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# Effectiveness of Co-management Committees in Teknaf Wildlife Sanctuary

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## *Abstract*

*Successful conservation of protected areas (PAs) depends largely on the active involvement of local communities in their management. The management mechanism needs to be functioning smoothly and effectively to achieve the desired benefits from the resources. In Bangladesh, a mechanism to promote the conservation of PAs and benefit local communities through co-management was initiated in 2004 by establishing the Nishorgo Network of forest and wetland PAs. Co-management committees (CMCs) form the institutional backbone of co-management initiatives. Thus, their proper formation and effective functioning is key to the success of co-management overall. This research studies the formation, activities, and effectiveness of CMCs in Teknaf Wildlife Sanctuary (TWS). The following questions are addressed: (1) Are diverse stakeholders represented in the CMCs? (2) Do the CMCs conduct regular meetings and activities? (3) Do the CMCs operate as per the Terms of Reference? and (4) What have been the impacts of the CMCs on: (a) reducing illegal resource collection; (b) increasing biodiversity; and (c) improving livelihoods? This study aims to help policy makers, resource managers, local community management organizations, and community members to better understand the role of CMCs and their effectiveness in achieving conservation and management goals for PAs in Bangladesh. Secondary information was collected from various reports, journals, publications, and circulars of the Integrated Protected Area Co-management (IPAC) project, the Nishorgo Support Project (NSP), the Forest Department, and other recognized institutions. Primary data were collected through interviews and focus group discussions using a semi-structured questionnaire. Twenty households from three villages were selected randomly. CMCs have been functioning in TWS, as per the framework and guidelines set by the government, for the last six years despite various limitations and complexities. This could have positive impacts on local livelihoods and the conservation of forest resources. Therefore, the effectiveness of CMCs and support from all concerned is a must to ensure better PA management.*

## **Introduction**

To be successful, the conservation and management of protected areas (PAs) must involve local communities. The 2003 United Nations list of PAs states that they cover 18.18 million square kilometers, or 11.5 percent of the global land surface (Chape *et*

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*al.* 2003). This is impressive, as the IVth International Union for Conservation of Nature World Parks Congress, held in Caracas in 1992, declared that PAs should cover at least 10 percent of the total land area by 2000. However, in South Asia, PAs make up only about six percent of the total land area. While countries like Bhutan and Nepal have planned to designate about 27 percent and 18 percent of their territory as PAs, respectively (Sharma and Yonzon 2005), in Bangladesh only 1.7 percent of the territory has been given such official protected status (Merrill 2011). Conflicts associated with PAs are growing as population growth, resource scarcity, climate change, expanded consumption, and continued use of inappropriate technologies create challenges for their viability. Such challenges threaten the significant role that PAs can play in securing the productive future of the people (McNeely *et al.* 1994). One particularly crucial issue is economic sustainability whether the livelihood needs of local communities can be met and whether sustainable funding mechanisms to support the management of PAs can be devised. Facing all of these challenges, our forests will only be conserved when local and national stakeholders become partners in conservation. This will also help to ensure sustainable economic development for local communities, because PAs can make important contributions to supporting rural economic development and lowering the costs of achieving sustainable growth (ICEM 2003).

In Bangladesh, PA conservation through co-management initiatives is still in a nascent stage. Recognizing the need to conserve the country's most productive ecosystems, the Government of Bangladesh established the Nishorgo Network of forest and wetland PAs in 2004, and empowered local communities by involving them in the protection of natural resources through a collaborative management (co-management) approach. This approach aims to promote the conservation of PAs while also benefiting local communities.

The management of open natural resources like forest ecosystems is difficult, and a number of challenges exist for the proper functioning of co-management systems. A huge population density is creating extensive demand for, and pressure on, forest resources. Moreover, the socio-economic and political scenario, power relations, and local beliefs such as the attitude that state-owned property means nobody's property (i.e. the tragedy of the commons) provide a critical challenge for the effective functioning of co-management organizations. However, it is vital that co-management mechanisms function smoothly in order to achieve the desired conservation outcomes. The institutional backbone of co-management initiatives is the co-management committee (CMC). Thus, the overall performance of the management system, as well as the expected livelihood and conservation outcomes, depends primarily on the proper constitution, functioning, and active engagement of the CMCs.

