Article

Co-Management Practices by Non-Government Organizations (NGOs) in Selected Coastal Forest Zones of Bangladesh: A Focus on Sustainability

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Abstract: There has been an upsurge concerning the concept and application of "co-management" in the governance of natural resources in Bangladesh in recent years. Notwithstanding the popularity of co-management, however, the overall approach to implementation has been overtly technical in nature; and there has been limited attention to sustainability dynamics. This article aims to explore aspects policy and practice withinco-management based on several purposely selected cases in the coastal forest zones of Bangladesh. It also identifies the major challenges and issues concerning its sustainability. The lessons generated by this study may be relevant to both policy makers and practitioners. A qualitative research approach was adopted with empirical data collection methods including key informant interviews, focus group discussions, documentary research, and unstructured personal observation. The article begins with a recapitulation of the concept of co-management and its associations with sustainability, followed by an overview of the major co-management practices in Bangladesh. The discussion subsequently raises lessons learned and key issues relating to sustainability, including: the need for sorting out land-related tenurial complications and institutions used in co-management; unequal awareness of the concept of co-management and varying levels of participation of community organizations; the political interface and accountability of co-management institutions; issues of "ownership" at the community level; and the role of "external" support and facilitation. As a recently developed concept and practice, co-management seems to be rapidly taking root and displaying signs of gradual consolidation in Bangladesh. Considerable progress has been made in terms of required policy and legislative reforms, community level institution building, and a degree of change in the mindset of the government agencies to accommodate and nurture co-management. However, numerous issues (e.g., tenurial rights, effective community participation, equity, political dynamics, adequate financial support, accountability, and transparency) still need to be resolved if sustainability is to be fully achieved and satisfy the hopes and needs of local communities both now and in the future.

Keywords: Bangladesh; co-management; local community; coastal zone; forestry; sustainability

1. Introduction and Context

In view of the rapid pace of deforestation and associated biodiversity loss, the recent years have seen something of an upsurge and interest in the concept and application of collaborative management (for short, co-management) in the governance of natural resources (NR) in Bangladesh, encompassing both forest and wetland sectors. The country's actual

forest cover is estimated to be 6.7% of its entire land mass; nonetheless, many species have already gone extinct locally [1]. As a result, Bangladesh has become a forest-poor country with a per capita forest area of less than 0.02 hectares, one of the lowest in the world [2]. The forestry sector currently employs nearly 10 million persons per year and contributes approximately 1.76% to the national GDP. Although forestry contributes relatively little to the national GDP, as currently measured, it makes a substantial contribution to the country's "comprehensive wealth" when assessed from a broader perspective of environmental economics and natural capital [3–5].

With the stated goal of conserving biodiversity and reducing forest degradation, the Government of Bangladesh adopted a co-management approach in the late 1990s. Since then, it has established 54 forest protected areas (PAs) of which 21 PAs are co-managed by 28 co-management organizations [6]. In addition to enabling meaningful local participation through joint decision-making processes [7,8] co-management aims to reduce resource management costs with more locally relevant management plans developed in ways that simultaneously aim to reduce poverty through diversification of economic activities [9,10]. As a result, the co-management approach is expected to contribute to Bangladesh's sustainable development goals by combining environmental conservation with development needs [11–13].

NGO activity in Bangladesh began in the late 1970s, after a severe storm and the end of the battle for independence in 1971 [14]. Following the Rio Earth Summit in 1992, Bangladesh saw the emergence of environmentally focused NGOs and associated environmental advocacy groups. These NGOs have partnered with the government in implementing large-scale forestry and environment-related programs, notably the National Environmental Management Action Plan and participatory coastal plantation development (e.g., [15,16]). Since the 2000s, NGOs have been routinely involved in co-management programs. However, there has been very limited academic focus on the performance of these NGOs. This study intends to contribute to this relative gap.

Co-management does not imply management in the sense that methods and actions are chosen to accomplish specific predetermined goals; rather, co-management broadly refers to a form of governance in which local stakeholders participate and co-lead in setting their own goals and deciding how to attain them. Functional co-management arrangements also address the fundamental issues of who has the power to define management goals, the reasons or rationale behind such goals, and who is responsible for implementing them (see Ref. [17] for more details). Notwithstanding the popularity of co-management as a major natural resources (NR) governance regime, to date the overall approach to implementation of co-management projects has been predominantly technical in nature; the concept has remained bedevilled with ambiguity and ramifications; and there has been limited attention to the dynamics of sustainability. Ensuring sustainability while addressing the hopes, aspirations, and livelihood needs of resource dependent local communities remains a daunting challenge.

Against the above backdrop, this article aims (i) to explore aspects of the policy and practice of co-management in Bangladesh by drawing on selected cases in coastal forest zones; and (ii) to identify the major challenges and issues concerning the sustainability of co-management initiatives. In view of limited research on the subject, this study is expected to generate lessons that may be of relevance and use for both policy makers and practitioners alike.

Following a brief recapitulation of the concept of sustainable development and associated connotations of 'sustainability of co-management projects', the second section provides an overview of co-management practices in the forested protected areas of Bangladesh. The discussion then focuses on the dominant models of co-management with examples of selected co-management practices in different parts of the country by the selected NGOs. The three NGOs under study are located in the south-western coastal areas of Bangladesh. Based on these case studies and associated empirical observations, the subsequent discussion raises some lessons, issues, and challenges, especially relating to sustainability.

2. The Concepts and Connotations

2.1. Sustainable Development

The concept of sustainability, which dates back to 1980, is a strategic approach to the integration of conservation and development that is consistent with the goals of ecosystem maintenance, preservation of genetic variety, and long-term management of natural resources. Sustainable development remains a contentious topic today [18–20]. We use it in its ecological sense and find it effective for identifying three tiers. The most basic conception of sustainability is the development or regeneration of a resource (such as a water harvesting facility). Secondly, sustainability may refer to the ongoing maintenance of an operation. One of the most obvious examples of these two tiers is the management of biological systems in such ways that they can continue to deliver a steady flow of benefits over time (for example, wood produced and gathered from a forest) despite some levels of short-term ecological instability.

