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Evaluation of Co-Management Impact in Protected Area: Field Experience from Rema-Kalenga Wildlife Sanctuary, Bangladesh

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ABSTRACT : Forests render both a home and a livelihood for people living in and around them. To reconcile the need of local communities with conservation, the Nishorgo Support Project (NSP or Nishorgo) is supporting co-management in five protected areas of Bangladesh, including Rema-Kalenga Wildlife Sanctuary. The main focus of this study is to assess the effectiveness of alternate income generating activities (AIGAs) which is provided by the Nishorgo Support Project. It is a tool for reducing dependence on forest resources by people living in and around Rema-Kalenga Wildlife Sanctuary and also play effective role in forest conservation. This study compares the socioeconomic condition (income, living style etc.) and forest dependency before and after implementation of co-management activities in Rema-Kalenga Wildlife Sanctuary. A total of 11 villages (sampling intensity was 31%) namely Kalibari, Mongoliabari, Chokidarbari, Chonbari, kalenga, Krishnochura, Hatimara, Himalia, Rashidpur, Goramchori and Horinmara were studied. We surveyed 272 households in these villages (Incase of households survey, sampling intensity was 100%). Data analysis shows that the major income generating livelihood activities were agro farming (30%), followed by fuelwood collection (22.50%), nursery raising (12.5%), cattle rearing (10%), fisheries (7.50%) and others. Study also reveals that after being implementation of the co-management activities the average income levels of the studied villages have rises on 578 Tk/households (1US$ = 70 Taka, Taka means Bangladeshi currency). Further more, many of the illegal loggers became forest protector, which make their life more secured. It was also found that peoples of the study villages are now actively engaging in forest management activities and it is the only hope for conservation and restoration of forest resources not only in Rema-Kalenga Wildlife Sanctuary but also in other protected area's of our country.

Keywords : Co-management, Alternative income generation, Livelihoods, Forest conservation, Bangladesh

INTRODUCTION

Protected areas have long been the most effective and widespread measure for conserving forest and biodiversity (Mulongoy and Chape, 2004; Lewis, 1996). Protected areas (PAs) cover nearly 12% of the worlds land surface (Scherr et al., 2004; Chape et al., 2003; Tuxill and Nabhan, 2001). But half of these protected areas are heavily used for agriculture and forest product extraction (Mcneely and Scherr, 2003). In such areas Collaborative management is the main way to enhanced conservation. Collaborative management (co-management) is "A situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources" (Borrini-Feyerbund, 1996; IUCN, 2000). Co-management promotes more effective management as a consequence of harnessing the capacities (Gadgil et al., 1993) and comparative advantages of various social actors (e.g. local knowledge and skills for monitoring the status of natural resources, proximity for surveying the protected area's borders, maintenance of natural resources uses that are beneficial to the local ecology) (Kothari et al., 1996). Co-management of

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protected areas is a participatory approach to environmental conservation that seeks to enhance both natural resource conservation and local livelihoods. This approach gives local residents both the responsibility to manage their natural resources effectively and the opportunity to enjoy the benefits derived from them. Without the active involvement of local people, there is little chance for reducing their dependence on forests and guaranteeing the success of protected area initiatives. A great number of environmentalists, non-governmental organizations and national governments worldwide have begun to emphasize the importance of local people's participation in decision-making and management of protected areas (Svarstad et al., 2006).

Bangladesh has faced significant losses in natural resources and biodiversity over the last few decades. A major reason for this environmental degradation is that many people have been left out of the conservation process (Roy, 2004). Not surprisingly, these people have decided not to cooperate with conservation efforts that they may adversely affect their own livelihoods. To address this issue, and to engage local stakeholders as partners in the management of protected areas (PAs), the Forest Department has initiated a nationwide co-management initiative called the Nishorgo Support Project (NSP). NSP has been working in five PA pilot sites since 2004 to involve local stakeholders that are directly or indirectly dependent on forest resources in activities to improve their livelihoods. The primary goal of NSP is to promote the conservation of biodiversity within the PAs of Bangladesh. In addition, one of the project's five key objectives is to "strengthen the local economy and to better the living standard of local stakeholders" (NSP, 2007).