This study assesses the formation, activities, and effectiveness of CMCs in Teknaf Wildlife Sanctuary (TWS). In Bangladesh, the government established a framework and working guidelines for CMCs in PA management. CMCs are mandated to meet

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regularly and to execute a set of specific activities. CMCs make decisions and plan future actions for promoting resource conservation and community livelihoods that lead to achieving the co-management objectives. This research seeks to address the following questions about CMCs in TWS:

1. Are diverse stakeholders represented in the CMCs?
2. Do the CMCs conduct regular meetings and activities?
3. Do the CMCs operate as per the Terms of Reference?
4. What have been the impacts of the CMCs on: (a) reducing illegal resource collection; (b) increasing biodiversity; and (c) improving livelihoods?

This study will help policy makers, resource managers, local community management organizations, and community members to get a better idea about the current role of the CMCs and their effectiveness in achieving conservation and management goals for PAs in Bangladesh.

## Background

Teknaf Wildlife Sanctuary is situated in Teknaf Upazila of Cox's Bazar District in southeastern Bangladesh. It is bordered on the east by the Naf River and on the south and the west by the Bay of Bengal. To the north it borders on other parts of the Cox's Bazar South Forest Division and Myanmar. The sanctuary lies between 20°52' and 21°09' north latitude and between 92°09' and 92°18' east longitude (Figure 1) and runs along the entire eastern length of the forest from north to south, along the Teknaf highway. The sanctuary is also bounded by another road that runs along the entire western boundary of the forest, along the beach between Cox's Bazar and the town of Teknaf. The total population of Teknaf Upazila is 152,557, including 125,651 rural residents, of whom 64,530 are male and 61,121 are female (Bari and Dutta 2004). Mollah *et al.* (2004) have recorded a total of 115 settlements or villages, which are locally called *paras*. The villagers have various degrees of reliance on TWS for their livelihoods. Fifty-three villages (46%) are located inside the reserve boundaries, primarily on forest land. The rest are located adjacent to and outside of the forest area. Bengali, Rakhaine, Tanchangya, and Rohingya (refugees) are the major ethnic groups living in Teknaf Upazila.