The third and more general tier or aspect of sustainability entails preserving not only a livelihood-generating resource but also the broader ecosystem in which it is embedded. This includes the suite of physical and sometimes intangible benefits that may accrue to a larger group of stakeholders (such as maintaining biodiversity while also ensuring a continuous flow of wood). Today, the concept often crosses beyond just natural resource conservation to include socio-economic equity, via social and environmental justice [18]. Sustainable development is now generally understood through a more holistic view of the human–environment relationship. Nonetheless, different actors stress different aspects of sustainable development based on their own interests or requirements. Furthermore, cultural and economic variations also influence how people may view sustainable development [18].

The importance of natural resource management in achieving the Sustainable Development Goals (SDGs) has been recently highlighted [21–23]. The conservation of nature in protected areas is impossible without also considering social and environmental sustainability [13,24]. However, conserving nature through formal PAs is unpopular in the developing world. This approach does not necessarily improve local livelihoods or encourage the development of cultural, social, political, natural, and human resources [25]. In the end, nature conservation only improves when protected areas and communities work together [26]. As a result, wildlife conservation is now thoroughly embedded in the Agenda 2030's Sustainable Development Goals and Post-2020 Global Biodiversity Framework (GBF) [27,28] under the Convention on Biological Diversity (CBD). Within the CBD, the role of local communities in biodiversity protection and the preservation of traditional cultural values are clearly acknowledged and even prioritized. Various international conventions and agreements relating to Indigenous Peoples, local and traditional knowledge, and resource use according to customary law, have also been recently amended, including provisions made to encourage recognition and institutionalization of community protected areas [25].

2.2. Natural Resource Co-Management

Co-management implies the sharing of responsibilities, rights, and duties between the primary stakeholders, specifically local communities, and the nation state [29]. It has been adopted in response to the perceived failure of centralized management of natural resources [30–32]. Co-management is a pragmatic way through which people of all ranks and across scales collaborate to adjust responsibilities, functions, and activities to changing environmental conditions [33]. Co-management also feeds into issues of justice, for example, redressing earlier seizures of land, and thus also has social ramifications [7]. This process creates power, allowing for rule changes and win-win solutions [34]. It now recognizes the critical role of people who live near resources and have an impact on its utilization and management [31,34,35]. Co-management agreements today commonly include the devolution of power, authority, and responsibility for day-to-day natural resource management—from national to local and subnational governments [7,36].

The most promising forest-centered co-management practices worldwide rely on community-based enterprises that generate revenue from its resources while ensuring social

and ecological sustainability. Improving the well-being of the local population is a corollary objective of implementing co-management systems for public forests. Improvements in well-being largely arise from the economic activities of local communities that focus on sustainable forest resource use [37]. Co-management involves various stakeholders [38,39] and thus the process outcomes and long-term sustainability of such initiatives rely on both external actors and local communities.

Participation in decision-making, implementation, and enforcement are key components of co-management agreements [40–42]. Co-management focuses on creating effective local institutions and a supportive environment for long-term management [23]. According to Ref. [40], co-management may be the best viable solution to the legitimacy issue because it involves the creation of a new structure designed to bring stakeholders together for decision-making and implementation [43].

Local, on-site co-management has in turn led to more adaptive governance—resulting in the emergence of a new form of environmental governance in the context of dynamic, complex, and uncertain systems. Power sharing and conflict resolution amongst stakeholders in co-management systems also combine with adaptive management and lead to collective learning and problem solving [44–46]. Folke and his co-authors ([47], p. 8) define adaptive co-management as "a process by which institutional arrangements and ecological information are evaluated and altered in a dynamic, continuous, self-organized trial-and-error process." Many countries have been switching from centralized, non-participatory management of PAs to co-management models in order to benefit from the latter by practicing adaptive governance and integrating nature protection and sustainable development. This requires the presence of institutional entrepreneurs, a dense central core of network actors, and strong horizontal and vertical ties among community-based resource management groups [40]. However, in order to protect the environment and promote long-term development, co-management approaches must be institutionalized gradually.

Involvement of local residents in natural resource management is now mandated by the international community [48] with a pursuit of "double sustainability" to protect biodiversity and livelihoods [49,50]. To be successful in co-management, traditionally disadvantaged community stakeholders must feel ownership of the natural resources and work in organized fashion in order to function effectively as equal partners with regional and national governments [51,52].

In sum, co-management refers to the sharing of power and cooperation between the state and local communities and their representatives in resource management and use. These two key stakeholder groups frequently work in collaboration with a third party, such as an NGO, civil society organization, or other institution, to help them interact, partner, and negotiate. The priorities and working styles of these stakeholders may, however, be quite different, which often makes it quite difficult to find common ground.

2.3. NGOs in Sustainable Co-Management

A non-governmental organization (NGO) is a non-profit organization that is not affiliated with any government. NGOs are likewise dedicated to addressing social issues and improving the human condition. NGOs are able to handle challenges that other sectors or the government cannot or will not address by establishing and focusing on their own specialized missions and drawing on the enthusiastic support of local communities and devoted volunteers. Additionally, NGOs have an unrivaled level of independence in their public work. NGOs may receive funding from the government and for-profit businesses, and they frequently collaborate with them [53].

Aid donors prefer NGOs because they believe they can help encourage a more flexible and efficient decision-making processes at a lower cost at the community level. As a result, NGOs have become a channel for international donors to build their capacity to deliver development in poorer countries through bottom-up, people-centered, and participatory approaches [54,55]. They frequently favor international non-governmental organizations (INGOs) because they often have greater institutional capacity than local NGOs. Conse-

quently, scholars argue that the success and efficiency of interventions are influenced by the dynamics of these actors' relationships [55,56].

Although co-management places a great emphasis on partnerships and connections between communities and other stakeholders, there remain managerial hierarchies. Meaningful partnerships are unlikely to develop unless the capacities of traditionally disadvantaged community stakeholders to organize themselves are developed. This will allow them to become equal partners with the government (i.e., the community-based side of co-management is enhanced). The basic premise of an NGO approach is that it insists on involving people in governance who are likely to be impacted by the proposed actions [57]. These methods, however, have drawbacks and limitations [58–60]. Concerns have been expressed, for example, about the participatory aspects of such strategies, including the challenges associated with community involvement (e.g., consultation fatigue) and the ever-present (though not always recognized) knowledge mismatch between western and Indigenous knowledge systems [61–63].

