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Are Protected Forests of Bangladesh Prepared for the Implementation of REDD+? A Forest Governance Analysis from Rema-Kalenga Wildlife Sanctuary

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Abstract: The present study investigates the forest governance structure for REDD+ (Reducing Emissions from Deforestation and Forest Degradation) implementation in a protected forest of Bangladesh, namely Rema-Kalenga Wildlife Sanctuary (RKWS). The study analyses the key aspects of forest governance, focusing on drivers of deforestation and forest degradation, governance deficit, institutions and social networks, co-benefits, and opportunities and challenges of REDD+ in RKWS. Focus group discussions and key informant interviews were used for primary data collection from different forest stakeholders, including forest-dependent communities, Forest Department (FD) and co-management project staffs. The survey revealed that REDD+ not only on technical issues but even more on how the evolving mechanism is governed on various levels, ranging from local to international. Although a majority (69.5%) of the respondents were motivated to engage in REDD+, indigenous communities were less interested in fear of loss of access to and use of land and forest resources, ownership and rights, and traditional customs and knowledge. There remained a degree of ambiguity of FD, community and co-management projects in field operations, which conflicted with the notions of cooperation, transparency, and accountability of the overall initiatives. Moreover, there is a strong local power structure that has major control over the community, locality and even over a local administration that is a crucial issue to the RKWS authority. However, REDD+ will open up the opportunity to manage the RKWS's forest resources in a sustainable way, increase the level of protection, and expand the area protected, hence REDD+ must align with the interests of all stakeholders to fulfil its goal. Further research is necessary to inform the governance of REDD+ in Bangladesh to better understand the interplay, interactions and linkages between existing institutions, actors and policy processes.

Keywords: carbon; co-benefits; co-management; governance; social networks; Rema-Kalenga Wildlife Sanctuary

1. Introduction

Reducing emissions from deforestation and forest degradation plus enhancing forest carbon stocks and tackling rural poverty and conserving biodiversity in developing countries—termed as REDD+, since the Conference of Parties (COP) 15—are emerging as a central policy instrument to halt land-use related emissions from developing countries [1,2]. Deforestation and forest degradation account for nearly 20% of global greenhouse gas (GHG) emissions. The global average temperature must be stabilized within 2°C, which will be practically impossible to achieve without reducing emissions from the forest sector. REDD+ is a climate change mitigation solution being

developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) (decision 1, 2/CP.13; Reducing emissions from deforestation in developing countries: approaches to stimulate action) [3]. Under the REDD+ mechanism, developed countries will provide financial incentives to the developing countries as part of a post-2020 global climate change agreement [4]. Under the agreement, the developing countries keep their forests standing and get results-based payments for actions to reduce or remove forest carbon emissions and invest in low-carbon paths to sustainable development [1,5].

The donors of the 'UN-REDD Programme'—a collaborative programme of the Food and Agriculture Organization of the United Nations (FAO), United Nations Development Programme (UNDP) and United Nations Environment Programme—supports nationally-led REDD+ initiatives in 64 developing countries [3] as they glimpse REDD+ as a potential solution and source of funding for the persistent problems of deforestation and forest degradation, biodiversity loss and poverty alleviation [6]. The programme promotes the informed and meaningful involvement of all stakeholders, including indigenous peoples and other forest-dependent communities [7].

The COP 21 established REDD+ as a core element of a new international climate change regime to tackle the second-leading cause of GHG emissions. During COP 22, REDD+ came up in the context of Nationally Determined Contributions (NDCs) and the collaborative approaches established under Article 6 of "Paris Agreement (COP 21)". REDD+ countries are reporting on progress among some of the countries (e.g., Malaysia, Colombia and Ecuador) have already met many of the requirements of REDD+, while at least a dozen other countries are well along the path to move from REDD+ readiness to implementation. One of the decisions was that all the REDD+-related works must be transparent and consistent, the countries should have the appropriate national strategies for governance, stakeholder engagement, and investment plans for sustainable forest management under public-private partnerships. Furthermore, during COP 22, Green Climate Fund is looking into ways of how to translate the "Warsaw Framework (COP 19)" into specific procedural and technical elements for REDD+ results-based payments, including, among others, scale of intervention, operationalization of the Cancun safeguards (COP 16), predictability of funding, and the risk of double financing [8,9].

REDD+ pilot projects have been initiated in tropical forest countries (e.g., Africa, Asia-Pacific, Latin America and the Caribbean) in order to test the implementation of REDD+ strategies at local to national levels. Most REDD+ countries are still in the "readiness" phase, which involves preparing a national REDD+ strategy, building capacity in measurement, reporting and verification (MRV), and performing demonstration activities [10]. Although many of the REDD+ projects are currently under debate, the mechanism is still under development and pilot projects are at early stages, so it is too early to make an evaluation of the expected benefits [11,12], and the role of REDD+ in climate change negotiations [13]. Few scholars have examined potential risks and opportunities for REDD+ [14,15], national processes and forest governance [16,17], impacts of payment of environmental services on livelihoods [17–20].

Tacconi et al. [19] described some constraints to REDD+ implementation, like unclear property rights over forests, weak governance plagued by corruption, lack of data on existing carbon stocks, and lack of systems to measure changes in carbon attributable to an incentive system. In other words, paying people to conserve forests is well and good, but who would pay to people, how would they manage it, and how would people know if the payment resulted in reduced carbon emissions? Could payments for protecting forests and planting trees put enough money in recipients' pockets to make them want to participate in such a scheme, with all the land use restrictions it would imply? If the payments were high enough, would they benefit poor people or would the rich and powerful capture the benefits while the poor experienced mainly restrictions on their land use?

"Forest governance" is critical to the success of REDD+ and is about how decisions related to forests and forest-dependent people are made, who is responsible, how they exercise their authority and how they are held accountable. It encompasses decision-making processes and coordination of institutions at local to global levels [21]. The World Bank's Program on Forests (PROFOR) identified that "good forest governance" is associated with five principles e.g., transparency, participation, accountability, coordination, and capacity. These principles provide the benchmark of quality against which each component of forest governance (actors, rules and practices) can be assessed [22]. Conversely, "weak forest governance" is often blamed for poor development outcomes, as well as a lack of accountability and transparency is often associated with problems such as illegal logging, corruption and undermining institutional integrity [23,24]. Similarly, a lack of open and inclusive decision-making often contributes to the marginalization and impoverishment of forest-dependent communities and indigenous peoples [25]. Therefore, the success of international mechanisms like REDD+ will require governance arrangements that reduce emissions at scale, as well as be transparent and inclusive as well as will need to engage representatives of a range of non-state interests, including forest dwellers, civil society and business [26,27].

