

Comparative evaluation of co-management impacts in protected area: A case study from Lawachra National Park of Maulvibazar, Sylhet

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Abstract. An exploratory study was conducted in Lawachara National Park (LNP) to make a comparative analysis of co-management practice in protected area management. This study compares the socio-economic condition (income, social status, living style etc.) and forest dependency before and after implementation of co-management activities in LNP. A total 40 households out of 153 were interviewed from 3 study villages namely Magurchara Punji, Dalubari and Radhanagar. Data analysis shows that major income generating livelihood activities in study villages were, agro farming (30%), followed by fuelwood collection (22.50%), nursery raising (12.50%), cattle farming (10%), fisheries (7.50%) and others. Study also reveals that after being implementation of co-management activities the average income level of 3 studied villages have rises on average 550 taka/HHs (1 US \$ = Taka 70). Furthermore, many of the former illegal loggers became forest protector which makes their life more secured and respectable in the society than before. It was also found that peoples of 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 LNP but also in other protected areas of our country.

Introduction

Protected Areas (PAs) have long been the most effective and widespread measure for conserving forests and biodiversity and considered as the cornerstone of all national and regional conservation strategies (Mulongoy and Chape, 2004; Lewis, 1996). According to IUCN (1994), PAs are, 'areas especially dedicated to the protection and maintenance of biological diversity and associated cultural resources, which managed through legal or other effective means'. Globally the numbers of PAs have been increasing significantly over the last few decades and presently there are more than 100,000 protected area sites worldwide covering nearly 12% of the worlds land surface (Scherr *et al.*, 2004; Chape *et al.*, 2003; Tuxill and Nabhan, 2001). But nearly half of these legally PAs are heavily used (illegally) for agriculture and forest product extraction (McNeely and Scherr, 2003). In such areas collaborative or co-management is the main way of enhanced conservation. It can be defined as,

‘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-Feyerband *et al.*, 2000).

Bangladesh is exceptionally characterized by a rich floral and faunal diversity due to its unique geo-physical location (Hossain, 2001). However, in last days because of its extreme population pressure and rural poverty, this rich diversity threatened faster than any time of its history. Again, although the country has a rich and successful history of community forestry (now well known as social forestry), which also have been found as an appealing land-use strategy by local poor,

especially to the landless and small farmers owing to its high potentiality in poverty alleviation (Zashimuddin, 2004). Community participation in PA management is a comparatively recent approach apart from their traditional practices in forest management. In early years, although some government and NGO's implemented some motivational program in few PAs of the country; but they were scattered and poorly planned. Forest Department (FD) in the year 2003 has launched a pilot PA co-management program under the banner of Nishorgo Support Project (NSP) in its five PAs (two national parks; two wildlife sanctuaries and one game reserve) with the financial assistance of USAID. Already the project facilitated some motivation programs in and around these selected PAs. The present study aims to make a comparative analysis of people's response in such interventions in a north-eastern PA, viz, Lawachara National Park of the country.

Materials and methods

Study site

Lawachara National Park was notified in 1996 under the Bangladesh Wildlife Act 1974. It comprises the forests within West Bhanugach Reserve Forest (Figure 1). Administratively the park is under Komolgonj upazila of Maulavibazar district. The area of the park is 1,250 hectare. Geographically the park is located between 24°32'N and 91°47'E. The bio-ecological zonation of the park is 9b-Sylhet Hills Nishat *et al.* (2002).

The park area is undulating with slopes and hillocks, ranging from 10-50 m and are scattered in the forest. Numerous streams flow through the forest. The south east, south and east sides are boarded by tea gardens and the west by coffee plantation. Numerous trails and tracks are found within the forest, created by the local people for collecting wood from the forest (Feeroz and Islam, 2000). The soils of the park area are brown, sandy clay loam to clay loam of Pliocene origin (Hussain *et al.*, 1989). The top canopy of the park comprises *Tectona* sp., *Artocarpus chaplasha*, *Tetrameles* sp., *Hopea odorata*, *Toona ciliata*, *Pygenum* sp. etc. The second canopy comprises *Quercus* spp., *Syzygium* sp., *Gmelina* sp., *Dillenia* sp., *Grewia* sp., *Ficus* sp. etc. The underneath includes *Bambusa* spp., *Alsophila* sp., *Geodorum* sp., *Eupatorium odoratum* etc. and several ferns and epiphytes. (Islam and Feeroz, 1992 and Feeroz and Islam, 2000).