Some scholars also argue that notions of "community" are superficial and different from the local sense of community, since so-called local communities have often been framed as homogenous and unified units, ignoring their complexity, diversity, and power dynamics [39,64,65]. As a result, community-based initiatives frequently misinterpret local settings, resulting in programs centered on token community engagement and gender stereotypes [66,67]. Sometimes, as Ref. [63] previously demonstrated, community-based initiatives have even tended to "depoliticize" community participation by building community-based organizations (CBOs) that weaken the role of local government institutions.

Moreover, relationships between international NGOs (INGOs) and local NGOs, according to Ref. [68], are "dependent" and rely on the comparative advantages of the organizations involved. Partner local NGOs are often weaker since INGOs control the funding (and often have higher technical and operational abilities), and therefore, a partnership becomes a "donorship," forcing local NGOs to be concerned primarily about funds [68,69]. As a result, local NGOs may become more concerned about their own survival rather than about the community they are aiming to help [70]. NGOs have also been chastised for pushing agendas and objectives that do not always represent the priorities of the communities themselves [55,68], as well as for prioritizing donor desires and ideology over scientific and progressive societal norms. As a result, NGOs are accused of accommodating western expertise and norms in planning, and implementing their initiatives at the expense of local objectives, social norms, and needs [56], jeopardizing their innovation, autonomy, and legitimacy [55]. Because such agendas are frequently implemented through time-limited interventions, NGOs frequently adopt target-driven rather than process-driven approaches [70]. For these and other reasons, the actualization of the key ideas behind collaborative natural resource management may face a wide suite of challenges and obstacles.

2.4. Developing a Sustainable Co-Management Model

Recent research has linked poverty, inequality, and environmental degradation to four major aspects of sustainable development: the environment, development (especially economic factors), society (including social services, freedoms, and more), and important connections between these (Figure 1). An interrelated global environment and world ecology is made up of nature with both biophysical and human dimensions; the latter includes socio-economic-political settings. Development should not exceed the environment's carrying capacity to provide natural resources and services. Economic activity is not only an indicator of development, but it is also a process of qualitative and equitable growth. Sustainability should be positioned in political-institutional arrangements to restructure public prowess and integrate fair decision-making in the development process. It is critical for social development to prioritize community well-being, job creation, and income distribution as part of social responsiveness.
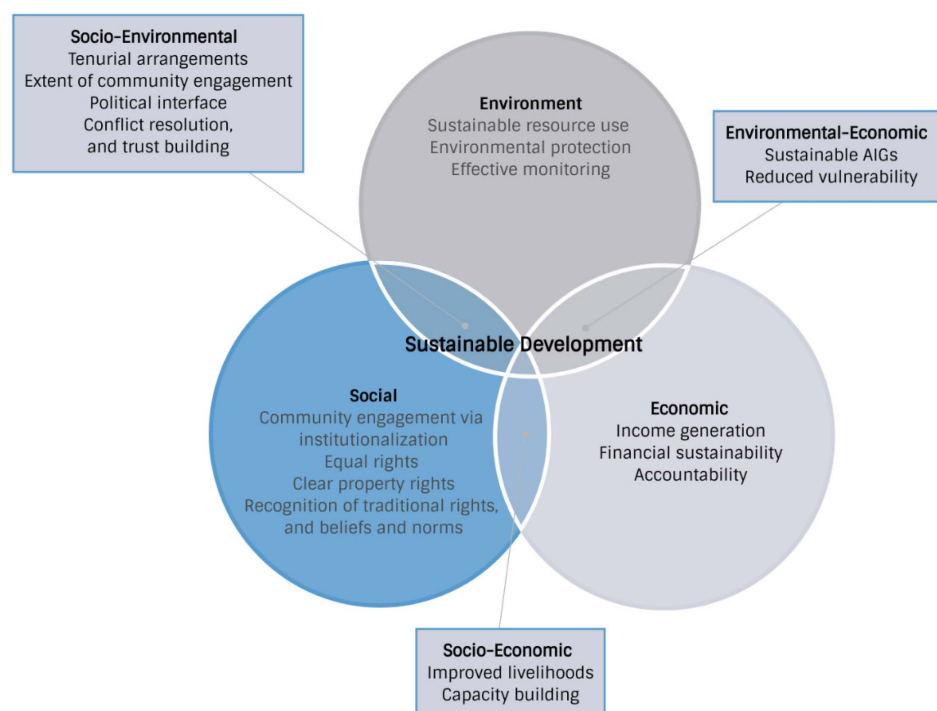
Figure 1. Three spheres of sustainability within a co-management model.

Scholars have argued that in the era of the Sustainable Development Goals, a poor institutional environment typified by a lack of democracy, poor enforcement of forestry rules and regulations, and a lack of appropriate land-use planning poses a serious obstacle to environmental sustainability [71–73]. Global economic growth cannot be achieved with an unequal distribution of wealth if human society is viewed as an interdependent and global community. Cultural values and beliefs must be recognized and considered at various stages of development in order to guide and justify anthropogenic actions. These four key factors, taken together, steer development towards sustainability.

Scholars have also found that community-based initiatives, such as co-management, may suffer from a lack of adequate local engagement; financial sustainability (i.e., long-term cash flow to support activities); lack of sustainable alternative income generating (AIG) opportunities; lack of local institutional backing; and low levels of community awareness about the project and about exacerbating factors such as climate change. Because community adaptation programs initiated by NGOs are often reliant on foreign donor money, the latter institutions are likely to have a considerable impact on the design and implementation process [74]. Studies have also shown that a lack of local technical skills in project management, as well as concerns of power, governance, and elite capture, have an impact on co-management efficacy [39,75,76].