REDD+ has become a reference framework for national forest governance but weak forest governance structures are one of the main challenges for its implementation, while carbon effectiveness, efficiency and equity (3Es) are other challenges [17,28]. Previous studies have indicated that to be effective, a REDD+ programme should consider the following issues: build on strong forest governance structure and institutional linkages [29], use bottom-up approaches [30], and promote the full participation of relevant stakeholders particularly local and indigenous communities including women in all phases [31]. Otherwise, a REDD+ program can undermine forest governance and worsen the persistent efforts of governments and other stakeholders to exert increasing control over forests to improve the wellbeing of the community [32,33].

McGregor et al. [34] argued that REDD+ is transforming forest governance by financially rewarding countries that measurably improve their forest carbon management. Therefore, the programme represents an unprecedented opportunity to enhance forest governance and strengthen global conservation efforts. Scholars found that nearly all the REDD+ implementing countries have weak governance structures however, exhibit a political commitment to REDD+ but have powerful drivers for deforestation, weak multilevel governance, low cross-sectoral horizontal coordination, and lack of technical and administrative capacity [28,29,35]. Wertz-Kanounnikoff and Angelsen [36] added that national policy and legal frameworks are crucial in accounting for and controlling deforestation and forest degradation, managing REDD+ programme, and building a strong sense of ownership among the beneficiaries.

Evaluating the governance quality of REDD+ is consequently of value for determining the value of the mechanism itself for combating climate change, as well as market-based instruments more generally [23]. The present study was conducted to answer some questions on forest governance related to future REDD+ project implementation in Rema-Kalenga Wildlife Sanctuary (RKWS)—a protected area (PA) of northeast Bangladesh. The RKWS was among the four pilot PA sites for co-management projects implementation for forest management in 2004 [37] and showed better outcomes in terms of reducing deforestation and forest degradation rate, increased community conservation awareness, forest protection and better forest management than another pilot PAs [38,39]. Accordingly, the government has a top most priority to select the sanctuary as a well-suited pilot site to test and demonstrate approaches for policy implementation of REDD+ in Bangladesh. Therefore, the specific objectives of the study for the RKWS area were to (i) identify the drivers of deforestation and forest degradation; (ii) determine the governance deficit as a barrier to REDD+ implementation; (iii) explore the expected benefits and challenges of REDD+; and (iv) identify the formal and informal structures, and social networks that could enable and/or constrain to REDD+. It is expectedthat this study will help the Bangladesh Forest Department (BFD), development partners, co-management project, policy makers, academicians and researchers to draw some new approaches, policies and better facilities for effective REDD+ strategy development and implementation for Bangladesh, especially at RKWS.

2. Forest Governance, REDD+ and the Case of Bangladesh

Bangladesh, a tropical south Asian country, has 2.5 million hectares of forestland (hill forest, plain land forest, mangrove forest, coastal plantations, and wetland forest), equivalent to almost 17.4% of country's total area, out of which 1.6 million hectares are under the control of the BFD [40]. There are inconsistencies about the total area of forestland. The National Forest Assessment 2007 reported about 1.44 million hectares which is about 9.8% of the total land. However, actual tree cover in forestland amounts to only 6.7%—much less than 17.62% of the land that has been designated as forest lands [41]. Again, FAO's Global Forest Resources Assessment 2015 indicated that total forest area of Bangladesh is 1.43 million hectares i.e., 11.2% of the land. The per capita forest area in Bangladesh is less than 0.015 hectare against the world average of 0.60 hectare [42]. It is reported that 19 million people in Bangladesh are directly dependent on forest resources for their survival. The forestry sector accounts for about 3% of the country's gross domestic product and 2% of the labour force [43].

The protected forest management in Bangladesh has undergone collaborative forest management (called co-management) with active involvement with the local stakeholders. Since 2004, BFD implemented USAID's funded co-management projects such as Nishorgo Support Project (NSP, 2004–2009), Integrated Protected Area Co-management (IPAC) Project (2009–2013), and currently Climate Resilient Ecosystems and Livelihoods (CREL) Project (2013–2017) aims to better manage and conserve the country's natural resources and biodiversity by keeping pace with climate change through the involvement of local stakeholders in forest management [37].

Mukul et al. [44] from published case studies (only considered the studies that are from primary and old growth secondary forests and did not include studies from monoculture, agroforestry, and/or plantation forests) estimated 251.8 million megagrams of carbon is stored in three forest ecosystems (hill, mangrove and plain land *Sal*) of Bangladesh among hill forests have the highest potential for forest carbon enhancement and REDD+. FAO from inventory data calculated 127.28 million megagrams of carbon in above and below ground biomass including dead wood, litter and forest soil [42]. Hence, there is potentially an important scope for a REDD+ programme in Bangladesh [45].

The history of forestry in Bangladesh is one of continuous depletion of forest resources in terms of both area and quality. FAO [42] estimated that between 1990 and 2015, Bangladesh annually lost 2600 hectares of primary forest which is gradually decreased from 1.49 million hectares in 1990 to 1.43 million hectares in 2015, and the rate of deforestation was 0.2%. Traditionally three tools—plantations, forest reservations and community participation have been applied by BFD to combat this depletion [46]. Conversely, the sector is suffering from lack of good governance, the ultimate result is the continuous depletion of forest resources where forest acts and policies have no proper implementation [43]. Further, co-management projects in the PAs failed to secure appropriate alternative income generation (AIG) activities to reduce the vulnerability of the forest dependent communities [47]. That is why BFD targeted to the adoption of the REDD+ scheme in its forestland and joined the UN-REDD Programme as a partner country in 2010.

Initially, as groundwork, BFD prepared its "REDD+ Readiness Roadmap (Phase-2)" following the experiences of Cambodia, Nepal, Philippines and Sri Lanka and submitted the "REDD+ Readiness Preparation Proposal (R-PP)" in 2013. The Ministry of Environment and Forests established a national "REDD+ Technical Committee", "REDD+ Steering Committee", "REDD+ Strategy Drafting Committee", and "REDD Cell" [45]. In addition to that, BFD quantified the total carbon stocks in eight PAs; preparing a "National Programme Document (NPD)" for the implementation of some of the activities of R-PP (e.g., development of an MRV action plan, capacity building for forest monitoring, an assessment of REDD+ corruption risks, and the development of nationally appropriate social safeguards) with the UN-REDD contribution (Targeted Support Fund) and the assistance of UNDP and FAO [45].

BFD strengthened its national forest inventory and satellite land monitoring required for MRV with the assistance of USAID and FAO. Moreover, United States "SilvaCarbon" project came forward for parallel funding under a project for the implementation of components 3 and 4 of R-PP collaboration with FAO. BFD also seeking for further funding for the implementation of rest activities of R-PP for capacity building for the implementation of REDD+. The program also strongly emphasizes the collaboration of national counterpart institutions and development partners to play active roles and take on specific responsibilities in maintaining the momentum in the REDD+ management process and prioritizing and implementing the strategies. At the end of Phase-2, BFD is able to make a decision, on whether or not to implement REDD+ in Bangladesh, and has the necessary resources and systems for implementation [45].