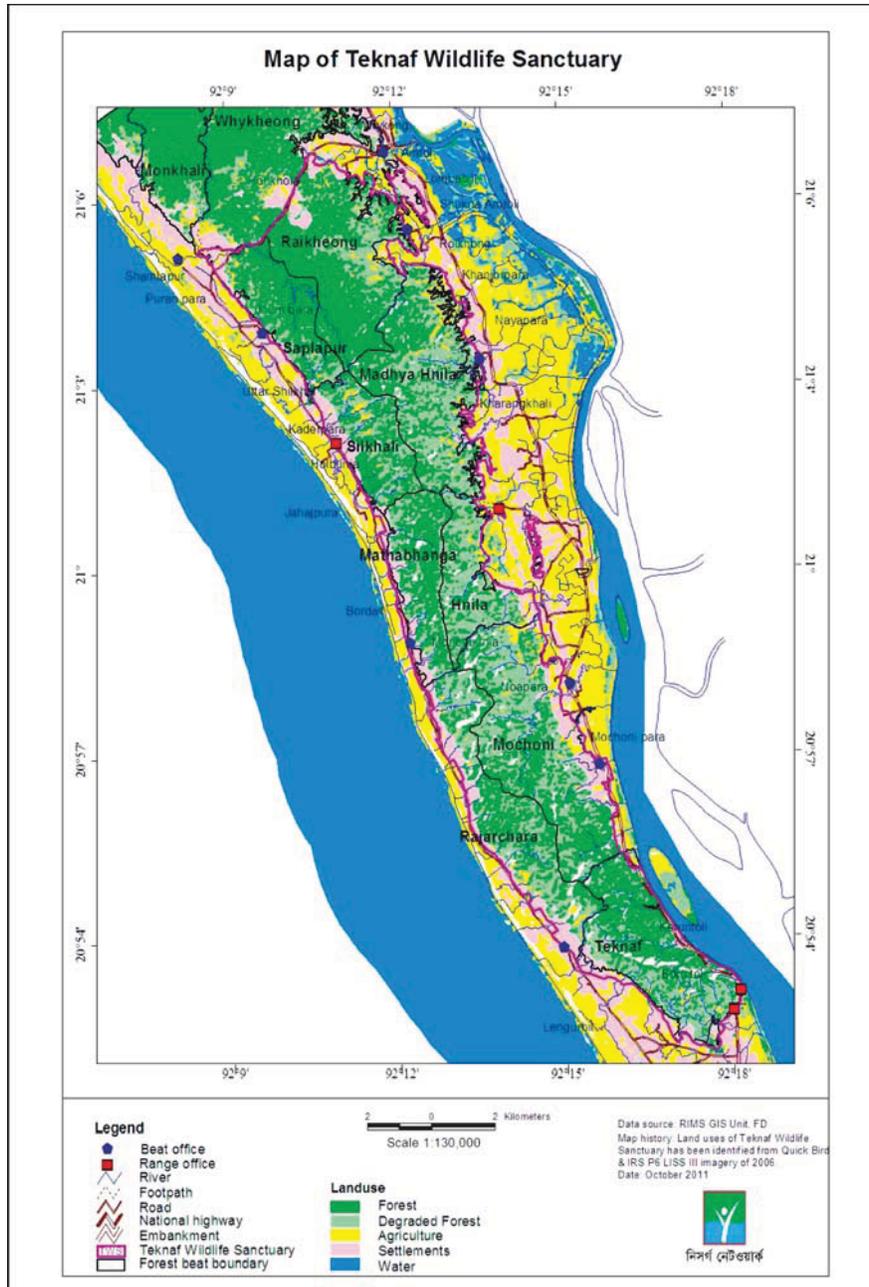


Figure 1: Map of Teknaf Wildlife Sanctuary (Source: NSP)

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TWS is one of the largest and most biologically diverse PAs in Bangladesh. Teknaf Game Reserve (TGR) was established in 1983 with a reserve forest area of 11,615 hectares. Recognizing its importance for biodiversity conservation, the government declared it Teknaf Wildlife Sanctuary in 2009 (GoB 2009a). Management of the forest area that constitutes TWS started with the promulgation of its legal status as a reserved forest in 1907. Timber production for revenue generation was the then imperial government's main focus for forest management. To this end, permits were issued to cut selected trees based only on their diameter. The first management plan for the forests of Cox's Bazar District was prepared in 1935. The main prescription in this plan was the conversion of natural forests to plantations of several timber species, including teak (*Tectona grandis*), an exotic native to India and Southeast Asia, as well as indigenous species like *Dipterocarpus turbinatus* (garjan), *Hopea odorata*, and *Artocarpus chaplasha*. Several management plans followed similar prescriptions. The Government of Bangladesh imposed a moratorium on tree felling in 1989. Some plantations were continued, mainly in new areas, on denuded and bare forest lands.

In 1998, the Asian Development Bank funded the Forestry Sector Project (1998–2006). Under this project, TGR was divided into a central core zone with a buffer zone covering an outer strip of forestland. Through community participation, a plantation of approximately 2,000 hectares was successfully established and maintained according to the Forest Department's Social Forestry Rules. While the plantation initiative was successful, nothing was done to improve the habitat of TWS's banner species, the Asian elephant, or to preserve other wildlife and biodiversity. In fact, no specific wildlife conservation measures have been taken, and no wildlife management plans were prepared until the initiation of co-management activities (Bari and Dutta 2004).