Methodology

The settlement history of Lawachara dates back to early 1940's with the people who have been employed for logging and/or plantation in the forest. Presently, there are 14 villages (2 inside and 12 outside) having stakes with the park in the area (Mollah *et al.*, 2000). The largest inside village, Magurchara punji, was established around 1950 and is inhabited by *Khasia* people. After Magurchara gas field explosion a number of households (HHs) has been shifted to a nearby place within the forest. The other inside village - Lawachara punji, was established in 1940's. There is another village, called Dolubari, a long established Tripura (tribal) settlement at the hill foot flat at the south-west boundary of the park.

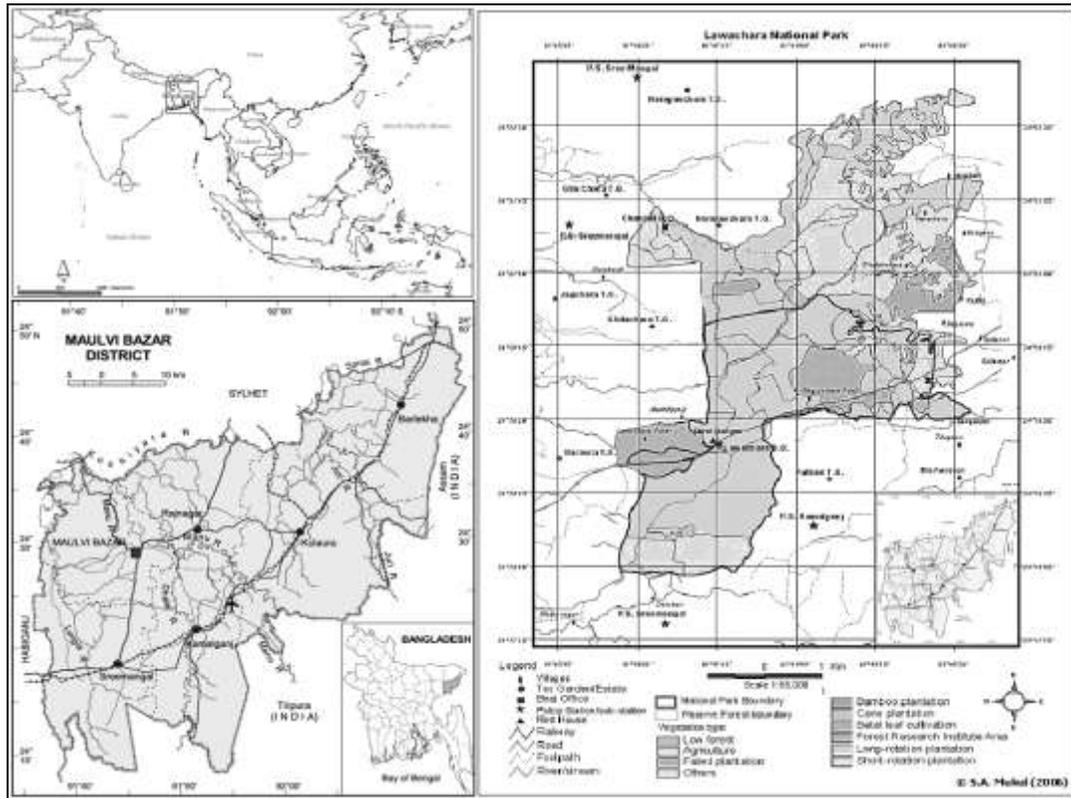


Figure 1. Location map of the study site

For the present study we selected 3 villages out of 14 randomly. The sample villages were; Magurchara Punji, Dalubari and Radhanagar. Out of 153 households within these three villages we have selected 40 HHs randomly. The sampling intensity was ranging in between 24% to 27% (Table 1).

Table 1: Sample villages, location and sampling intensity for the study

Name of the village	Location	Total no. of HHs	No. of sample HHs	Sampling intensity
Magurchara Punji	Inside	41	10	24%
Dolubari	Outside, adjacent	72	20	27%
Radhanagar	Outside, adjacent	40	10	20%

A semi-structured questionnaire was used to gather required data during the whole study process. The questionnaire was designed to gather information on different aspects of the impact of the co-management system of the area, HHs demographic information, forest dependency, livelihood activities, respondent's specific role in co-management process, purpose and terms of access in the park etc. Male or female who has active participation in the co-management program were

selected from each HHs for the interview. Alongside we have taken semi-structured interviews of some co-management committee member in the area.