In Rema-Kalenga Wildlife Sanctuary, NSP provide opportunities for alternative income generating activities and simultaneously promote forest protection. This study examines how co-management improves their livelihoods by enhancing their participation, their income-generating potential and playing role in forest conservation. The goal of this study is to influence policy-makers to give more emphasis to manage the rest of the protected areas by co-management and thereby enhance the forest conservation process and quality of livelihoods for all people living in and around the PAs of Bangladesh.

MATERIALS AND METHODS

Study area

Rema-Kalenga Wildlife Sanctuary (RKWS) is located approximately 130 km east-northeast of Dhaka and 80 km south-southeast of Sylhet in Chunarughat Thana, a sub-district of Habiganj District, Sylhet. The sanctuary is bounded by Tripura State (India) to the south and east, and Kalenga Forest Range to the north and west. Geographically, the area lies between 24°06'-24°14' N latitude and 91°34'-91°41' E longitude (Figure 1). The area falls under the Sylhet Hills zones (IUCN, 2002) and the administrative area is known as the Rema-Kalenga Forest Range. The sanctuary is located in the Tarap Hill Reserve Forest, which was established under a declaration of the Forest Act of 1927. In 1982, the government designated 1,095 hectares of the Reserve Forest as the Rema-Kalenga Wildlife Sanctuary. There are about 7 species of amphibians, 18 species of reptiles, 167 species of birds, 37 species of

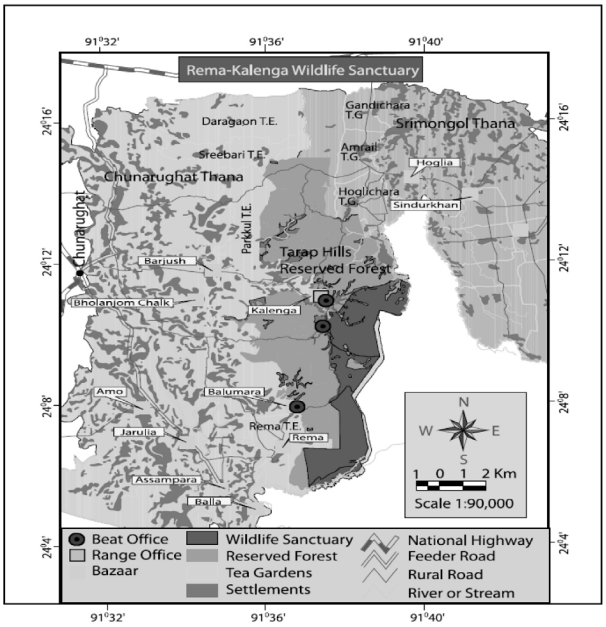

Fig. 1. Map Showing the Study Area (Source: NSP, 2007).

mammals in the WS (NACOM, 2003). The vegetation of the sanctuary is described as tropical evergreen and semi evergreen forest dominated by Chapalish (*Artocarpus chaplasha*), Garjon (*Dipterocarpus turbinatus*), Bonak (*Schima wallichii*), Hargoja (*Dillenia pentagyna*) and Kakra (*Aporusa dioica*) and characterized by many giant climbers (Uddin, 2002). There are eight small indigenous groups (ethnic) living inside and outside the sanctuary. They are the Tripura (or Deb-Barma), Santal, Urang, Kharia, Kurmi, Goala, Munda, and Bunargi.

Required Data

Regarding livelihood activities, the study was focused on collecting the following data from each household viz. demographic information, forest dependent livelihood activities, resource collected from the Rema-Kalenga Wildlife Sanctuary, dependency level of the forest poor. We classified households into three forest dependency classes: "highly dependent", "moderately dependent", and "less dependent". To calculate a household's level of forest dependency we considered the contribution of forest to the household's annual cash income i.e., the direct cash derived from selling of forest products, and the cash value of products they consume from forest which they may have otherwise purchased from the market. We also considered local people's perceptions regarding their dependency on forest. Besides this for impact of co-management studies the following data from each household were collected: people's response under various beneficial schemes such as Changes in income level, Changes in forest dependency and consumption level

Data collection

In Rema-Kalenga Wildlife Sanctuary, Out of 36 villages we selected 11 villages randomly (sampling intensity was 31%). These villages are Kalibari, Mongoliabari, Chokidarbari, Chonbari, kalenga, Krishnochura, Hatimara, Himalia, Rashidpur, Goramchori, Horinmara. We surveyed 272 households in these villages (Incase of households survey, sampling intensity was 100%). We then collected primary information from key informants and engaged in focus group interviews. We conducted 11 Focus Group Discussions (FGDs) to learn about the livelihoods, impact of co-management and forest conservation. We also use semi-structured questionnaire.