3. Materials and Methods

3.1. Study Area

Rema-Kalenga Wildlife Sanctuary is located in Chunarughat Upazila (sub-district) of Habiganj District in northeast Bangladesh. Geographically, the area lies between 24°06′–24°14′ N latitude and 91°34′–91°41′ E longitude (Figure 1). With an area of 1,796 ha, the sanctuary was established in 1996 from the Tarap Hill Reserve Forest [48]. The area enjoys a moist tropical climate characterized with high rainfall (4,162 mm) and the mean annual temperature ranges from highest 34.8°C to lowest 9.6°C. The sanctuary is characterized as a tropical evergreen to the semi-evergreen forest with a total of 634 plant, 167 bird, 7 amphibians, 18 reptile and 37 mammal species [49]. The sanctuary is home to several primates such as globally endangered *Hoolock hoolock* and *Trachypithecus phayrei*, and globally vulnerable *Ursus tibetanus*, *Nycticebus bengalensis* and *Trachypithecus pileatus*, although *T. pileatus* has been identified as flagship species of the sanctuary [48,49]. The working plan of USAID-funded NSP and the IPAC project estimated that about 76% of the forest is still in a natural condition, where plantations cover only 9% with different exotic fast growing tree species including lemon cultivation in the denuded hills [50].

In order to reduce the pressure, the NSP, IPAC and presently CREL projects have introduced several AIG supports for the local communities since 2004. The most common AIG supports in RKWS are: spot base training on homestead gardening, nursery raising and fisheries; bamboo clump management; bamboo and *murta* (*Schumannianthus dichotomus*) based handicrafts; social forestry plantation and management; agroforestry (zinger, turmeric and lemon); cow and poultry rearing; training for eco-tour guide and eco-cottage establishment; improved cooking stove manufacturing and marketing; promotion of indigenous community weaving; and account management. Co-management also provides initial support to the forest-dependent communities in terms of goods such as nursery seeds, poly-bags, watering machine, organic fertilizer preparation, agricultural supplementary products, bamboo, fish fry, etc. [47,51]. Institutional structures were formed officially in the name of a Co-management Council and Co-management Committee (both CMC) for the co-management sites, which are primarily responsible for overall management of the PAs including the landscape.

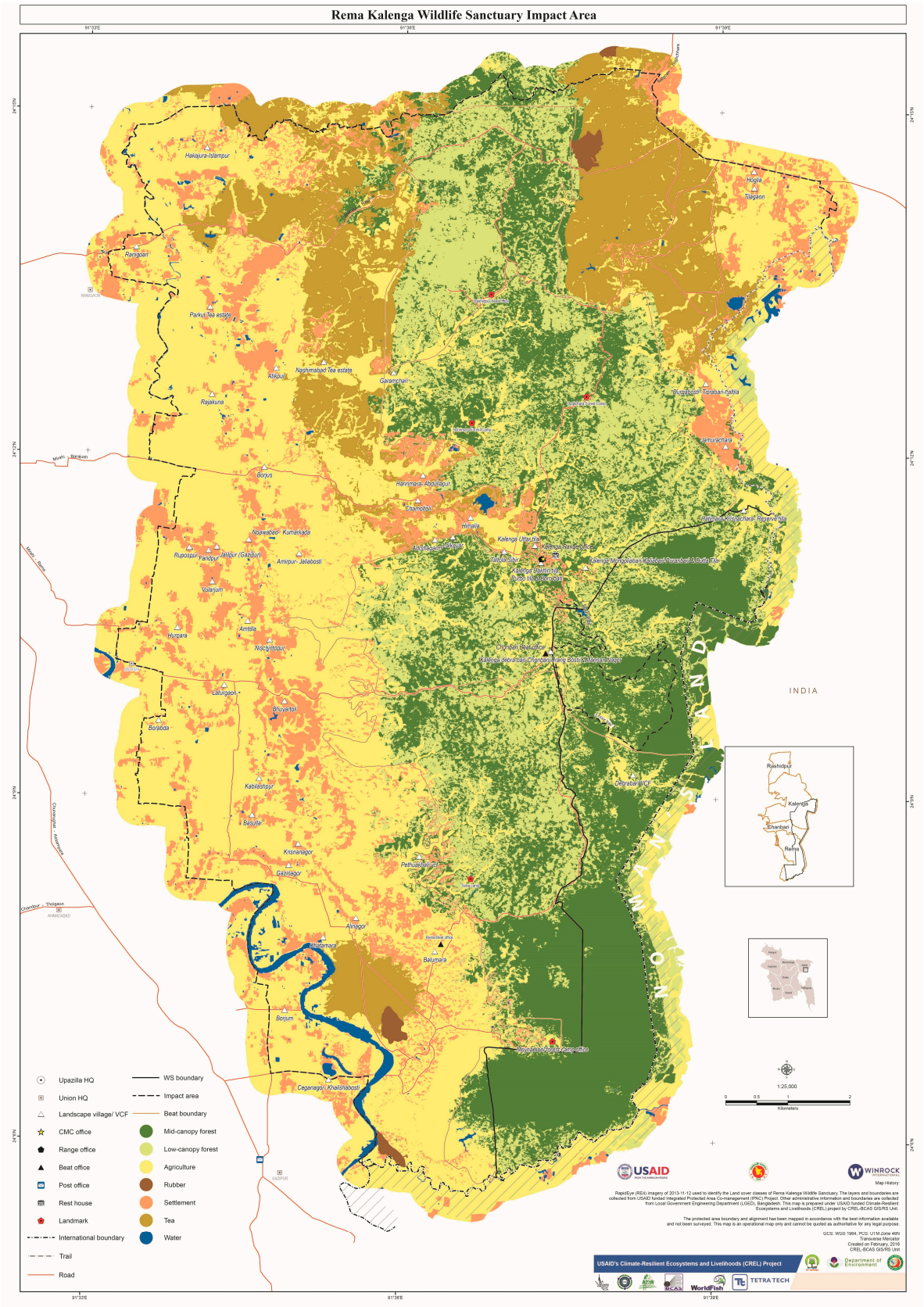

Figure 1. Location and impact area map of Rema-Kalenga Wildlife Sanctuary. Source: CREL Project, personal communication.

3.2. Study Methods

3.2.1. Field Survey Techniques and Data Collection

Both primary and secondary data were used for this study. Primary data were collected from different forest stakeholders through focus group discussions (FGDs) and key informant interviews (KIIs). At the same time, forest observations were carried out by walking forest trails, observing different aged participatory/social forestry plantations and agroforestry fields, and discussing with the beneficiaries about governance and forest management. All types of interviews were performed during the daytime and took about 1 to 1.5 h on average. On each survey topic, respondents were encouraged to express their views and provide additional information regarding forest governance in the area. A study area map and relevant information were collected from BFD, CREL project and personal communication.

Focus Group Discussion

Four FGDs involving 59 participants were conducted by using a guideline with a local experienced people, co-management beneficiaries, businessmen, and indigenous communities to gather information about the forest management and governance status to fulfil the study objectives. Some formal invitations were made before going to the field with the help of the "CREL Site Facilitator" for participating at the FGDs. Both males and females willingly participated and females were more interested inprovidingtheir opinion.

