



# PROCEEDINGS

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# **THE ROLE OF TRADITIONAL FOREST PRACTICES IN ENHANCED CONSERVATION AND IMPROVED LIVELIHOODS OF INDIGENOUS COMMUNITIES: CASE STUDY FROM LAWACHARA NATIONAL PARK, BANGLADESH**

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## **Introduction**

Forests have been playing critical role in meeting human needs for water, food, shelter, medicine, fuelwood, fodder and timber since prehistoric time (Vogt *et al.* 2007). Even today over 90 percent of the world's poorest people depend largely on forests for their livelihoods, and more than a billion people live within the world's most biologically diverse forests (Scherr *et al.* 2004). It is also predicted that forests are the home of majority of world's indigenous and ethnic communities. In fact, forests are much more important to such aboriginal communities since they live in the forests (habitat), on the forests (food, health and income) and with the forests (culture, recreation and history). Presumably due to this historical involvement such indigenous communities hold an impressive practical knowledge on their environment (Alvard, 1993), which if properly managed could be used for forest policy formation, conflict resolution, sustainable natural resource management and identification (or invention) of new techniques (e.g. herbal remedy) for wider implication (ultimately human well-being).

Bangladesh being located in the transition zone between Indo-China, the Himalayas and the rest of the Indian subcontinent (Figure 1) exceptionally endowed with a rich biological diversity. More than 5,700 angiosperm and sub species, 113 mammals (of 500 species in the Indian subcontinent), and birds (574 out of 1200) are available in the country (Appanah and Ratnam, 1992). The forest of Bangladesh covers approximately 2.60 million ha which represent about 17.62 percent of total land area of the country. Of these, the hills (12%) consist of moist tropical evergreen and semi-evergreen forests, which extends from northeast to southeast of the country. Roughly twenty-seven ethnic communities are present in the country— representing 1.13% of country's total population (Poffenberger, 2000). Even though country's limited forest resource are declining at an alarming rate, and misunderstanding persists between government and most indigenous communities but still they lead a forest-based livelihood and maintain some traditional forest use. The present paper aims to describe such traditional forest practices observed in a north-eastern low hill forest region of the country, with their importance and possible conservation implications.

## Methodology

The study was conducted in *Lawachara National Park* located in the north-eastern part of Bangladesh (Figure 1). Currently the park covers an area of 1,250 ha, and there is a plan to extend the park area in another additional 281 ha of the adjoining West Bhanugach Reserve Forest. LNP, being situated in a high rainfall area with mixed tropical evergreen forests, is a mega biodiversity spot in the country with many endangered fauna and flora. An estimated 167 species of higher plants, 26 mammalian species (including five non-human primates), 246 bird species, 4 amphibians and 6 reptiles have so far been recorded from the park area (NSP, 2006). A total of 26 villages and tribal settlements have varied degrees of stakes with the national park as well as with the adjoining reserved forest (Mollah and Kundu, 2004). Most of the settlers/villagers are financially poor and rely largely on forests to sustain their livelihoods.