RESULTS

Community livelihoods of Rema-Kalenga Wildlife Sanctuary

Local propels of RKWS depend substantially on the park for maintaining their livelihoods. The major income generating livelihood activities were agro farming (30%), followed by fuelwood collection (22.50%), nursery raising (12.5%), cattle rearing (10%), fisheries (7.50%) and others (Figure 2).

The people are live in their own houses in the villages; they are not tenant. Four categories of houses were identified in our study area. Among these four housing pattern Sun grass thatched cottage with mud represent the highest percentage (67%) (Figure 3). The tribal people are pre-

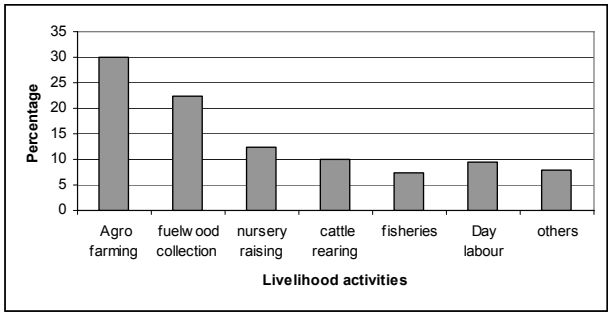

Fig. 2. Livelihood activities in the area.

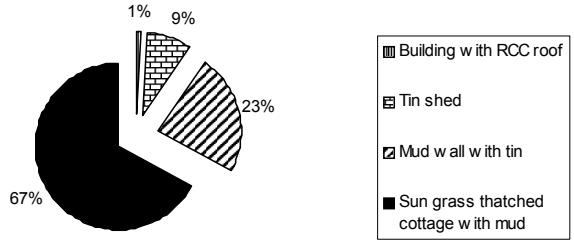

Fig. 3. Housing pattern of Rema-Kalenga Wildlife Sanctuary.

ferred to live in this type of house because of low construction cost, locally available materials.

Dependency of Households on Forest

Considering the livelihood dependency level on Rema-Kalenga Wildlife Sanctuary, study revealed that, about 91% of the respondents were highly dependent (such as food, fodder, fuelwood, medicine, building materials and these are mainly NTFPs) for their livelihoods whereas the remaining households were found to be moderately (8%) and less (1%) dependent (Figure 4). In Satchari National Park Bangladesh 13% respondents were fully dependent for their livelihoods followed by 16% moderately and 71% are less dependent (Mukul, 2007) which is opposite scenario from these study findings.

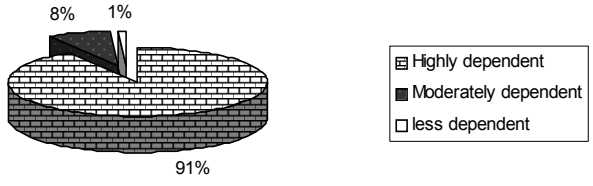

Fig. 4. Forest dependency level of respondents in the study areas of RKWS

Impact of co-management: A Nishorgo initiatives in Rema-Kalenga Wildlife Sanctuary

Nishorgo have launched various motivational programs in the study area. These supports include capacity building of local inhabitants (i. e. decision making, tourist guiding, home gardening, different rearing etc.), infrastructure development and creating alternative income generating sources in the area. Nishorgo has formed some co-management committee involving members from grass root level. The members represent their communities (as they are selected by election process) and are now actively contributing park management meetings. Again, Nishorgo have formed some forest-patrolling group in the Wildlife Sanctuary. People who formerly were engaged in illegal logging activities in Wildlife Sanctuary are now protecting the forest by a monthly salary basis (2000 Tk/ month). Nishorgo have facilitated development of eco tourism as an enterprise. They arrange some hiking trial in the Park, identify and develop some picnic spot, develop public facilities such as toilet, building eco cottage, and trained local educated youths as eco tour guide. To create alternative income opportunities they trained local people for cattle farming, fisheries, vegetable farming, nursery management, pig farming, handicraft training etc. They also give financial assistance to local villagers to start these activities. Table 1 lists the