Three FGDs were conducted inside and in front of the houses, and the rest was conducted in a local tea stall where people gathered spontaneously in the afternoon after their daily work. The average number of participants in each FGD was 15 (Table 1). The following questions were asked to the community people during FGDs but not limited to: community livelihoods, opinion on drivers of deforestation and forest degradation in RKWS (see Table 2), forest governance deficit and corruption practice, negative impact of governance deficit, combating corruption, willingness to participation in REDD+, access to information and required information from BFD (Table 3), expected benefits (Table 4) and major challenges (Table 5) of REDD+ implementation, and specific and practical recommendations to enhance transparency and accountability of REDD+ implementation in the RKWS, etc.

Table 1. Details of the participants and sample size used for this study.

Method	Participants	Number	Total Participants	FemaleParticipants
FGD	Forest dependent community people from different occupations (both male and female), indigenous community (both male and female), and local knowledgeable persons	4	59	22
KII	BFD staff (1), CREL project staff (3), school teacher (1), CMC member (2), religious leader (1), timber trader (1) and journalist (3)	12	12	1

Note: FGD: Focus Group Discussion; KII: Key Informant Interview; BFD: Bangladesh Forest Department; CREL: Climate Resilient Ecosystems and Livelihoods; CMC: Co-management Committee.

Key Informant Interview

Twelve KIIs were conducted (Table 1) with the help of an open-ended questionnaire. A purposive sampling method was used to identify the key informers with the help of local BFD officials and CREL project staff. Questions were open-ended to provide key informers with the flexibility necessary to express their personal experience and perceptions on the most important

issues. The main questions asked to the KIIs were but not limited to: opinion on drivers of deforestation and forest degradation in RKWS (Table 2), general opinions of forest governance deficit in RKWS, good experiences in improving integrity in the forest sector of RKWS, about social/participatory forestry, benefit sharing mechanism that is relevant to REDD+, access to information and information required from BFD for REDD+ implementation(Table 3), grievance and accountability mechanisms, expected benefits (Table 4) and major challenges (Table 5) of REDD+ implementation, and specific and practical recommendations to enhance transparency and accountability of REDD+ implementation in the RKWS, etc.

3.2.2. Data Processing and Analysis

To analyse the forest governance status in RKWS, the PROFOR framework [22] was used. "Governance of Forests Initiative" indicators such as forest tenure, land use, forest management, forest revenue, cross-cutting institutes, and cross-cutting issues [25] were used to diagnose and assess strengths and weaknesses in forest governance. In the case of quantitative data analysis, we analyzed individual "Yes" and "No" response (e.g., is illegal logging a driver of deforestation and forest degradation in RKWS?) data by calculating frequencies and percentages (by using MS Excel) of responses for each variable included in the survey. In the case of qualitative data, such data consisted of words and observations, not numbers. Interview transcripts, field notes and observations provided a descriptive account and explanation of the study. We gathered the similar type of data from the similar type of interview and summarized the field findings before it used for manuscript writing. Drivers of deforestation and forest degradation were categorized according to Geist and Lambin [52].

4. Results

4.1. Livelihoods of the Forest Dependent Communities

Agriculture (paddy cultivation), extraction of non-timber forest products (NTFPs) and house building materials from RKWS were the major occupations of the local people. Other occupations like a day-labourer, small business, grocery shop, services and overseas employment were also found in the area. NTFPs in RKWS provides direct and indirect livelihoods, employment and income (by selling in the local market) opportunities to the forest-dependent communities. Local and indigenous communities collect different types of NTFPs from forests including fruits, nuts, tubers, leaves, creepers, sungrass (*Imperata cylindrica*), bark, bamboo, rattan, *murta*, orchids, medicinal plants and wild animals. On an average, every collector collects approximately 5 to 20 kg of NTFPs per entrance (4–5 times per month) which varies from village to village, also from season to season (dry season is the preferred season). Additionally, indigenous communities collect bamboo shoots to eat as a vegetable, which is the main cause of decreasing bamboo resources in the sanctuary. Yet, BFD and co-management projects have no initiative to collect, manage or market of NTFPs.

The indigenous knowledge of the use of resources shows a very particular pattern of forest use. Traditional dietary practices, especially plants, may provide important and valuable information on their medicinal effects on humans. Therefore, it is very much important to respect the indigenous knowledge for forest conservation and management planning, which was found missing in RKWS.

The study revealed that, an important step of co-management projects is the rehabilitation of former illegal loggers and poachers by involving them in a community forest patrolling group (called CPG). One or two adult male members of each family joined in CPG and routinely guard the sanctuary in both day and night. Currently, due to unavailability of CMC funding their service was voluntarily. The most significant result was found in reducing illegal logging both the number of illegal loggers and the frequency and amount of timber harvested illegally as most of the people are now trying to earn income from different AIG supports provided by co-management projects. The enforcement of customary forest law appears to have very little ability to tackle illegal logging in RKWS.

4.2. Drivers of Deforestation and Forest Degradation in RKWS

Collection of fuelwood, bamboo, house building materials and other NTFPs were the top drivers of deforestation and forest degradation in RKWS, reported by all (100%) the respondents. High population growth (78%) ranked the second most important driver accordingly. Due to recent development of the communications system, illegal loggers can easily transport the harvested trees directly to the nearby sawmills and furniture shops which was ranked third most driver. BFD does all plantation activities with fast growing exotic species (mostly *Acacia* spp.) within the forest boundary rather than native medicinal, fruit bearing and firewood species. Acacias do not provide fruit for wildlife and have a negative impact on soil and forest ecosystems so it was also ranked the third position. Eleven other less important drivers were also recorded in Table 2.

Table 2. Community perception on the drivers of deforestation and forest degradation in the Rema-Kalenga Wildlife Sanctuary, Bangladesh.

Drivers of Deforestation and Forest Degradation	Type *	Response (%) **	Order of Importance
Collection of fuelwood, bamboo, house building materials and other NTFPs	Direct	100.0	1
Improvement of communication system	Indirect	79.7	2
Population growth	Indirect	78.0	2
Illegal logging	Direct	78.0	3
Plantation with exotic species	Direct	74.6	3
Low perceived value of ecosystem services	Indirect	72.9	4
Lack of enforcement of forest policies	Indirect	71.2	5
Forest fires (natural and manmade)	Direct	69.5	5
Encroachment and expansion of agricultural activities	Direct	67.8	6
Lemon cultivation within the forest boundary	Direct	66.1	6
Lack of alternative fuels to timber for energy	Indirect	66.1	7
Conversion of forest land to settlements	Direct	64.4	8
Illegal hunting and poaching	Direct	64.4	9
Natural calamities (drought, flood, storm)	Direct	61.0	9
Cattle grazing	Direct	52.5	10
Tourism facilities development	Indirect	45.8	10

Note: NTFP: Non-timber Forest Products; * Types of drivers of deforestation and forest degradation; ** Multiple responses.