Besides the above, co-management success is linked to institutional quality and Ostrom's design principles for implementation. Ostrom, a political economist, identified the four 'design principles' and challenged conventional wisdom on how community users can successfully manage shared resources through social practices and self-governance, and demonstrated such co-management success via empirical fieldwork [77]. Ostrom's design principles include group size, resource salience, clear ownership, resource dependency, stakeholder interaction, the presence and enforcement of agreed norms and customary rules, participation in the decision-making process, benefit sharing, outcome evaluation, and effective leadership [78–80]. In addition to these, rights of access to forest products, forest management responsibilities, decision-making power, property rights, and local sovereignty over forests are also required [81,82]. It is equally important that culturally relevant communication and conflict resolution mechanisms are in place, allowing for feedback

to higher levels of government and joint governance, to ensure successful management of common pool resources (CPR) [83,84].

3. Methodological Considerations

The present study mainly focuses on qualitative research approaches. In addition to this, we conducted a literature survey which involved a desk review of the key official documents related to co-management in the forestry sector of Bangladesh (reports, journal publications, etc.) and policies presently being used by the Forest Department of Bangladesh (government) as well as NGOs. Some official documents of NGOs involved in the cases studied were also reviewed. Based on rigorous analysis of the findings from existing research, as suggested by Ref. [85] we applied a synthesis-based approach to identify the main gaps to provide an overall picture of current issues that could hamper the sustainability of co-management in the forestry sector.

Primary data collection was completed with (i) selective fieldwork with empirical observations; (ii) five focus group discussions with selected stakeholders (notably beneficiaries, relevant field staff, selected specialists and experts, and local government representatives); (iii) four key informant interviews with selected staff and beneficiaries; and (iv) experience-sharing meetings with field staff of the NGOs selected for our case studies.

The cases were purposely selected based on the following rationale and considerations: the diversity of actors and protagonists (including government agencies, non-government organizations, and local government institutions); different geographic locations; discussion with and suggestions by stakeholders during the initial round of consultation; and the opportunity to observe community and sustainability dynamics.

This study does not claim to be exhaustive or representative of all of the complex issues and dimensions of co-management regimes and their operations, especially in mangroves and forested areas. Further, the assignment was short, and resources were extremely limited. However, even in this context our intention has been to record, develop, and facilitate a better, down-to-earth (grounded) understanding of some of the salient issues that have direct relevance to co-management practices in the field. Our aim was also to process some broad lessons and offer practical suggestions for further improvement of programmatic interventions in similar contexts.

4. Overview of Current Co-Management Practices in Bangladesh

The prevailing co-management practices in Bangladesh with respect to natural resources may broadly be divided into two types, co-management by NGOs and co-management by the Government of Bangladesh (GoB) through the Bangladesh Forest Department (BFD), the Department of Fisheries (DoF), and the Department of Environment (DoE).

Co-Management by the GoB through BFD, DoF, and DoE: As of January 2022, GoB has declared 60 Protected Areas (PAs) in Bangladesh and amongst these, co-management approaches have been established in 22 PAs [86]. Most of the PAs are managed by the GoB through the BFD, while others are managed by the DoF (e.g., Hail Haor, Turag-Bangshi, and Kangsha-Malijee) and the DoE (four ecologically critical areas: Hakaluki Haor, Cox's Bazar—Teknaf Peninsula, Sonadia Island, and St Martin's Island).

Co-management was first implemented in the wetlands in Bangladesh through a project entitled *Management of Aquatic Resources Through Community Husbandry* (MACH), which began in 1998 with the goal of developing community-based participatory approaches in wetland management [87,88]. Subsequently, in 2004 the BFD and the United States Agency for International Development (USAID) launched an experimental co-management project in five trial PAs in Bangladesh. The primary objectives of this management method were to incorporate forest dependent communities into the governance system for sustainable forest resource management and to halt the widespread loss of local biodiversity [89]. Between 2004 and 2018, three separate projects supported the development of co-management initiatives in Bangladesh: the Nishorgo Support Project (NSP),

Integrated Protected Area Co-management (IPAC) Project, and Climate Resilient Ecosystem and Livelihood (CREL) Project.

The 2017 Protected Area Management Rules and the Government Orders of 15 May 2006 and 23 November 2009 formally approved co-management in PAs in the country. These rules expressly state the benefit-sharing percentage from government revenue to the co-management organizations for PA environmental conservation and community well-being. These rules and orders are intended to establish a comprehensive legislative framework for co-management with special reference to the establishment of co-managed protected areas. Co-management organizations may be recognized in three tiers:

(a)　Village Conservation Forum (VCFs) is the lowest level institutions comprised of enlisted households that are dependent on forest;

(b)　Peoples Forum (PF) is the apex body of the VCFs, formed at the Forest Range level, comprising all VCFs from the PA landscape;

(c)　The Co-Management General Committee (CMGC) is the formal co-management organization in Bangladesh comprised of 38 members from various stakeholders such as representatives from local communities, the BFD, local government administrations, and civil society. The executive body of the CMGC is the Co-Management Executive Committee (CMEC), also with representation from all stakeholder groups (19 members).

The CMGC approves the CMEC's yearly work plan for managing PAs. The CMEC updates the VCF roster and conducts frequent patrols with a Community Patrol Groups (CPG). The CMEC can create as many CPGs as needed, with members chosen from VCF members in each range. The CMGC meets every six months.

Co-management by NGOs: Some NGOs such as Friendship, Bangladesh Environment and Development Society (BEDS) and Bangladesh Resource Center for Indigenous Knowledge (BARCIK) are reported to have co-management activities with respect to the newly established plantations in the coastal areas of Bangladesh. We purposively visited 3 sites out of 13 sites across the country.

The NGOs are trying to establish their own co-management system. They are involving people in afforestation and monitoring activities after forming a group from the local communities.

Recently, environmental issues, particularly those related to natural resource management, have sparked widespread and growing interest across governments. Similar to other developing countries, PAs in Bangladesh suffer from a severe financing crisis, jeopardizing forest protection and biodiversity conservation [90]. The GoB is unable to provide sufficient funding from the public budget to the forestry sector, including PAs, due to competing priorities [91]. This provides an opportunity for NGOs to work in this arena as they have the capacity to garner substantial attention and support from foreign donor agencies, international non-governmental organizations (INGOs), as well as local non-governmental organizations (NGOs) [38,92].