Since the declaration of TGR (now TWS), resource extraction has been banned within its boundaries. Thus, legal tree felling has ceased. However, illegal resource collection as well as the degradation and deforestation of natural forests has continued unabated. Mollah *et al.* (2004) found that forest patrolling is poor, partly due to inadequate manpower and partly due to a lack of logistical support, such as camp/patrol posts, vehicles, petrol, arms, communication devices, and office equipment. There are only 45 staff members working for forest protection and management, including *malis* (the lowest ranking staff members engaged in raising and planting seedlings); and there are no staff members working specifically to manage biodiversity in the sanctuary. Moreover, it is estimated that, on average, only one Forest Department staff member is engaged in and responsible for managing each 258 hectares of the forest in TWS, which is under tremendous pressure from the large number of forest-dependent villagers.

The Nishorgo Support Project (NSP) introduced the idea of co-management in TWS in 2004. NSP has made a comprehensive effort to improve the management of five PAs in Bangladesh through a new co-management approach (FD 2006). In this

regard, in 2006, the government created eight CMCs at these five sites. Since then, through these local institutions, park managers and local people have made collective decisions and shared responsibilities for resource management. The CMCs have been granted rights to collect revenues from forest-based activities such as ecotourism, with 50 percent of revenues generated from park entrance fees being dedicated to the CMCs to support community participation in forest conservation.

Three of the eight initial CMCs were formed in TGR due to its large area. They are still in operation today. Karim (2008) found that the alternative income-generating activities (AIGAs) begun by the co-management initiatives under NSP were functioning well. He also observed some coordination gaps among the NSP, the Forest Department (FD), and the CMCs. In this study, I aim to further examine these gaps through a qualitative assessment of the performance and operation of the CMCs. In addition, I examine the community's feelings towards resource conservation, and the presence and role of CMCs. Finally, I question whether the existence and functioning of CMCs in TWS is essential or not.

## Methods

At the beginning of the research study, I collected secondary information and reviewed various reports, journals, publications, and circulars of the Integrated Protected Area Co-management (IPAC) project, NSP, the FD, the Government of Bangladesh, and other recognized institutions.

To become familiar with the field situation, the CMCs' working modality, and coordination among the different stakeholders, I made a preliminary visit to the research site. During this visit, I observed important community functions related to resource conservation, identified major interventions planned by the CMCs, designed sampling procedures, and scheduled interviews and discussions with major stakeholders, key informants, and focus groups. I then finalized my research plan based on an assessment of the duration and number of interviews and other interactions, as well as other areas and aspects to be explored.

I collected primary data through interviews and focus group discussions in December 2011. The interviews were held with individuals and households using separate checklists of questions to guide these interactions. During the field visits, I also conducted five focus group discussions. These discussions provided information about the CMCs' functioning, activities, and results. The type, location, and number of focus group discussions, as well as the number of participants in each, are outlined in Table 1.

**Table 1: Target group, location, and number of focus group discussions and participants**

Target group	Area	Number of discussions	Number of participants
Forest Department staff	Cox's Bazar	1	3
	Teknaf	1	4
IPAC staff	Cox's Bazar	1	3
	Teknaf	1	5
CMC members	Shilkhali	1	5
	Teknaf	1	3
Community patrolling group members	Shilkhali	1	5
	Whykong	1	5
Total		8	33

I randomly chose three villages for the household survey, one from each CMC area. Then I randomly selected 20 households, half of which were involved in co-management initiatives as village conservation forum (VCF) members and/or recipients of AIGA support, and half of which were not associated with co-management activities in any way (see Table 2). I used a semi-structured questionnaire to investigate the impacts of CMC activities on the entire community.

**Table 2: Study villages and number of households surveyed in each**

CMC name	Village name	Number of households surveyed	
		Within CMC initiatives	Outside CMC initiatives
Shilkhali	South Shilkhali	3	4
Teknaf	Leda	3	3
Whykong	Lambabil	4	3
Total	3	10	10

## Results

### *Are Diverse Stakeholders Represented in the CMCs?*

In TWS, CMCs are constituted and act according to the legal status granted to them via a gazette notification from the Ministry of Environment and Forests (GoB 2009b). The gazette states that these committees will act as an executive body for performing co-management activities in their respective PAs. The gazette notification also states that the CMCs should include representative members from different stakeholder groups. In my visits and interviews in TWS, the major stakeholders I identified in the PA included FD officials, local leaders, government officials, ethnic community members, and forest resources user groups. Table 3 shows the number of CMC members for each of the stakeholder groups in the three CMCs.