Results and discussion

Socio-economic background of the area

Local peoples of LNP depend substantially on the park for maintaining their livelihoods. In our 3 study villages the major income generating livelihood activities found were, agro farming (30%), followed by fuelwood collection (22.50%), nursery raising (12.50%), cattle farming (10%), fisheries (7.50%) and others (Figure 2). The average family member was 6, 7 and 6 in Magurchara Pungi, Dalubari and Radhanagar respectively. Again the illiteracy rate in the study villages was 62.22% with the highest percentage of primary level education (21.41%) followed by secondary level education (10.37%).The housing condition in the three villages are given in Figure 3.

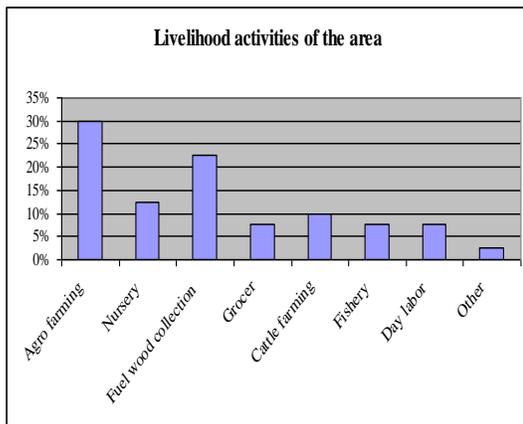


Figure 2. Livelihood activities in the area

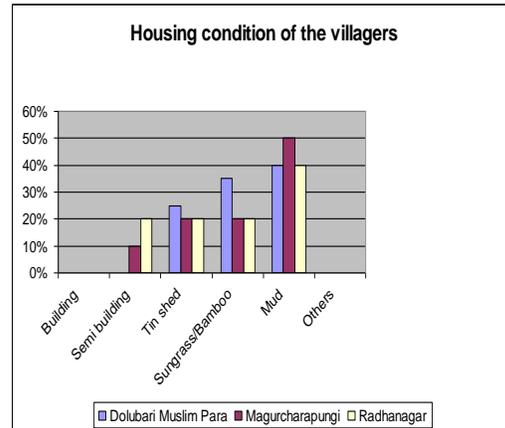


Figure 3. Housing condition of the villagers

Forest dependence of local livelihoods

Poor peoples of LNP dependent on the national park and adjoining reserve forest since long past. Among the forest products peoples rely mostly on timber, fodder, fuelwood, fruits etc. The dependency is higher on fuelwood collection (60%), while minimum for fruit collection (18%). Earlier illegal logging embraces a major part in local livelihoods of the area. After the beginning of various co-management programs; this illegal activity becomes minimized. Figure 4 shows peoples dependency on major forest produce in our three study village.

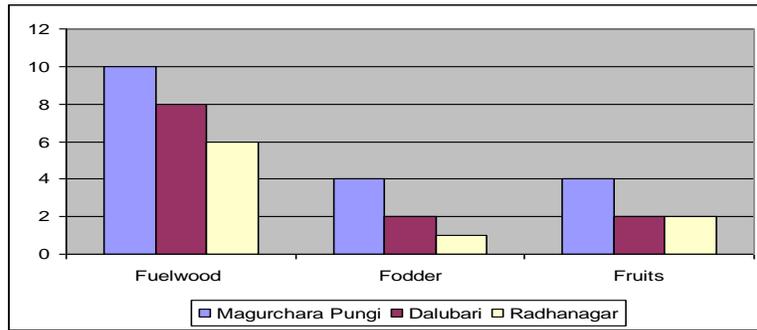


Figure 4. Dependency level of villager on various forest produce

Nishorgo initiatives in the study villages

Nishorgo have launched various motivational programs in our three study villages. These supports include capacity building of local inhabitants (i.e. decision making, tourist guiding, home gardening, different rearing, fish culture etc.), infrastructure development and creating alternative income generating sources in the area. In our selected villages Nishorgo has formed some co-management committee involving members from grass root to administrative level. The members represent their communities (as they are selected by election process) and are now actively contributing in park management by sharing and expressing their decision, views and interest in regular co-management committee meetings. Again, Nishorgo have formed some forest patrolling group in the national park area. Peoples who formerly were engaged in illegal logging activities in the national park area are now protecting the forest by a monthly salary basis (2,400 Tk/month). In Lawachara, Nishorgo have also facilitated development of eco-tourism as an enterprise. They arrange some hiking trails in the park, identify and develop picnic spot, develop public facilities 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, pig farming, nursery management, handy craft training etc. They also give financial assistance to local villagers to start these activities. Table 2 lists the name of some AIG supports in our selected villages.