Table 1. Nishorgo field of support to generate alternative income of the study area

Types of support / Villages	Cattle rearing	Vegetable farming	Pig farming	Nursery	Fisheries	Handicraft
Kalibari	√	√		√		√
Mongoliabari	√	√	√	√	√	√
Chokidarbari		√		√		√
Kalenga	√	√	√	√		
Chonbari		√		√	√	√
Hatimara	√	√	√	√		
Himalia		√		√	√	√
Krisnochura		√		√	√	√
Horinmara	√	√	√	√		
Goramchori	√	√		√		√
Rashidpur		√		√		√

name of some AIG supports in our selected villages

Some qualitative and quantitative outcome of the area: A comparative analysis

Changes in income level:

In the wildlife Sanctuary households (HHs) have diverse occupational pattern. After the co-management activities being implemented the average income level of our studied villages have increased on average 578Tk/household. Their past and present average monthly incomes were 4581 and 5159 Tk/household respectively (Figure 5).

Changes in forest dependency and consumption level:

People of the study area depend traditionally on forest for fuelwood, fodder, fruits, timber and other minor forest product. After the co-management activities being implemented the dependency level of the study areas have reduced significantly. Due to higher earning from non- forest sources people are now lastly dependent on various forest products. Figure 6 compares the average consumption level of major forest produce in our studied villages.

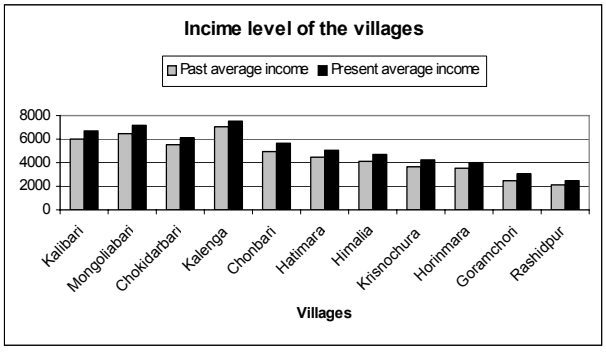

Fig. 5. Changes in income level.

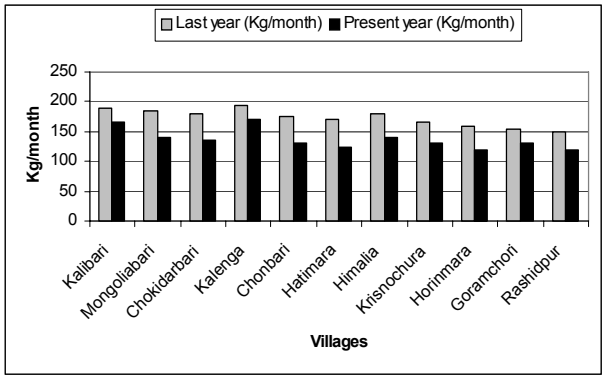

Fig. 6. Changes in forest dependency and consumption level.

DISCUSSION

Our results paint an interesting picture of the role of co-management for livelihoods and forest conservation by the communities under study (Figure 5 and Figure 6). In the 1980s, conservation organizations tried to develop new PA management approaches (i.e., participatory management) that would support local people through alternative income generating activities to compensate them for their loss of access to PA resources. The economic benefits from these activities are intended to reduce people's dependency and therefore their negative impacts on PAs (Svartad et al., 2006). In Rema-Kalenga Wildlife Sanctuary, the Forest Department has initiated co-management initiative (Table 1) called the Nishorgo Support Project (NSP) which give support to the local people through alternative income generating activities which ultimate reduce dependency on forest and also give economic benefits. In this way co-management approach improve livelihood condition and conserve forest by reducing forest dependency.

CONCLUSION

Forest and adjacent peoples are scrupulously related. No initiatives towards conserving forests, throughout the world, have been successful without the active participation of the local people. The result of our study indicates a slow change in the local peoples living style and forest dependency but it surely it indicates a change in the over-all situation of the area, i.e. local livelihood pattern, forest dependence and forest conservation. In addition, the approach is still in its initial stage, there is a lot of a thing still to work. Although local peoples are now actively involve in decision-making process but for an efficient and lasting co-management system it requires more consideration on local demands.

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