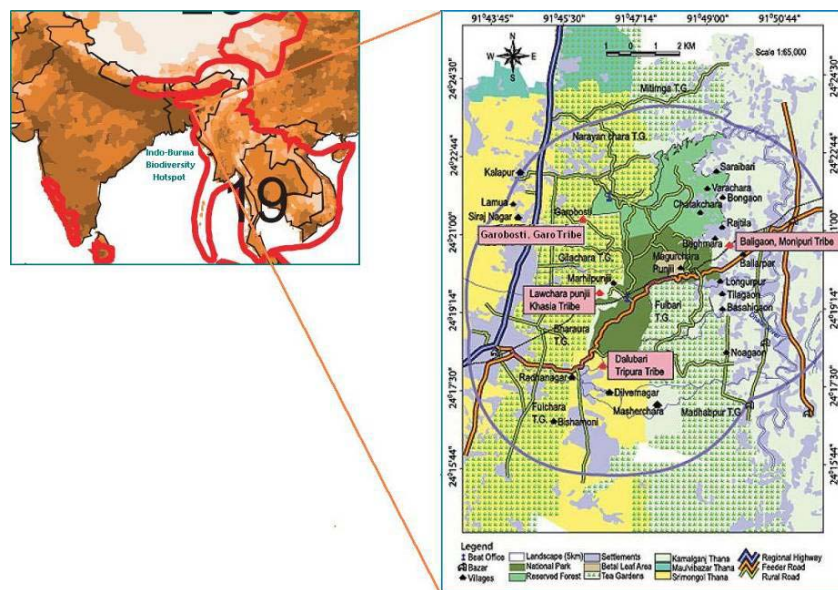


Figure 1: Location map of the study area with corresponding tribal settlements

For the study, I interviewed a total of 40 ethnic households during June 2007 to February 2008—10 from each of the communities (i.e. *Khasia*, *Tripura*, *Garo*, *Monipuri*), adopting a quota sampling approach. This represented approximately a sampling intensity of 40%, 14%, 17% and 15% respectively for *Khasia*, *Tripura*, *Garo* and *Monipuri* settlers. While selecting a household priority was given on the household's had greater stakes on nearby forests. A semi-structured questionnaire was used to gather the required information's. A friendly discussion in households' preferred time was arranged for each of the household's in the presence of a local interpreter (communicator). Valuation of identified forest practices was made in terms of current market price adjusted with investment cost (e.g. labor and tools) and/or opportunity costs (where applicable).

## Results and Discussion

### Community backgrounds

Human settlements in LNP dates back to early 1940's with first group of peoples employed for logging and plantation in the forest area. Only two inside villages of the park are inhabited by *Khasia* people. They are the lawful residents of that park, inherited an indigenous betel vine (*Piper betel*) based agroforestry practice within the park. Each of the *Khasia* family has been

allocated 1.21 hectares of land by Forest Department (FD) for betel vine farming and 0.06 hectares for dwelling houses and homesteads within the park. In my four study villages, namely – Lawachara punji (*Khasia* tribe; N = 23); Dolubari (*Tripura* tribe; N = 75); Garo bosti (*Garo* tribe; N = 70) and Baligaon (*Manipuri* tribe; N = 68), a different pattern of forest utilization and dependency were observed. Gender involvements and variation in different forest practices across the study communities were also notable. *Khasia* women mainly sort betel leaves while *Tripura* women weave cloth, conduct household work, and sometimes work in the lemon and pineapple orchards. The *Garo* women collect various forest products including timber (illegally!), and women and children from all the four communities collected fuelwood from nearby forest for their domestic consumption. Literacy rates among the respondents were 80% (*Khasia*), 40% (*Tripura*), 10% (*Garo*) and 70% (*Manipuri*). Most of the respondents (27) were poor (monthly income below US\$50).

### Traditional forest uses / practices

A list of traditional forest utilization practices reported by the members of four ethnic communities is given in Table 1. It appears that *Tripura* people used the forest most frequently (19 forest practice), followed by *Khasia* (15 forest practices), *Garo* (15 forest practices) and *Monipuri* (10 forest practices) people. Ten of the forest practices were found legally authorized (permitted), sometimes to a specific forest community, six were limitedly practiced and overlooked (!) by the FD up to a certain extent, and the remaining four practices were strictly prohibited (illegal) by the FD. It seems that due to a legal access right in the forest *Khasia* people follow the forest rules more appropriately than the others. On the other hand, forests are comparatively lesser significant to the life and culture of *Monipuri* people thereby they were found lastly involved with the identified forest practices.

**Table 1. A summary of different forest use/practices by the indigenous communities in LNP**

Forest use/practices	Ethnic communities				Legal status (by FD)
	<i>Khasia</i>	<i>Tripura</i>	<i>Garo</i>	<i>Monipuri</i>	
Land (for settlements; limited to primarily <i>Khasia</i> 'a)	+++	+	n.i.	n.i.	Permitted
Water (for drinking, irrigation etc)	+++	+++	+++	+	Overlooked (!)
NTFPs and housing materials (e.g. bamboo, sungrass, cane etc.)	+++	+++	+++	++	Overlooked (!)
Vegetables (e.g. taro, ferns, tubers etc.)	+++	+++	+++	+++	Overlooked (!)
Fuelwood collection	+++	+++	+++	++	Overlooked (!)
Medicinal plant collection	+++	+++	+++	++	Overlooked (!)
Betel leaf based agroforestry	+++	+	n.i.	n.i.	Permitted
Rice based shifting cultivation	n.i.	+	+++	n.i.	Illegal
Lemon cultivation (in park boundary)	+	++	+	n.i.	Permitted
Alley pineapple cropping (in park boundary)	n.i.	++	n.i.	n.i.	Permitted
Jackfruit cultivation (in park boundary)	n.i.	++	n.i.	n.i.	Permitted
Bush meat (wild fauna) hunting	++	++	+++	n.i.	Illegal
Timber harvest	n.i.	+	+++	n.i.	Illegal
Wild fruit harvest	+++	+++	+++	+	Overlooked (!)
Recreational enjoyment	+++	++	++	+	Permitted
Honey bee collection/ keeping	++	+	+	+	Permitted