Table 2: Nishorgo field of supports to generate alternative income of the study villages

Village	Magurchara Punji	Dalubari	Radhanagar
Type of support			
Cattle rearing	-	✓	-
Vegetable farming	✓	✓	✓
Nursery	-	✓	✓
Fisheries	-	-	✓
Pig farming	-	✓	-
Handicraft	✓	✓	✓

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

Changes in income level: In Lawachara the main income generating activities of the inside villagers (Magurchara Punji; Khasia tribe) are betel leaf cultivation, followed by rice cultivation. They also collect fuel wood to supplement their family income. In other tribal villages (Dalubari; Tripura tribe) about 70% HHs depend on the cultivation of lemon and pineapple at the hill slope and the rest 30% households are day laborer. In Radhanagar village HHs have diverse occupational pattern. After the co-management practice being implemented the average income level of our studied villages have increased on average 550 taka/HH. Their past and present average monthly income were 4766 and 5316 taka/HH respectively (Figure 5).

Changes in forest dependency and consumption level: People of LNP depended traditionally on forests for fuelwood, fodder, fruits, timber and other minor forest produce. After being implementation of various co-management programs the dependency level in our 3 study village 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.

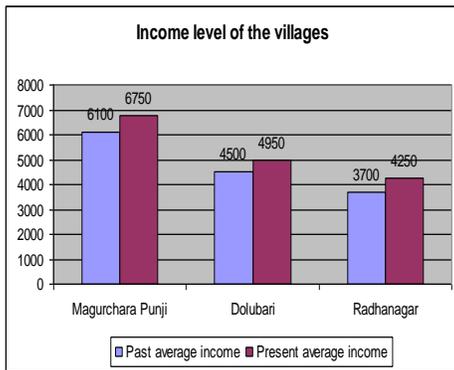


Figure 5. Changes in income level in the sample villages

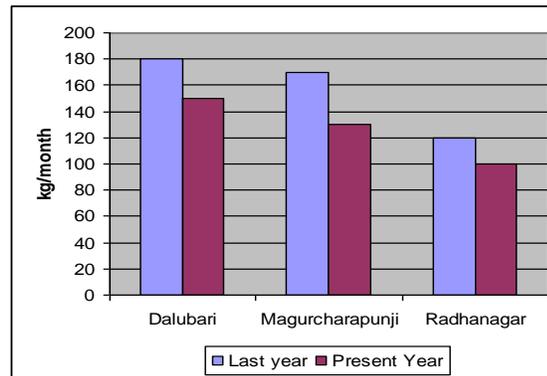


Figure 6. Comparative study of HHs forest dependency level

Changes in social status: Many of the former illegal loggers of our study villages are now engaged actively in forest patrolling. A former illegal logger of Dolubari expresses his view,

‘Nishorgo recruit us as a forest protector instead of illegal logger which makes our life more secured and respectable in the society than before (Dolubari village, personal communication, April 2007)’.

Again a co-management committee member of Magurchara Punji said,

We can now say our demand and interests loudly to proper authority through regular co-management committee meeting (Magurchara Punji, personal communication, March 2007)’.

Since Nishorgo trained supported ethnic *Tripura* women for their traditional weaving practice and working for the promotion of their products, these women are now intensely contribute in their family income. Nishorgo also works on the marketing on betel leaf (*Piper betel*) among *Khasia* communities. These initiatives in sense empower the role of women in their society as well as in the family.

Conclusion

The result of our study indicates a slow change in the local people's living style and forest dependency but surely it indicates a change in the overall situation of the area, i.e., local livelihood pattern and forest dependence. In addition, since the approach is still in its initial stage, there is a lot of things still to work. Although local peoples are now actively participate in decision making process but for an efficient and lasting co-management system it requires more consideration on local demands.

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