**Table 3: Composition of CMCs**

Stakeholders	Designated number	Actual numbers of committee members		
	of committee members*	Shilkhali CMC	Teknaf CMC	Whykong CMC
Local government	3	3	4	3
Forest Department	9	8	8	8
Law enforcing authorities	2	1	2	2
Other government agencies	1	1	1	1
Civil society groups	2	2	2	2
People's forums	6	6	6	6
Village conservation forum (VCF)	2	2	2	2
Resources users	1	1	1	1
Ethnic community	2	2	2	2
Community patrolling group (CPG)	3	3	3	3
Total	31	29	31	30

\*Note: According to the gazette notification

According to these results, the selection of committee members in the three CMCs provides a good representation of the respective stakeholder groups as per the gazette notification.

The key informants, focus group members, and respondents also recognized the composition of the CMCs as a fair representation of stakeholders in the area. They mostly emphasized the recognition of CMC decisions by government authorities, for example the Upazila Administrator and the FD officials. TWS exhibits serious conflicts of forestland encroachment. Respondents voiced a strong preference for inclusion of the Assistant Commissioner of Land (Upazila Administration) in the CMCs, because issues pertaining to land administration and legality are under his jurisdiction. Key informants acknowledged that the CMCs represent the local communities and hence are useful for understanding and addressing local needs, as well as for protecting local resources. They asked for more support to enhance the functioning of the CMCs.

### ***Do the CMCs Conduct Regular Meetings and Activities?***

The gazette states that CMCs will act as executive bodies accountable to the co-management councils. The CMC members meet monthly to review regular activity reports and to discuss these reports and other issues regarding PA management. Table 4 shows the number of meetings held by each committee last year. All the CMCs held regular meetings and discussed PA management with committee members.

**Table 4: Status of CMC meetings in 2011**

CMC name	Date of formation of past CMC	Date of formation of present CMC	No. of members	No. of meetings held in 2011
Teknaf	August 6, 2006	October 25, 2010	29	10
Shilkhali	September 27, 2006	August 18, 2010	27	12
Whykong	August 29, 2005	December 2, 2010	28	11

The Nishorgo Support Project initiated CMC formation and co-management interventions at various sites between 2003 and 2008. Besides the formation of the three CMCs in TWS, NSP initiated the formation of 15 community patrolling groups (CPGs), consisting of 595 people, to strengthen FD's law enforcement capacity with a view to enhancing resource protection. For reducing dependence on forests, NSP also formed 102 forest users groups (FUGs) consisting of 1,750 households. NSP provided these households with training in one of 20 possible trades, such as cow fattening, nursery establishment, fish cultivation, fishing, pig rearing, poultry rearing, small trading, rickshaw-van pulling, manufacturing of improved cooking stoves, and eco-tour guiding. NSP also established six environmental libraries and six nature clubs, which provide training on biodiversity preservation, forest conservation and protection, nursery and plantation raising, and climate change awareness. These groups promoted mass awareness-raising and environmental education for diverse stakeholders.

Under three of the CMCs, NSP developed three ecotourism sites in TGR: Kudum Guha in Whykong, Teknaf Nature Park, and Shilkhali Garjan Forest. In addition, provisions were made for allocating 50 percent of the entry fees from these sites to the respective CMCs for a community development fund.

NSP concluded its activities in 2008. It was followed by the Integrated Protected Area Co-management (IPAC) project. In TWS, IPAC activities include counseling and organizing of the CMCs, CPGs, village conservation forums (VCFs), people's forums (PFs), Nishorgo student clubs, ecotourism guides, Nishorgo Shahayak (volunteers), hiking guides, support for AIGAs, and landscape development funds (LDF). Table 5 summarizes the IPAC activities carried out in the three CMCs. Table 6 summarizes the type and number of AIGAs provided by IPAC.