Fire burns seeds, barks, seedlings, undergrowth vegetation and interferes with regeneration dynamics of canopy trees. For hunting wild boar, indigenous people set fires in forest bushes and drive the wild boar out of the bushes/cave. People also do intentional firing to clear the ground for logging, and facilitate movement by loggers inside the forest, and also to promote sprouting of sungrass in some particular areas. Additionally, all the listed drivers were categorized into direct (human activities or immediate actions that directly impact forest cover and loss of carbon) and indirect drivers (social, economic, political, cultural, and technological processes that give rise to the direct driver's influences) (Table 2).

4.3. Governance Deficit Driving Deforestation and Forest Degradation

The majority of the forest villagers have a lack of awareness regarding the importance and long-term benefits of biodiversity conservation and sustainable forest management, which is still a major challenge for the conservation of RKWS. There remains a degree of ambiguity regarding the roles and responsibilities of BFD and co-management projects in field operations, which conflicted with the notions of cooperation, transparency and accountability of the overall initiatives. In the discussions, community people mentioned that both CPG members and BFD staff are involved in illegal logging, act as informants of loggers, as well as help the illegal loggers (generally at night) to sell the trees at nearby sawmills and furniture shops. BFD faces large capacity gaps in terms of

human resources, their qualifications and skills, budgets, equipment, and transport for managing and protecting the resources. Transparency and accountability is low with little incentive for good performance. BFD staff had argued that:

> "*our hard work is rarely recognized and rewarded. We do not have any provision for a reward for good work and rarely get punishment for corruption. We are always having under pressure on strong political elite those are involved in illegal logging. As a result, some of our staffs assist them and take a share (cash) from them...*"

On an average, in a month, 4–5 mature trees are illegally sold (where it was 30+ from 4 to 5 years ago) by organized and powerful illegal loggers groups. CPG members stated that most of the time they caught the loggers but BFD were bribed to release them from custody or punishment. An indigenous male who is a member of CPG expressed that:

> "*several times we caught a number of illegal loggers during our duty time and handover to the forest guards but they left them by taking money. They also threaten us if we tell such doings outside thus we will lose our homeland as our land are government (khas) land and BFD has right to capture the land at any time....*"

External political influence and powerful gangs of illegal loggers are a serious concern at RKWS. Communities stated that BFD is under control of those two groups or at the vesy least helpless against these groups. Lack of BFD forest guards and outdated arms are a major deficit to fight against 30–40 people with modern arms in a gang. In this situation, BFD became powerless to protect the forest resources with their 2–3 guards.

Local BFD offices (Beat Offices) have no legal authority to sell the seized and harvested logs (from social forestry plantations) without auction. They have stated that a long official procedure of auction is required to sell the logs. In the meantime, these logs have been stocked and decayed in the Beat Offices for often many years which means BFD fails to a collection of revenue from selling forest timber. In addition, there are a number of over-mature Acacia plantations, bamboo and rattan gardens, but Beat Offices have no authority to call any auction to sell these valuable resources, hence the market price of these resources have been reduced.

After the implementation of co-management projects, communities lost their traditional rights to enter into the forest with hand choppers but these projects cannot ensure their sustainable livelihoods with limited and inappropriate AIG support. The situation for indigenous communities is worsening as their livelihoods were fully depend on forest resources. As a result, some of them have migrated to towns and cities as well as India and left their traditional lifestyle. Sometimes, AIG selection criteria were inappropriate in some cases and have no ethnicity-specific AIG support. Such experiences barred the active participation of forest-dependent people in co-management projects:

> "*we have already left our traditional livelihood activities but BFD and co-management projects doesn't give us enough support to meet our family needs, so what is the benefit of co-management for us? BFD continuously threatened us that if we enter into the forest thus they will evacuate us from the forestland without any prior notice…*"

Moreover, there is also a lack of mutual trust on the collective performance of BFD and co-management projects for good governance. Yet, local BFD staffs, in general, did not own the activities of co-management for the betterment of RKWS management ultimately this affects the smooth implementation of the project. Following is an example statement of the many that we heard in this regard:

> "*we managed the forests for more than hundred of years, that time we didn't face any problem and not required people participation in forest management. So, why we needed people participation now? Villagers are the forest destroyer, the government should evacuate the settlements from the forest boundary, and thus everything will be okay. On the other hand, co-management is a simple trick of developed countries; we are not agreeing to work with*

community and foreigner. BFD is the owner of the forestland and communities are living here by the permission of BFD.....[BFD staff]"

Illegal loggers also mentioned that poverty, and insufficient income from AIG activities are the main reasons that result in illegal logging and poaching. This survey found that selling a tree for good quality timber could secure their family for at least a week to a month. Moreover, they have a lack of knowledge of traditional usufructs rights and about the existing forest laws and rules that are supposed to prevent illegal activities. Further, the slow process of forest litigation and easily obtained bail from the Court also influences the illegal loggers to commit such offenses.

There is no organized ecotourism infrastructure in RKWS but the area has huge potential for ecotourism development. Training of local educated youths as eco-tour guides and supporting them for the eco-cottage establishment and ecotourism prospects are praise-worthy initiatives taken by co-management projects. Likewise, selling indigenous community handicrafts and tea leaves also can be sources of income for indigenous communities that are completely missing here.

4.4. Community Knowledge about REDD+

Interestingly, the term "REDD+" is familiar to the local communities. About 89.8% respondents mentioned that they have heard about "REDD+" from CREL project staff, CMC and co-management organizations (CMOs) members in their monthly community meeting. They knew little about the benefits of the REDD+ mechanism but have no idea about the formation, process and challenges of the program. They heard that if they protect and conserve the forest, the value of the whole forest will be sold to the developed countries under a process called "carbon trading" and they will get a share from it. Additionally, they also got some idea about carbon trading from the 2014 to 2015 "carbon stock assessment inventory" done by BFD with the help of CREL project. About two-thirds of the respondents (69.5%) were now interested in participating in a future REDD+ project, where 22% were not interested in participating, and 8.5% did not respond to that question.

4.5. Community Required Information for REDD+ Implementation

All the survey participants (100%) stated that they have required the following information during REDD+ implementation like land tenure and forest ownership rights of local and indigenous communities, a list of likely positively or negatively affected stakeholders with sustainable land and livelihoods alternatives, and identify the ethnicity-specific, locally appropriate and secure AIG activities before REDD+ designing. They also required information on the apparent financial activity of the REDD+ project (89.8%) including commitment and disbursement information, specific dollar amounts and transfers at both the national and sub-national level, and major conflicting issues (such as tenurial conflicts and insecurity, restriction in rights to access of forest resources and agriculture and injustice benefits sharing) due to REDD+ implementation (86.4%) (Table 3).

Table 3. Information required for the community during REDD+ implementation.