Cultural significance and use	+++	+++	+++	+	Permitted
Forest-based employment (eco-tour guide, community patrolling, FD's work etc.)	+++	+++	+	n.i.	Permitted
Communications way	+++	+++	+++	+	Permitted

Key's: n.i. → not involved; +++ → strongly involved; ++ → moderately involved; + → lastly involved

### Forest in supporting community livelihoods and generating incomes

Study revealed that forest plays a vital role in the livelihoods and culture of *Khasia*, *Tripura*, and *Garo* people by providing their basic subsistence needs and income. A variety of wild forest species (both flora and fauna) were found exploited and consumed by the respondents. For example local people named a total of 22 fruit species and 11 vegetable species harvested locally for their own consumption. Most of the respondents mentioned forest as a source of safety net through selling forest products during the vulnerable period. The cumulative values of different forest practices (per annum) across the communities were estimated as US\$ 550, US\$ 472, US\$ 362 and US\$ 296 respectively for *Khasia*, *Tripura*, *Garo* and *Manipuri* people. A considerable difference however observed in the share of different forest practices (both legal and illegal) in this amount. For example betel vine cultivation was the most income generating forest practice of *Khasia* people, whereas *Tripura*, *Garo* and *Manipuri* peoples earned majority of their income from lemon + pineapple cultivation, fuelwood + timber extraction and fuelwood extraction.

### Conservation options of traditional forest uses / practices

Unquestionably some of the identified forest practices have long term harmful effect on forest. For example bush meat hunting has long been blamed for large mammal extinction in many tropical countries. The shifting cultivation (Figure 2) followed by slash and burn is a major concern of environmentalist for its long term negative effect on ground flora and micro fauna. It also enhanced the chance of forest fire, soil erosion, and susceptibility to weed -



Figure 2: Slash and burn practice



Figure 3: betel-vine based agroforestry

growth like sungrass (*Imperata cylindrica*). Fuelwood collectors' sometimes responsible for felling standing tree trunks for selling as fuel that may turns this operation into unsustainable. The *Khasia* betel vine cultivation (Figure 3) practiced in the FD allocated areas seems very suitable for biodiversity conservation as it retains old trees as supporting trunk and keeps the understory vegetation more or less undisturbed. The honey bee keeping provides pollinator service to forest. Collection and utilization of several NTFPs, fruits, vegetables and medicinal plants helps to uphold the traditional knowledge and skills particularly to younger generations.

## Concluding comments

For a large proportion of indigenous peoples forests are still a paramount way of sustainable livelihoods. In LNP some of their traditional forest practices like betel vine based *Khasia* agroforestry demonstrated an efficient way of forest biodiversity restoration together with livelihood support through cash generation. This traditional forest practice for instance could be a useful ingredient of adaptive forest management in LNP as well as in other forest areas where ethnic communities have a broad interest on forests for their livelihoods and income. Another important issue—due to lack of proper market infrastructure indigenous communities in most times not able to obtain the real value of their products. An efficient market chain to sell value added products is therefore recommended. A community awareness program on conservation, sustainable use, and harvesting of forest biodiversity could be also useful for shaping the traditional forest practices into an environmentally sound way of community livelihood.

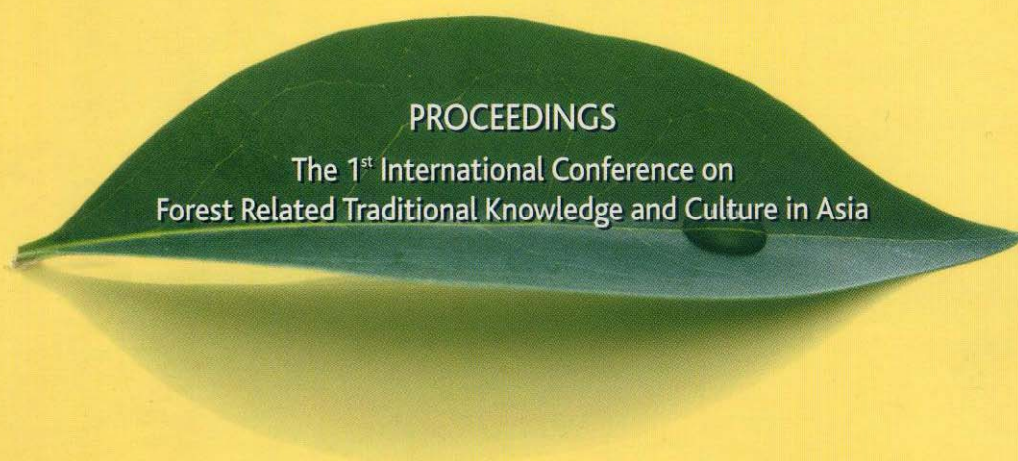
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