5. Views from the Field

This section presents snapshots of selected case studies of co-management practices in the south-western coastal zones of Bangladesh, and ends with a recapitulation of major issues and challenges relating to such practices in the field. A brief account of the co-management approach undertaken by Friendship, BEDS, and BARCIK is given below (Boxes 1–3).

Box 1. The Friendship Plantations.

> Friendship has protected a riverside patch of land along the Bangladesh Water Development Board (BWDB) polder, which it manages primarily by erecting a net fence supported by bamboo poles (Figure 2). The organization began mangrove plantation in 2018 and has planted approximately 70 hectares in Munshigonj Union, Shyamnagar Upazila. The intention is to plant at least 150 ha of mangrove plantations. The area is supervised by 75 people who are paid a monthly salary of USD 55 by the project to protect it from stray cattle grazing.
>
> Additionally, the mangrove plantations are managed by 75 community groups (about 30 people per group) who draw benefits from the area in the form of keora fruit, branches for fuelwood, and fodder for livestock after the tree has reached a certain height. In addition, the Friendship NGO has provided training to diversify local incomes (e.g., honey collection, duck rearing, plantation, and nursery management). The group was chosen after consultation with the local community, but supervisors were chosen solely by higher-ranking NGO officials. Because the area is directly on the riverbank, mangrove propagules naturally migrate to the site. Low-income groups collected the seeds that came to this site in the past to use as fuelwood. Since Friendship provided this protection, the area has regenerated rapidly, particularly with keora seedlings. The locals have built a net around the polder's perimeter with funding from NGO to prevent stray cattle and goats from entering the site to graze. The NGO signed a contract with the local UP chairman to afforest the riverbank for 5 years (the project period), but no formal agreement has been reached between the NGO and the so-called participants.

Box 2. The BEDS Plantations.

> The Bangladesh Environment and Development Society (BEDS) started its plantation in 2013 by the river polder site of the fisherman's village area known as Mathurapur (Figure 3). Initially, the plantation site was nearly 0.12 hectare. Later, BEDS extended its plantation area to several sites (namely Shinghortoli and Harinagar of Munshigonj, Kakrabunia and Banishanta of Dacope Union) and in total planted an area of nearly 30 hectares. In each site, the NGO informs the local community and involves them in plantations. BEDS is now planning to afforest more areas with mangroves with the help of the local community.
>
> The area where the plantation has been carried out has a complex ownership arrangement: The district administration and Bangladesh Water Development Board both claim ownership of the area. Consequently, it is difficult to reach a written agreement with either of these two institutions. The land is recognized as *khas* land (government owned fallow land, where no individual property rights are granted) for use by the local community. Therefore, the NGO preferred not to draw up a contract with a local UP member to afforest the area with mangroves for the project period. In response to a question about why there has not been an agreement with the UP chairman, an NGO official stated, "The char area is a *khas* land that may be under the jurisdiction of either the Upazila administration or the BWDB, not the UP chairman." He further added, "Does the Upazila chairman have the authority to reach an agreement on a particular plan for *khas* land?" As land ownership is complicated and the UP chairman lacks legal authority to lease khas land, BEDS simply informed a local UP member about its plantation project. Local people showed their interest to manage the site for their benefit as it will reduce river erosion and give some protection to the polder.
>
> There are consequently no Terms of Reference (ToR) for the tenurial rights or any benefit-sharing mechanisms. No one can provide any assurances of the legal status and future management system of this plantation at the end of the project. However, BEDS engages one individual to protect the plantation site, remunerated on a monthly payment system. Each site has a group of 30–50 people who benefit from keora fruit, goal pata leaf, fruit, and fuelwood.

**Figure 2.** Site protected by Friendship, showing the mangrove plantations.

Figure 3. Extended mangrove plantation site by BEDS.

Box 3. The BARCIK Site.

Bangladesh Resource Center for Indigenous Knowledge (BARCIK) began its plantation initiative in 2001 and has since that time planted roughly 11 km along the riverfront polder of Shyamnagar Upazilla (Gabura, Padmapukur, Koikhali, Kalinagar, etc.) (Figure 4). The NGO began a char plantation in the mangrove in 2013, encouraging the local people that it would minimize river erosion, scarcity of fuel wood, and give protection against tidal surges. Besides this, BARCIK assures that the local community will benefit from keora (*Sonneratia apetala*) fruit, goal pata (*Nypa fruticans*) leaf and fruit, crab fishing, snail and oyster collection from the site, and ToR were developed to articulate a benefit-sharing mechanism. The NGO utilized Indigenous knowledge of local people, which emphasizes protecting the area from cattle grazing to allow the mangrove seeds to come to that site to regenerate naturally following its initial ecological colonization by grass. As such, the NGO only provided support in the form of daily wages and the purchase of a net to protect against cattle grazing and intrusion. The local community decided to select 10 to 12 individuals whose residences are in front of the plantation site to care for the plantation and drive away livestock.

Because ownership of the land is unclear, the NGO did not formally enter into an arrangement with any institution, including the local government or civil administration. Both the Bangladesh Water Development Board and the Upazila administration claim ownership of the land, and the local UP chairman has no power to make an agreement for it.

Some of the fenced afforested areas at this site have been destroyed over time. Local community members voluntarily worked to mend this fence. BARCIK also aided in the renovation of the fence by providing essential materials. Though it is claimed that the local community would benefit from these sites beyond protection, the benefits were actually enjoyed by the protectors of the plantation site.
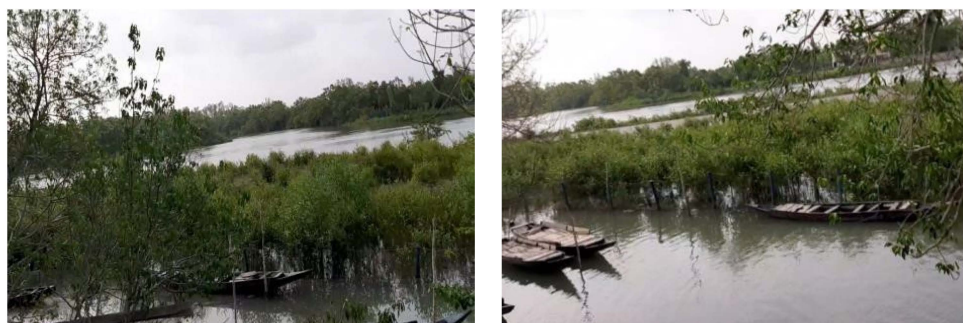
Figure 4. Site of plantation by BARCIK.