Required Information from Forest Department	Response (%) *
Land tenure and ownership rights	100.0
List of affected stakeholders and sustainable alternatives	100.0
Identify alternative livelihoods activities	100.0
Community forest access and benefit sharing mechanism	93.2
Apparent financial activity of the REDD+ project	89.8
Major conflicting issues due to REDD+	86.4
Boundary demarcation and name of species for plantation	83.1
Land use plan for the REDD+	79.7
Understandable procurement plans, notices and contract deeds	78.0
Gender equity in REDD+ scheme	67.8

Note: * Multiple responses.

4.6. Expected Benefits from REDD+ in RKWS

Nearly all the respondents perceived that REDD+ would generate huge benefits for the forest and forest-dependent communities in different ways like the improvement of forest biodiversity (98.3%) and sustainable forest management (91.5%) in the RKWS. The most important opportunity of REDD+ would be a great scope to expand community/social forestry in the encroached forestlands (94.9%) as well as to foster and strengthen the collaboration and network building between grassroots to national and international organizations (89.8%). Another most important opportunity of the REDD+ would be the assessment of forest resources through using modern technology (88.1%) so that everyone can know the total forest resources of RKWS and its ecosystem values (Table 4).

Table 4. Expected benefits from REDD+ in Rema-Kalenga Wildlife Sanctuary, Bangladesh.

REDD+ Opportunities	Response (%) *
Improvement of forest biodiversity (both flora and fauna)	98.3
Expand community forestry in the encroached forest lands	94.9
Sustainable forest management	91.5
Network building with local, national and international organizations	89.8
Forest resources assessment through modern technology	88.1
Provision of more training to the BFD staffs, CMCs and CMOs members	84.6
Strong forest patrolling and monitoring	78.0
REDD+ is a future tool for the community livelihoods improvement	76.3
Increased the inter-sectoral coordination	71.2
Revisions to forest laws and policies for REDD+	67.8
Scope of transparency and accountability in BFD	67.8
Mitigation of land tenure and ownership conflicts	66.1
Develop sustainable ecotourism infrastructure	64.4
Increase the speed and success rate in forest cases	62.7
Raised women voice in forest management	61.0

Note: CMO: Co-management Organizations; * Multiple responses.

4.7. Major Challenges for REDD+ Implementation in RKWS

The main REDD+ challenges identified from this survey were almost all related to forest governance issues (Table 5). The first and foremost challenges due to REDD+ implementation in RKWS will be the uncertainty to fulfilling the agreement between BFD and local community (93.2%), due to restriction in forest access there is a chance of increased local unemployment and poverty (93.2%), and ensuring factual bottom-up approach for forest management (93.2%) which is still absent in RKWS. BFD do not consult with the community during formulation and amendment of any legal and policy documents, forest management, conservation and plantation plans, etc. (Table 5).

Table 5. Expected challenges from REDD+ implementation in Rema-Kalenga Wildlife Sanctuary, Bangladesh.

Challenging Issues for REDD+ Implementation	Response (%) *
Uncertainty to fulfil the agreement	93.2
Local unemployment and poverty	93.2
Ensuring bottom-up approach for forest management	93.2
Lack of appropriate AIG activities for all affected stakeholders	88.1
Lack of BFD capacity and staffs to forest management	86.4
Rehabilitation of indigenous communities	84.7
Lack of accountability and transparency in fiscal activity	83.1
Demarcation of forest boundary	83.1
BFD doesn't want that someone who is not the staff of BFD interferes in their activities	83.1
Conflicts mitigation between BFD, co-management and local community	79.7

Table 5. *Cont.*

Challenging Issues for REDD+ Implementation	Response (%) *
Risk of corruption by the BFD	78.0
Lack of strong political commitment	78.0
Complexity of REDD+ and misunderstanding among stakeholders	74.6
Lack of civil society monitoring	72.9
Lack of coordination, competing interests and ego sectoral among the government organizations	69.5
Ambiguity of legal system surrounding forest	62.7
Chance to benefit by certain families	59.3
Ensuring continuous forest patrolling	57.6
Toll of developed countries to control the forest	52.5

Note: AIG: Alternative Income Generation; * Multiple responses.

4.8. Social Networks in RKWS for REDD+ Implementation

REDD+ will not be successful without strong support and participation from a wide range of stakeholders; therefore, ensuring broad participation of government institutions, forest-dependent communities, indigenous communities, NGOs, civil society organizations, and private industries from the outset is critical, and this component aims to secure enabling conditions for such a process to take place. Under the co-management projects in RKWS, several CMOs such as Forest User Group, Village Conservation Forum, People's Forum, CPG, Nishorgo Shahayak and Youth Conservation Club have been formed and voluntarily worked under the CMCs for forest protection at the community level.

Co-management also creates community awareness through various cultural shows, theatre for development shows and courtyard sessions at the community level, plus essays and art competition in schools. The community has increased accessibility in general service provider institutions like banks and units of local administration became easier to them after involving in the co-management projects activities by joining the CMOs. Positively, female participants have reported the remarkable reduction of harassment by a male, torture by their husbands and demand for dowry from their husbands' family. Therefore, like co-management projects, these CMOs members willingly want to participate in REDD+ designing, implementation and monitoring, and develop experiences, lessons and recommendations at the local level that can feed into national REDD+ processes.

A number of national level NGOs namely Bangladesh Rural Advancement Committee, Grameen Bank, Caritas, Association for Social Advancement, HEED-Bangladesh and Endeavour are supporting the local and indigenous communities, particularly women, through microcredit. Some of them have concentrated on maternal and child health care, child education for the indigenous communities and AIG supports like a small-scale business, fishing, poultry and livestock rearing.

Giving a legal basis of RKWS's CMC, registered under the Ministry of Social Welfare, is a positive movement toward good governance. However, if local government institutions such as Union Parishad (the lowest tier of the local government), move ahead to support the CMC and CMOs, success rates will be higher for REDD+ strategy development, implementation and sustainable forest management.

There is a strong local power structure that has major control over the local people, locality and even over a local administration that is a crucial issue to the management authority of the sanctuary. The indigenous people have their traditional way of governance of their community. The Headman in each forest village is the most influential person and has a strong command over their community.

4.9. Recommendations for Effective REDD+ Implementation in RKWS

On the issue of land use and ownership, all participants (100%) recommend that REDD+ will need to identify all affected stakeholders, and involve them in the REDD+ project. They (100%) also recommend the reformation of land tenure and land rights of the communities. On the issue of community access, livelihoods and benefit-sharing, communities wanted secure livelihoods to be

supported under any REDD+ scheme (100%) with expanded community forestry through native, medicinal and fruit-bearing tree species (94.92%). On the issue of a policy for sustainability of REDD+, they recommend enhancing existing programs and institutions that help to ensure access to justice for stakeholders (96.61%), and a clear accountability and compliance procedures in the BFD that can be applied in all procurements related to REDD+ (83.05%).

