোসেনপুর হইতে নমসুদ পাড়া পর্যন্ত	১.৫০	সংযোগ সড়ক
১৮.	১৯৯৯-২০০০	কৃষ্ণপুর হইতে সুয়াগঞ্জ বাজার হয়ে সাতবাড়ীয়া পর্যন্ত	৭.০০	সংযোগ সড়ক
১৯.	১৯৯৯-২০০০	হাজতখোলা হইতে দরবেশপাড়া সীমানা পর্যন্ত	৪.০	সওজ
২০.	২০০০-০১	কালির বাজার ব্রীজ হইতে লালবাগ সিমান পর্যন্ত (সংযোগ লিংক ০৭৩৬৪৩৩৮৪৬	৬.৫০	সওজ ২য় আবর্ত।
২১.	২০০০-০১	হলদিয়া দক্ষিণ হাজতিয়া হতে বেতাগাঁও পর্যন্ত	২.০০	সংযোগ সড়ক
২২.	২০০০-০১	ধরনী বন্ধ হইতে ঠাকুরপাড়া পর্যন্ত	১.০০	সংযোগ সড়ক
২৩.	২০০০-০১	আনন্দপুর পাকা রাস্তা হইতে শোভানগর হয়ে লক্ষীপুর চৌমুহনী পর্যন্ত	৮.০০	সংযোগ সড়ক
২৪.	২০০০-০১	কুরিয়াপাড়া হইতে কমলপুর (ফচুয়া পাড়া) ব্রীজ পর্যন্ত	২.০০	সংযোগ সড়ক
২৫.	২০০০-০১	কৃষ্ণপুর হইতে মথুরাপুর পর্যন্ত	১.০০	সংযোগ সড়ক
২৬.	২০০১-০২	চৌয়ারা বাজার বালিকা বিদ্যালয় হইতে জঙ্গলপুর মসজিদ পর্যন্ত	১.০০	সংযোগ সড়ক
২৭.	২০০১-০২	খেয়াইশ প্রাথমিক বিদ্যালয় হইতে বড়চর কালভার্ট পর্যন্ত	১.০০	সংযোগ সড়ক
২৮.	২০০১-০২	কাকসার হইতে জগতপুর পর্যন্ত	১.০০	সংযোগ সড়ক
২৯.	২০০২-০৩	নোয়াপাড়া হইতে রূপেশতলা পর্যন্ত	২.০০	সংযোগ সড়ক
৩০.	২০০২-০৩	সোয়ারখিল চৌমুহনী হইতে ভুবনপুর পর্যন্ত	১.০০	সংযোগ সড়ক
৩১.	২০০২-০৩	কমলপুর হইতে কচুয়ারপাড় পর্যন্ত	১.০০	সংযোগ সড়ক
৩২.	২০০২-০৩	শ্রীনিবাস হইতে মধ্যম বিজয়পুর পর্যন্ত	২.০০	সংযোগ সড়ক
৩৩.	২০০২-০৩	শিবপুর (ছনগাও) হইতে লালবাড়িয়া স্কুল পর্যন্ত	২.০০	সংযোগ সড়ক
৩৪.	২০০৩-০৪	হিম্মতপুর হইতে কমলপুর পর্যন্ত	২.০০	সংযোগ সড়ক
৩৫.	২০০৩-০৪	শিবের বাজার হইতে বিষ্ণপুর পর্যন্ত	৩.০০	সংযোগ সড়ক
৩৬.	২০০৩-০৪	আটিটি হইতে দরবেশপাড়া পর্যন্ত	৩.০০	সংযোগ সড়ক
৩৭.	২০০৪-০৫	কাঠেরপুল হইতে টুলিপাড়া (ফুলতলী) পর্যন্ত	২.০০	সংযোগ সড়ক
৩৮.	২০০৪-০৫	গোয়ালমথন হইতে তারাপায়া পর্যন্ত	৩.০০	সংযোগ সড়ক
৩৯.	২০০৪-০৫	দয়াপুর মাদ্রাসা হইতে চৌয়ারা বাজার সুইচ গেইট পর্যন্ত	৩.০০	সংযোগ সড়ক
৪০.	২০০৫-০৬	হেমজোড়া ব্রীজ হইতে চাষাপাড়া ব্রীজ পর্যন্ত	১৫.০০	বাঁধ বাগান
৪১.	২০১০-১১	লালমাই টাওয়ার হইতে জয়নগর মসজিদ পর্যন্ত	৫.০০	সওজ সড়ক
৪২.	২০১০-১১	জয়নগর মসজিদে দক্ষিণ দিক হইতে লাকসাম জংশন (ফয়েজ গঞ্জ) পর্যন্ত	৬.০০	সওজ সড়ক
৪৩.	২০১০-১১	শানিচৌ বাজার হইতে বিরাহিমপুর মসজিদ পর্যন্ত	১.০০	সওজ সড়ক
৪৪.	২০১০-১১	শানিচৌ হইতে বিমানবন্দর সড়কের কুলমিয়া ভুলফে আলীর বাড়ী সম্মুখ পর্যন্ত	১.০০	সওজ
৪৫.	২০১০-১১	ভুক্তি বাজার হইতে কাশিনগর সড়ক এর গোসাইপুকুরনীর রাস্তা মাথা হইতে বসন্তপুর ব্রীজ পর্যন্ত	১.০০	সওজ