Some important findings from the above field sites include:

- The land is claimed by both the BWDB and the Upazila administration;
- Despite the fact that one NGO (Friendship) reached an agreement with the local UP chairman for land tenure rights for the duration of the project, it is skeptical of the chairman's ability to carry it out;
- Two of these NGOs, Friendship and BEDS, pay local elites on a monthly basis to guarantee protection to their plantation sites for the duration of the project;
- The future of these projects once completed is uncertain given that there is no legal instrument governing tenure, ownership, or benefit sharing ToR;
- To raise a site, BARCIK employs local Indigenous knowledge of mangroves. Because the local population understands succession, they simply build a location for mangrove grass, which is then followed by pioneer mangrove species.

It has been discovered that the NGOs in the above case studies have yet to reach an agreement with the local participants. When these NGOs' authorities were contacted, problems with the ownership of the land in question were discovered. The plantation site is on government-owned khas land. Because of the land ownership issue, an NGO cannot enter into any formal agreement with the locals involved in the plantation. However, the informal agreement between all three NGO's and the locals is working well. The NGO's have persuaded the local UP Chairman and Ward members to support afforestation and is making good progress in establishing plantations. Although this appears to be fine from a scientific standpoint, unless the land tenure issues are resolved, a serious problem may arise at any time in the future and undermine all of these efforts and achievements.

Despite the fact that government involvement is an important aspect of co-management, the NGOs under study refer to these types of project initiatives as co-management for community-based afforestation without government involvement. This label allows them to avoid involving the government and to work within the constraints of missing co-management terms. These terms will require the inclusion of a formal agreement between the NGO and the members of the community involved. It will also have to clearly spell out the benefits for the local people in participation, particularly those who monitor the plantation sites. Many of these problems, particularly those concerning land tenure, can be solved if governments become involved in these programs. NGOs thus consider this lack a major concern towards ensuring the sustainability of an afforestation project. The government can also play a significant role in reaching agreements with the "beneficiaries" and distribute benefits among participants, which are currently unavailable.

6. Salient Issues and Challenges of Sustainability

Based on the field visits and local and community level consultations (through Focus Group Discussions), this section summarizes some key issues and challenges that have serious implications for co-management operations in the field and their long-term sustainability.

Tenurial complications: Community forestry can only be successful if the landowners have a sense of security [78,93]. People who believe that their rights to future benefits

from forest resources will not be challenged are more willing to invest in conservation and silvicultural enhancement [94,95]. Still, tenurial security is absent here. The NGOs in the case studies are said to have entered into an informal agreement with the local communities or UP members; however, no documents were found or provided. The local community people have no sense of ownership of land because of the absence of legal documents. The khas land will remain vulnerable to lease arrangements by the AC Land at any time, unless NGOs have some document such as a DCR (the receipt issued after collection of government dues other than land tax as a document to prove ownership for a particular time) or lease deed from the local authority of the Ministry of Land Administration and Land Reforms. The BWDB may ask for the land to be restored back to them if they need to excavate earth for the repair of the polder. In addition, no date or time frame has been established for when these participants will receive the aforementioned benefits. Thus, the sustainability aspect of these plantations in the case studies above is still questionable.

Co-management by NGOs: Adaptation to climate change requires a co-management paradigm for mangrove-based ecosystems and their services. To some, mangrove plantations are not incorporated into coastal ecosystems but are regarded as separate activities. No ToR was formed yet, except in the case of BARCIK, even though it was stated that the local communities would benefit from tree removal. It has not yet been determined what will occur when these plantations reach maturity. Can the community sell the plantation's products on the market and earn a profit? If the plantations can generate profits through harvesting, commercial players will invest and reinvest in this region and thereby play a role towards achieving sustainability.

All the NGOs visited are afforesting river-bank land without permission from the authorized authorities and are focusing more on conservation than socioeconomic well-being. Taking into account the types of climate stressors and vulnerabilities that affect coastal communities, frameworks should be developed to make it essential for NGOs to diversify income prospects across land and water-based livelihood activities across village landscapes.

Extent of community engagement: Plantation programs are often implemented without consultation with locals. Local NGOs strive to build a community with local people after consultation with local elites and key political figures. In this context, the so-called leaders are politically motivated individuals or local elites with direct access to NGO officials. These people aim to exploit the masses to fulfill their own interests rather than the collective interests of the masses, jeopardizing the major strategy of natural resource conservation. Thus, local NGOs are following criticized top-down development tactics [96]. Typically, INGOs or major national NGOs propose riverbank afforestation to meet donor interests as well as their own vision. The local expert, with support from NGOs, plans the project without community input.

NGO leadership often tries to persuade others by promoting the benefits of the plantation program and by participating in activities without initial community input. Co-management is defined as involving locals in program implementation. The INGO and local NGO professionals in the above case studies believe such activities are only done to show that projects are developed with active participation of local residents. As a result, community engagement is less about inviting people to join and more about educating them about the initiative.

From the conducted interviews, some locals regard afforestation programs under NGO projects to simply be a method to make money. It was also found that locals believe the majority of the money for plantations is consumed by NGO officials because no money is required to raise a plantation here except for protection. Seeds arrive and grow naturally. However, every NGO said this was a plantation. Participatory projects can be created even if no true conservation interest exists. According to Ref. [97], adopting participatory conservation projects has resulted in the emergence of new organizations that "fight" for the financial incentives derived from these resources.