**Table 5: NSP and IPAC outcomes in the three CMCs, 2004–2011**

Co-management outcome variable	Teknaf CMC	Whykong CMC	Shilkhali CMC
No. of VCFs	43	39	32
No. of PF members (2 from each VCF)	86	78	64
Number of CPGs (and members)	5 (168)	3 (108)	3 (92)
No. of Nishorgo clubs (and members)	3 (123)	3 (123)	3 (119)
No of improved cooking stoves installed	446	31	-
No. of Nishorgo Shahayak members	43	39	32
No. of popular theater groups	1	-	3

(Source: IPAC 2011a)

**Table 6: IPAC project AIGA support for April to June 2011**

Site name	VCF name	No. of house-holds in VCF	No. of AIGA target house-hold	Type of AIGA	Inputs (in-kind support)	No. of beneficiaries to date	IPAC support per household (BDT)	Total I PAC input support (BDT)
Shilkhali	Kaderpara Male	30	30	Bamboo	Bamboo, Cane	6	1,210	7,260
Shilkhali	Kaderpara Female	30	30	Bamboo	Bamboo, Cane	4	1,737	6,946
				Handi-crafts	Net making, Rope	5	1,470	7,350
Shilkhali	Hazompara	31	30	Bamboo	Bamboo, Cane	10	1,647	16,470
Whykong	Kombonia-para	30	30	Agri-culture	Ladies Finger, Cucumber, Brinjal, Turmeric	30	1,557	46,700
Whykong	Nayapara	37	30	Fisheries	Fingerlings, Fishfeed	10	1,800	18,000
Whykong	Kharinga-ghona	40	30	Fisheries	Fingerlings, Fishfeed	10	1,300	13,000
				Fisheries	Fingerlings	29	1,500	43,500
Whykong	Lambabeel	30	30	Handi-crafts	Net making, Threads	13	1,470	19,110
				Bamboo	Bamboo	6	1,732	10,389
Teknaf	Lechua-prang	40	30	Agriculture	Seed, Compost, Fertilizer	30	980	29,400
<b>Totals</b>		<b>268</b>	<b>240</b>			<b>153</b>		<b>218,125</b>

(Source: IPAC 2011b)

### ***Do the CMCs Operate as per the Terms of Reference?***

The specific responsibilities of the CMCs, as delineated in the 2009 gazette notification (GoB 2009b), include performing and supervising regular activities; preparing an annual work plan for the PA; involving and supervising local community members in implementing management activities in the PA according to the annual work plan; promoting the economic development of local communities through equitable distribution of PA benefits; selection of participants for social forestry through land zoning; managing and maintaining all infrastructure within the PA and planning new facilities to promote tourism; appointing patrolling groups for resource conservation; presenting all activities before the Co-management Council (responsible for the policy aspects and approval of the CMC's work activities) for approval; and maintaining accounts for revenue-generation and financing of the PA.

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As per the gazette provisions, three CMC members are elected as office bearers. These are the president, vice-president, and treasurer. One accountant/administrative officer is appointed to assist each CMC. This officer is responsible for maintaining financial and office records.

Focus group discussants reported that decisions regarding PA management and community development are taken through discussions in the forum. CMCs operate within their Terms of Reference (TOR) and do not take decisions or act beyond their TOR. Discussants expect that, as per the CMCs' TOR, and to promote effective conservation, the CMC will execute more actions in the future. FD respondents suggested that CMC members need to be more responsible and give correct information and assistance to FD officials for resource conservation.

IPAC now funds most of the activities in the study site, and the CMCs execute project activities with direct assistance from IPAC. However, the continuity of these activities after completion of the IPAC project is at risk. Most respondents expressed concern about the long-term viability of these project-funded activities.