On the issue of availability of the information to the stakeholders, participants recommend timely reports on fiscal activity by BFD (89.83%) and developing a separate unit to store the documents of all activities and making these more accessible to the people (83.05%). They also recommend the eviction of all sawmills, wood processing mills and furniture shops (91.53%), along all with brickfields (91.53%) to at least 15 km of the forest boundary. Assessment of forest resources through using modern technology (88.14%), and a clear forest boundary demarcation including trans-boundary with India (83.05%) under the forest management issue were also recommended. In addition to that, the community wanted to ensure an apparent benefit-sharing mechanism for the women participants (93.22%).

On the issue of grievance mechanism, all participants (100%) recommend the establishment of a proper grievance and conflict-resolution mechanisms under the REDD+ readiness and planning phases. Lastly, for the capacity of the forestry sector for proper implementation of REDD+, they recommend increasing manpower of the BFD (93.22%), personal financial accountability of the BFD officials (88.14%), training to the BFD personnel on REDD+ mechanism (85.75%), and introducing periodic capacity need assessment of the BFD (83.05%).

5. Discussion

5.1. Community Engagement for Effective REDD+ Implementation

Collaborative forest management studies have shown that legal protection alone is not enough to ensure effective conservation activity, which only can be guaranteed if effective relationships between the conservation areas and forest dependent communities are maintained [47,53]. For example, community-based ecotourism in the PAs of Bangladesh would significantly improve the value of environmental services to the visitors as they are the local residents and have sound indigenous knowledge of the existing environmental resources [54]. Similarly, in the case of REDD+ implementation, effective community participation is considered to be a cost-effective platform to reduce carbon emissions and to enhance the forest benefits of the forest dependent communities [55].

On the other hand, understanding the relationship between community livelihoods, ecosystem services, and the forest biodiversity conservation are particularly important for REDD+ implementation. Forest dependent communities in RKWS are interested in participating in REDD+ in many ways including: participation in forest boundary demarcation; assessment of forest resources; forest development work like nursery and plantation, monitoring of old and new plantations; forest protection; and awareness raising activities. Similarly, women were interested in participating in REDD+ to enhance their family income for the eradication of poverty, and ensuring food security and child education. They were motivated to participate in homestead gardening, nurseries, plantation maintenance, and awareness raising activities; bamboo, rattan and *murta* based handicrafts, sewing and tailoring, cow and poultry rearing, eco-cottage maintenance, improved cooking stove manufacturing and selling. The REDD+ pilot project in Nepal showed that meaningful participation of the marginalized and vulnerable people enhanced their voice and a choice in decision-making processes, and thus contributed to the improvement of overall forest governance [56].

Moeliono et al. [57] show that people are motivated not only by direct monetary benefits but also by justice or rights, such as access to land and information, and more participatory decision making on how incentives should be distributed [58]. Community stakeholders must consent to REDD+ implementation, land-use planning, identification of key priority needs and services, promoting local awareness and sensitization about REDD+ and involvement in monitoring and protection activities, in line with the principles of obtaining "Free, Prior and Informed Consent". Although forest protection initiatives such as plantation, maintenance and monitoring under

co-management projects have been generally successful, the lack of conservation training of BFD field staff; few funds for conservation research; and a lack of collaboration and networking with relevant academic and research organizations can hamper the forest management and biodiversity conservation initiatives under REDD+. Under a REDD+ project, RKWS authorities can follow the nearby Khadimnagar National Park's forest monitoring system for example, they collect regular forest data such as illegal tree felling, wildlife hunting, encroachment and other forest destruction activities, and prepare a monthly report based on these data to present in a monthly community meeting.

This survey revealed that, those who were not interested in participating in REDD+ stated that before the launch of co-management projects (NSP, IPAC and CREL) in RKWS. We heard about a lot of benefits and opportunities from those projects but in reality, people suggested that they had not received enough appropriate AIG support for livelihood improvement. Therefore, people want to know what assurances would be given that there would be benefits from a REDD+ project? Furthermore, indigenous communities were more worried if a REDD+ project was implemented if they would have to evacuate from their settlements, and if so they are not interested in participating in REDD+. An opposite response was also found from some indigenous people like:

> *'REDD+ would be good for both the forest conservation and community development. We can earn money without cutting forest trees, so why we don't want such project in RKWS?'*

The co-management projects have enabled the participation of the local community in forest management decision-making. The most vocal participants, however, often constitute the representatives from the elite segments of the community. CMCs are also dominated by elite groups —often overshadowing the voice of the community. If this scenario were to continue it will hamper effective REDD+ implementation in RKWS. Sunderlin et al. [59] showed that REDD+ may disproportionately favor large and well-off farmers, whereas local and indigenous communities that lack a voice in the design of REDD+ strategies may disproportionately bear the costs.

Involving local people including women and indigenous communities would be important for the long-term sustainability of REDD+ [60]. There is a need for capacity building on their traditional issues and rights which can be increased through education, awareness raising, knowledge transfer, and capacity-building [61]. The program emphasizes the participation of indigenous and forest dependent people in its process, who participates, and to what extent, is determined by "UN-REDD Programme Rules of Procedure and Operational Guideline" [62]. People with unclear or unrecognized land tenure and use rights may be excluded from REDD+ incentives and/or deprived of customary rights.

5.2. REDD+ and Forest Governance

The present study explores that the most common perceptions related to forest governance in RKWS and highlights the interdependency between forest governance and co-management which may be the future platform for REDD+ implementation in RKWS. Lack of coordination among BFD and co-management institutes, lack of BFD capacity, the ambiguity of legal system, land tenure issues, and corruption were perceived as major challenges for REDD+ efficacy. Some other global studies (e.g., [6,28,63–65]) also identified the similar challenges during REDD+ implementation. Similar to the present study, Chowdhury et al. [66] reported that administrative procrastination and corruption encourage unlawful activities in the PAs of Bangladesh, which in turn, affects forest biodiversity.

The community hopes that REDD+ would be a means to improve future forest governance in RKWS that will help to ensure their sustainable livelihoods. Contemporary, REDD+ will improve the capacity of sustainable forest management in the tropics only if it ensures sufficiently strong incentive for the dependent community and concerns the issue of indigenous peoples [67]. REDD+ in Nepal has shown some governance related co-benefits include secure land tenure to the people including indigenous communities, increased levels of transparency, and local participation in policies and systems that affect the management of forest resources [68].

Land tenure and ownership rights are the vital factors that will determine the success or failure of any REDD+ initiative, and the mechanisms by which payments and benefits are shared will be critical. The issue of land tenure and ownership is a major challenge for forest governance reform because REDD+ requires "binding contracts", which in turn requires legal clarity on who owns the forest land and the carbon credits that are "produced", who is to be paid, and who is to be held responsible for both delivering and avoiding the leakage of the carbon-related services [6]. A study suggested that integrating both local and indigenous communities in any REDD+ design and implementation as equal partners is a prerequisite for success because it will activate vital local knowledge, strengthen ownership and build essential local support [69].