Reinforcing social inequality: NGOs rely on local authorities or local elites to pick participants during the initiation phase, but this is not a prerequisite. However, in order to run an NGO, organization officials often attempted to establish positive relationships with local elites in light of the Bangladesh situation. Co-management is less effective when done this way. Even when a decision is framed as "collective," the vertical structure of power that exists within communities implies that not all members have the same weight in decision-making. There is a hierarchical system in rural communities that is generally gerontocratic, which means that not everyone is allowed to speak at meetings. Some members of the community are barred from participating in these sessions because of a local power structure that restricts their freedom of expression. Because of their "clientelist" allegiance processes, traditional power structures have permitted many so-called "tiny" communities to sustain basic forms of cooperation across time. Those who can make decisions and have influence on others group themselves as a part of the co-management program as "insiders" here. The elites are divided based on their interests. Each elite has some followers, which form sub-groups within a group. These sub-groups are referred to as "tiny groups". Rather than addressing the challenges that arise, this dynamic reinforces a limited view of what is at stake in development.

Political interface: Co-management institutions, as field observations suggest, are gradually gaining prominence and visibility in their local contexts. In the process, these institutions have attracted the attention of local power holders, including sociopolitical elites, as prospective support bases and "vote banks," i.e., blocs of loyal voters. A few members appeared to be getting actively engaged in local politics and aligning with major political parties. Some NGOs are bypassing local institutions to form communities, and in doing so, they try to involve female participants but ignore the class-based, hierarchical, and gendered rural unit, locally known as "samaj." The efficacy of focusing on disadvantaged women is limited by class divisions and power structures in rural areas controlled by wealthy male elites and patron-client interactions [63,97]. Due to hierarchical and gendered societal conventions, persons of the upper stratum of society are unwilling to cooperate with "poor women" or participate in project activities headed by women [98,99]. Furthermore, by prioritizing local communities based on identities and relationships with uncertain institutional limits in co-management, institutions may provide a chance to reshape socioeconomic and political interactions in order to maximize the interests of dominant parties [100]. It also eliminates the possibility of decentralizing resource management and use rights to local, permanent units, which could be detrimental to sustainability [64,101].

Rationalizing of harvest: Although the local community received some direct monetary benefits owing to care after the plantation, no ToR was made about how and what percentage of benefit would go to the local people community except in the case of BARCIK. Again, as the local community has an acute fuelwood shortage, how they will collect from these plantations needs clarification. Moreover, to sustain this practice, there should be a clear benefit-sharing scheme to convince the government that it not only helps to reduce pressure on the natural resources of the Sundarbans but also plays a role in the socioeconomic uplift of the local community. The proper guidelines of using the funds from yields must be tabled and secured so that it does not get drained away without accruing any benefit to the community.

Unless the communities are judiciously benefited, their involvement and participation in the conservation of the natural resources will not be very effective. Once their accountability along with their common benefits gets enhanced, the common members under the Co-management Committees (CMCs) will become gradually vocal to stand up by the side of the BFD for the right cause against any attempt by the CMC members to reap personal benefits at the cost of the community. In this connection, the most important task is to develop a set of proper financial guidelines that will detail out the whole process of the flow of money and the proper utilization of every penny.

'Ownership' issues: The absence of tenurial rights over land and trees compels locals to consider whether they will have the right to use it in the future. In addition, improper inclusion of individuals in decision-making adds fuel to their reasoning. Moreover, locals believe that INGOs and NGOs' funds are time-limited and cannot be relied upon to continue for an extended period of time. As a result, the local populace lacks faith in NGO assurances and a sense of ownership, which compels them to maximize their profits from these activities without regard for the project's objective and long-term viability.

Financial viability: Bangladesh is facing a serious financial crisis, threatening forest protection and biodiversity conservation activities [90]. Due to competing priorities, the Bangladeshi government is unable to adequately subsidize the forestry sector [91]. NGOs are currently assisting in plantation establishment and monitoring. Locals continue to fear that NGOs' financing will not be assured for a long time.

While the government should fund these initiatives, no Development Project Proposal (DPP) has been filed. As a government department, BFD cannot work with NGOs until a DPP is granted. We know that Winrock International, an international NGO working globally to empower the disadvantaged groups, has since 2013 been seeking a DPP preparation expert to start the process. Almost 9 years into the CREL project, Winrock International has yet to acquire the BFD's confidence, which is required. Currently, the BFD appears to possess nothing from the CREL project.

Accountability: According to the notification published in the 2010 *Government Gazette*, the Co-management Committee is expected to be accountable to its fellow co-management bodies, specifically the People's Forum and the Co-management Council, through periodic reporting. Local people who engage themselves in coastal plantation and monitoring activities are getting some money for their work. However, they have no information regarding finance and hence have a mistrust of NGO officials. There is a lack of accountability towards the development of beneficiaries, a propensity for donors to deliver foreign aid directly to NGOs, and donor conditionality in NGO agreements.

In Bangladesh, INGOs usually work in collaboration with local NGOs to carry out projects. INGOs are held to a higher standard by funding agencies in terms of project outcomes, and they direct their partners to carry out the project toward that goal. Local NGOs place a greater emphasis on meeting upward accountability obligations to their funding agencies than on meeting accountability obligations to their targeted communities or local government institutions, at the expense of their commitment to the intended community. However, to ensure a sustainable plantation program, local actors have to be downwardly accountable.

Absence of conflict resolution power: The Co-management Committee (particularly NGOs) is not a part of any co-managed dispute resolution authority with the BFD for land and resource rights, neither on paper nor in practice. Land use, benefit sharing, forest access, resource rights, tenure rights, or land encroachment (for example, new homes, commercial brickfields, illegal gardens), boundary conflict between forest users, or forest villages with respect to their land use rights are all handled by the latter. Therefore, local people have little belief that these plantations will bring any benefit to them in the future as there are no legal documents supporting their recognition. This raises mistrust among local communities towards NGO officials as well as governments.

7. Discussion

The study assesses the co-management practices of selected NGOs in the Sundarbans Reserve Forest. In order to achieve sustainability, local communities should be assigned governance responsibilities. This is because their proximity to natural resources gives them a better understanding of how to be effective managers. Enhanced responsibilities are viewed as a means of safeguarding community tenure and empowering local institutions, both of which contribute to sustainability and social justice [102].