The three CMCs in TWS have developed their own annual work plans. They have registered with the Directorate of Social Welfare to generate and collect funds as an NGO. Although they have not yet collected substantial funds, they are taking steps to raise more funds in the future. In this vein, the three CMCs have submitted project proposals to the Climate Change Trust Fund under the Ministry of Environment and Forests. However, the CMCs should make an effort to generate their own funds to ensure sustainable future operation of development activities, as well as community development and resource conservation.

### ***What Have Been the Impacts of the CMCs on Illegal Resource Collection, Biodiversity, and Livelihoods?***

In response to the question of whether they have observed any effects of PA management due to the formation and functioning of CMCs, two thirds of the respondents said that impacts are apparent, and the remaining third reported no significant impacts. FD officials raised some questions about the ability of CPG members to control illegal fuelwood collection and even suggested that some CPG members may be supporting these activities themselves. But when asked if they thought that the situation would be better in the absence of the co-management model and the CMCs, all respondents replied no, acknowledging the success achieved through CMC activities.

Results of the focus group discussions and the household surveys suggest that AIGAs significantly affect the livelihoods of local people. Respondents suggested that, because of AIGAs, forest offences and the illegal collection of forest resources have

declined. In fact, the vice-president of the Shilkhali CMC stated, “There is only one incidence of tree felling found within the last eight years, whereas a huge number of garjan trees were cut earlier.”

Respondents suggested that before co-management was implemented, seedlings, saplings, and shrubs were used as fuelwood, affecting natural regeneration and forest regrowth. After the implementation of co-management initiatives, illegal resource collection has declined and livelihoods have improved through activities such as AIGAs, revenue-sharing from tourism, the introduction of innovative technologies such as improved cooking stoves, and awareness-building through trainings, meetings, and publicity efforts. Karim (2008) also found that AIGAs have certain positive impacts on community livelihoods and on reducing dependence on forest resources.

In 2008, a participatory bird survey was conducted to assess the impacts of protected area management (Khan 2008). The survey included eight indicator bird species. Since all eight of the indicator birds are primarily forest birds, any change in the condition of the forest would have an impact on their population densities. Local people perceived an increase in the bird population. They also replied that illegal hunting in TWS was gradually declining and that Asian elephants faced fewer casualties. Finally, they mentioned increased undergrowth in recent times, indicating enhanced biodiversity conservation.

## Conclusion

CMCs are the key to resource management through co-management initiatives. Effective functioning of CMCs leads to the successful conservation and management of resources. This study has sought to determine whether CMCs in TWS function effectively or not. The CMCs in TWS are comprised of a representative group of local stakeholders and hence can cater to diverse local needs and attitudes towards resource conservation. So far, the CMCs execute regular meetings and co-management activities. The CMCs are functioning as per the framework and guidelines set by the government. Despite some limitations and complexities, they have been performing according to the TOR. Still, there are some goals that have not yet been achieved, including development of a fund for future operations and development interventions. Positive attitudes and support from policy makers, the FD, and the local administration towards CMCs are also imperative.

The CMCs’ functioning has implications for the resources as well as the wellbeing of the community. Illegal resource collection can be decreased through raising local peoples’ awareness, promoting AIGAs and other types of support, and through community patrolling efforts. Improved biodiversity conservation has been demonstrated by the presence of more undergrowth and less logging and hunting in

the area, as reported by the local stakeholders. Local livelihoods are improved through awareness-raising, AIGA support, and other trainings and community development interventions.

Through the involvement of local stakeholders, CMCs achieve a better understanding of the PA, as well as the needs and perceptions of local communities. CMCs can discuss local issues, communicate with different forums, and seek suggestions and assistance to overcome challenges. They can also raise and mobilize funds for better PA management and community economic development activities. Furthermore, they can garner local financial and human resources for resource protection and conservation. Thus, the effective functioning of the CMCs has strong implications for both local livelihoods and forest conservation. This study reveals that CMCs can play a positive and critical role in promoting the conservation of natural resources and livelihood enhancements. Therefore, all concerned stakeholders need to nourish the CMCs and facilitate their work in order to achieve optimum resource conservation and maximize community benefits.

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