In RKWS, although the program has significant risks to the indigenous communities but the communities willingly agreed to participation in REDD+. They pursue their paper-based rights on forestland without hampering their traditional norms, cultures and access to traditional forest uses. Some other studies found that insecure land tenure rights and poor accountability mechanisms pose a major threat to effective REDD+ implementation in that countries, posing an acute risk for REDD+ benefit distribution [67,68,70]. In Nepal, under REDD+, communities have clear rights to trees and forest products, but not to the land itself. This is problematic in the context of carbon trading since carbon is contained not only in trees but also in the soil [71,72].

In addition to women involvement, Yan et al. [73] argued that women are commonly without any formal rights to land or forests and therefore have had little say in relation to forest governance. Therefore, without equitable representation and the mainstreaming of gender issues, the sustainability of the program, community livelihoods and rural development will be questionable. The Bangladesh UN-REDD National Programme ensured gender inclusiveness in REDD+ strategies development and decision-making processes.

5.3. Combating Corruption for Effective REDD+ Implementation

UN-REDD Programme briefed that corruption could undermine the effectiveness of REDD+ where the potential risks of corruption could occur during the implementation phase, and rehabilitation phase, of distributing benefits and allowing the distribution of REDD+ proceeds. Without 3Es, the very sustainability of the REDD+ mechanism is at risk [74]. In response to this, like many other REDD+ countries, Bangladesh has accession status (i.e., formally accepted the agreement) in the "United Nations Convention Against Corruption" and other regional anti-corruption agreements.

As with many other government sectors, corruption is a common problem for the BFD in the form of incidences of cutting and selling of trees by timber traders and smugglers and killing of animals by poachers with the direct cooperation of forest officials through bribery, embezzlement and misuse of administrative power, etc. [66]. Corruption thus seriously impairs the sustainability of forest conservation and protected area implementation in Bangladesh [75]. Respondents argued that without integration of the BFD and communities the corruption from forestry sector could not be reduced. Muhammed et al. [76] similarly stated that a lack of integration at the policy level is a threat to biodiversity conservation, hampering the implementation of any new projects in the forestry sector and within PAs in Bangladesh.

In addition, during field implementation of forestry programs, overlapping sectorial policies in some cases lead to contradictions, conflicts and confusion. Co-management projects in RKWS are trying to reduce corruption through awareness raising activities, involving the community in forest patrolling, organizing different training and cultural programs about the importance of forest conservation, observation of international forest and environmental days, etc. In addition, some individuals, like journalists, are playing a positive role by published news articles on corruption, illegal logging and poaching at RKWS. Such news articles expose the issue to the whole country. The local community also agreed that such published news is beneficial for them to take action against illegal activities.

Local religious leaders in RKWS—who are the most influential people in a rural community—believed that by using religious beliefs they can play a vital role in raising awareness

to the communities about forest protection and conservation, stopping illegal logging and hunting, and conflict mitigation. The UN-REDD Programme recognizes the importance and benefits of spiritual values for REDD+, and strongly encourages consultation with religious organizations in all of its processes. Cambodia, Thailand, Myanmar and Indonesia have engaged local religious leaders in REDD+ implementation for awareness-raising to combat corruption [77] which can be followed by the BFD during REDD+ implementation in RKWS.

5.4. REDD+ and Social Co-Benefits

Worldwide REDD+ projects could pose a number of potential risks to the local community and the environment including conversion of natural forests to plantations, loss of traditional territories resulting in displacement and relocation of forest dependent communities, loss of ecological knowledge, and traditional and rural livelihoods, and discrimination in delivery of benefits from REDD+ [78]. Although expansion of agriculture in a forest area is the very antithesis to REDD+ the survey identified that, limiting the expansion of agriculture inside the RKWS could have negative impacts on the supply of food and other agricultural products, which ultimately impact on community food security. As REDD+ would prohibit the use of natural forests, agricultural intensification, extending small business, working as day laborers, jobs in different organizations and weaving could be the alternative practices of forest dependent indigenous households in the Chittagong Hill Tracts of Bangladesh [79].

On the other hand, there are multiple co-benefits arising from REDD+ projects such as poverty reduction, biodiversity conservation, improving forest governance, and protecting other environmental services. REDD+ offers a unique opportunity to provide social co-benefits, such as technology transfer, improved rural livelihoods, community empowerment, and lower costs of implementation [80] where long-term co-benefits include the greater adaptive capacity of local communities and increasing transparency and accountability in forest governance [81].

Bangladesh's REDD+ Readiness Roadmap ensuring that the program does not increase poverty but increases equity and does not harm to the livelihoods of any vulnerable stakeholders (safeguards). Forest dependent communities in RKWS must be informed about REDD+ before designing, and are given choices, because changing livelihood strategies or participating in the new program may be too risky or unattractive to them [82]. The explicit social co-benefits for RKWS would be employment through agroforestry and forest plantation, forest-based industry, firewood, food, and nutrients; and receiving technological orientation, and equitable payments based on environmental services, and thus achieving—win-win. Therefore, the benefits sharing for males and females as well as for indigenous communities should be very flexible and based on national and local circumstances and requires clarification of property rights over carbon, land tenure and other rights [83,84].

6. Conclusions

The most common perception related to forest governance in this study highlights the participatory, decentralized and interdependency between BFD and co-management projects, which inform the future platform for REDD+ in RKWS. Co-management beneficiaries showed a more positive attitude towards REDD+, while others have waited to see how the program unfolds—preferably—in their favor. Failure to ensure community livelihoods, land tenure rights and ownership, indigenous communities traditional rights and capacity development of BFD, can clearly have a detrimental impact on communities and REDD+ as well. Moreover, conflicts between BFD, community and co-management could even lead to intentional forest destruction. The REDD+ project in RKWS will open up the opportunity to manage the country's forest resources in a sustainable way, and hence contribute to the effort of the country to meet the sustainable development goals.

REDD+ in RKWS also can create a scope for expanding the area, reducing resource extraction, changing patterns of products extracted, and better managing a buffer zone around the PA. Therefore, to achieve forest conservation and enhanced carbon stocks, REDD+ must align the

interests of all stakeholders to fulfil the goal of REDD+. The study suggests strengthening of legal framework for good forest governance and scope for the engagement of forest dependent people, particularly indigenous communities in the REDD+ mechanism.

This study has drawn several recommendations that may be relevant for government policy makers, development partners, academic and researchers to develop appropriate strategies for REDD+ strategies and implementation in PAs in general, and RKWS in particular. In REDD+, there should be a clear boundary demarcation for forest inventories, meaningful land use planning and allocation, defined membership including responsibilities, risks and benefits, safeguards for indigenous peoples, institutional coordination including private sector and law enforcement agency involvement and capacity development, independent monitoring in order to protect the rights and livelihoods, and during the project implementation, agencies can take a time frame of learning and adaptation through a process of trial and error. Finally, there is a need for further research at multiple scales to inform the governance of REDD+ in Bangladesh and other countries with the similar biophysical and socio-economic contexts to better understand the interplay, interactions and linkages between existing institutions, actors and policy processes.

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