Our findings, however, reveal that the co-management practices have remained top-down in nature—essentially developed and implemented by professionals. In other words,

some external experts propose blueprint solutions to conserve forest resources while meeting local community needs, which may not reflect community views on forest management issues but are closely aligned with the needs of powerful external agencies running these projects. External organizations prefer expert-led planning because it makes adaptation efforts manageable [103].

The local communities have little say in co-management decisions, although they bear the most direct consequences of such decisions. They are working just as laborers and protectors of the plantations run by the NGOs. Therefore, it is one type of "shared governance" as described by Ref. [17]. In "collaborative governance," one agency (for example, NGOs, in our case) has formal decision-making authority, responsibility, and accountability, but the agency is required by law or policy to collaborate with other stakeholders. As the NGOs lack TORs and any consistent policy the majority of the time, in a broader sense, this collaboration may simply imply informing and consulting with other parties, which can be categorized as consultative as per the co-management spectrum of Ref. [104]. This unequal power relationship between local people and NGOs may jeopardize the sustainability of the coastal plantation project.

By definition, governance is the exercise of authority and responsibility; the degree of actual empowerment, as the field observations suggest, is quite low. Effective empowerment is a matter of capacity as well as the acceptance and adoption of responsibility on the part of the community. Capacity—including knowledge, means, and leadership qualities—is required for authority to be meaningful, which our study found to be grossly inadequate. Additionally, strengthening community capacity means that communities have the ability to communicate effectively and negotiate with other essential stakeholders—particularly in the partnership's arrangements for successful co-management [105]. The studied communities clearly lag behind in this regard, and the NGOs' roles as facilitators also remain minimal. Moreover, the NGOs' selection of beneficiaries is also found to be skewed towards the elite and influenced by local politicians in many cases. In the process, NGOs sometimes get entangled in local politics and factions, which sparks new disputes and obliterates local agendas and priorities, thereby impairing the governance quality of the projects [17].

Unlike NGO-led ones, government-led co-management programs are guided by strategies, action plans, and policies. The Wildlife (Conservation and Security) Act of 2012 and the Protected Area Management Rules codified the legal framework for co-management programs, securing community participation and benefit sharing, and enabling the successful implementation of co-management programs in 22 PAs across the nation [106,107]. In order to secure wildlife habitat, forest ecosystems, and watershed management, the draft National Forest Policy 2016 recognizes the significance of co-management of PAs [106]. The government of Bangladesh has thus carried out a number of projects with NGOs, despite the fact that no such legislative terms of reference have been developed for NGOs addressing community formation and operation in order to conduct co-management programs. This may ultimately result in hindering their operations. Most of these NGO-led co-management programs and activities lack integration and are frequently carried out in a scattered manner. In order to reach a larger segment of the community and affect significant change, NGOs involved in afforestation programs must work together and in more integrated ways.

Additionally, in order to maintain a co-management plantation program in a location resembling the Sundarbans, NGOs must place equal focus on the conservation of natural resources and the livelihood of the local population while taking climatic extremes into account.

8. Suggestions for Improvement and a Call for Action

This concluding section presents the following propositions for improvement based on the feedback from the focus group discussions and empirical observations from the study:

- Develop a code of conduct for co-management institutions and their members. Identifying and selecting members of local co-management organizations should be done with extreme sensitivity to avoid selecting fraudulent members (not matching the criteria for membership). Bangladesh may implement capacity building programs for both co-management groups and BFD workers to streamline forest co-management. Finance management, office management, and leadership are the three main streams that should be prioritized for co-management institution capacity building interventions;
- For co-management to be financially sustainable, corporate sponsorship, particularly Corporate Social Responsibility funding, may be pursued. This will necessitate more proactive co-management leaders and financial managers. Efforts should be made to leverage local resources (local government institutions, social philanthropic sources, etc.) and to maintain government oversight of co-management activities, including endowment fund management. It is better to save and accumulate through cooperatives in targeted ways. Examples include forming groups of people who have the same interests to make them more likely to save and incentive-based saving.
- Developing and implementing a coordinated management planning approach is crucial. Conservation NGOs are distributed over the landscape. However, while these programs may fulfill local needs, they rarely achieve large-scale change. Unification is particularly essential. In addition, community co-management leaders should avoid open conflict with powerful vested interest groups and elites as a management technique. Active local government involvement, especially UP involvement, is preferred. The local context should be considered while developing and implementing any initiatives.
- NGOs may undertake reforestation on newly acquired land outside the Reserved Forest after negotiating land and resource use agreements and rights. Land tenure issues should be handled routinely, as should conflict situations. To avoid tillage regression, it will also be necessary to assess when this land is suited for other purposes outside of forestry. Depending on the situation, two strategies should be employed to gradually develop co-management:
  - ➢ To increase the scope of co-management territory beyond the PA boundaries and into other landforms and legal categories such as USF and RF;
  - ➢ To horizontally expand the scope of co-management territory by including new forest and wetland tracts.
- Co-management organizations should prioritize outreach to the broader "third sector," including civil society, research centers, think tanks, and tertiary educational institutions. The participation of civil society is crucial for advocating and influencing policy. One way to make people more aware of co-management is to provide resources for media and communication.

9. Conclusions

Co-management as a concept and practice is a relatively recent development, but seems to be rapidly taking root and manifesting the signs of gradual consolidation in Bangladesh. There has been some progress in government-community led projects in terms of needed policy and legislative reforms, building institutions at the community level, and a change in the way relevant government agencies think about co-management. However, even with these developments, NGO-based natural resource co-management is still rare. As such, there is hardly any room for complacency. Indeed, the road ahead will be long and difficult with respect to NGO based co-management programs. Land tenure, a code of behavior, effective and meaningful participation of the local community, cautious engagement of local elites, continual financial support put to the best use, and capacity development should all be addressed with care. Sustaining and further consolidating the achievements to date of the NGOs in their plantation activities through co-management still poses formidable challenges that can only be achieved by acting together, particularly amongst NGOs, the local community, and the government as a supporter.

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