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৪৬.	২০১০-১১	উত্তর ছিলোনীয়া সীমানা হইতে কামার কুয়া হইয়া দক্ষিণ ছিলোনিয়া	৩.০০	সংযোগ সড়ক
৪৭.	২০১০-১১	কলমিয়া মুন্সি বাড়ী হইতে চোট্টতুলা হইয়া চেংগারহাটা ইছাকের বাড়ী পর্যন্ত	৩.০০	সংযোগ সড়ক
৪৮.	২০১০-১১	আনন্দপুর হইতে কুমিল্লা (খোয়াইশ) হাইস্কুল পর্যন্ত —দুসনমেস্মা.০৩৭৭৯৫৪ ৪০৮	৩.৫০	সংযোগ সড়ক
৪৯.	২০১১-১২	আলীশ্বর হইতে শেরপুর রাস্তা পর্যন্ত	১.০০	সংযোগ সড়ক
৫০.	২০১১-১২	মাতাইন কোট অহিদ (মেম্বারের বাড়ী) দুর্লভপুর আঃ আজিজ এর জমি হয়ে উৎসব পদুয়া রেল লাইন হইতে তারাপুরকরিয়া (হাপানিয়া) পর্যন্ত	২.০০	সংযোগ সড়ক
৫১.	২০১৩-১৪	বাগমারা বাজার হইতে ভূঁশি বাজার পর্যন্ত	৬.০০	সওজ ২য় আর্বত।
৫২.	২০১৩-১৪	বাগমারা বাজার হইতে হাজতখোলা বাজার পর্যন্ত	৪.০০	সংযোগ সড়ক —২৬ সুন্দ—
৫৩.	২০১৩-১৪	হুদগড়া হইতে দক্ষিণ হাজতখোলা বাজার পর্যন্ত	১.০০	সংযোগ সড়ক ২৪ ৩সা
৫৪.	২০১৩-১৪	খেয়াইশ হইতে কুণেশতলা বাজার পর্যন্ত	২.০০	সওজ ২য় আর্বত।
৫৫.	২০১৫-১৬	ভূঁশি বাজার হইতে বাংলাবাজার পর্যন্ত	৬.০০	সওজ ২য় আর্বত।
৫৬.	২০১৫-১৬	হরিশ্চর চৌরাস্তা হইতে আটিটি পর্যন্ত	৩.০০	সংযোগ সড়ক ২৪ ৩ সচ
৫৭.	২০১৫-১৬	কোটবাড়ী এসএফএনটিসি হইতে আদিনামুড়া পর্যন্ত	১.০০	

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স্থানীয় জনগোষ্টি কর্তৃক সৃজিত বাগান ঃ

০১.	২০১৫-১৬	মাতাইন কোট বেপারী বাড়ী সংলগ্ন সড়ক হতে মোস্তফাপুর সড়ক পর্যন্ত	২.০০	সংযোগ সড়ক
০২.	২০১৫-১৬	মাতাইন কোট হারুন মিয়ার বাগান বাড়ী হতে আটিটি বাজার চান মিয়ার বাড়ী সড়ক পর্যন্ত	২.০০	সংযোগ সড়ক
০৩.	২০১৫-১৬	মাতাইন কোট মোবারকের বাড়ী হতে ভাটরা সড়ক পর্যন্ত	২.০০	সংযোগ সড়ক

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অত্র উপজেলার সৃজিত বাগানের সার্বিক উন্নতির জন্য নির্বাচিত উপকারভোগী স্থানীয় গন্যমান্য ব্যক্তিবর্গদের সাথে প্রায়শঃ যোগাযোগ করার জন্য আমার উত্তরসূরীকে অনুরোধ করা হইল।

দায়িত্বগ্রহণকারী কর্মকর্তা

দায়িত্ব মুক্ত কর্মকর্তা

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(মোঃ মহিউদ্দিন ভূঁইয়া)