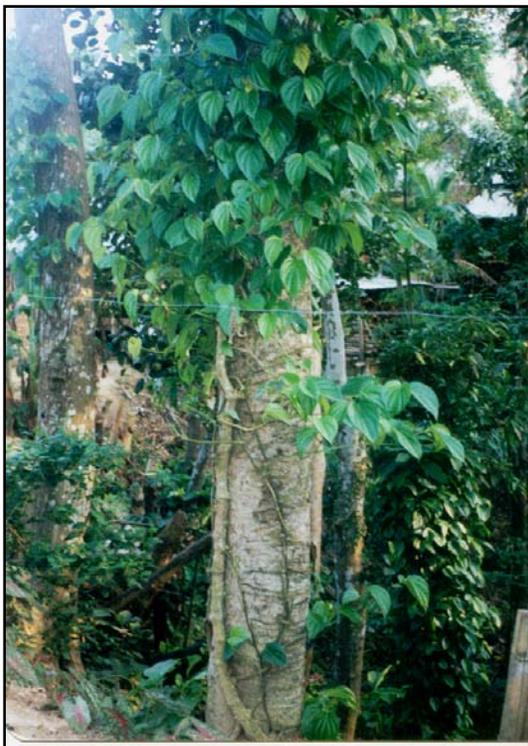




Site-Level Field Appraisal for Protected Area Co-Management: Lawachara National Park



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Site-Level Field Appraisal for Protected Area Co-Management: Lawachara National Park

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EXECUTIVE SUMMARY

1. A two-step rapid appraisal process, initial RRA, followed by a subsequent PRA , was undertaken to make a comprehensive situational analysis of the Lawachara National Park (NP) during May-July, 2004, aiming at helping to shape the future activities for the improved management of the NP within the Nishorgo Support Project. Specifically, the appraisals focused on the assessment of major stakeholders, understanding the causes for forest degradation and its underlying causes, identifying the challenges for the project and exploring the opportunities for the Park's improved management. Various RRA and PRA tools were used, including trend and seasonal analysis, Venn diagramming, livelihood analysis, ranking, scoring and resource mapping. In addition a series of household and group interviews, and focus group discussions were also conducted.
2. A total of 26 villages having varied degree of stakes with the forest have been identified, of which two (namely Lawachara punji and Magurchara punji, inhabited by Khasia communities) are located inside the Park boundaries and the rest are located outside of forest area. Among the outside villages, 4 are just at the outskirts of the forest and others are within one to three km away. Including 6 villages for which data was unavailable, the total number of households in villages surrounding the park is approximately 4000. Of the identified villages, 12 have major stakes (Magurchara punji, Lawachara punji, Bagmara, Baligaon, Dolubari, Bishamoni, Arshidron, Dilvernagar, Birainpur slum, Lamua, Kalapur and kakiabazar), 4 (Verachara, Saraibari, Noagaon and Tilagaon) have medium to major level of stakes, 6 (Rashtila, Chatakchara, Radhanagar, Garobosti, Mazerchara and Sirajnagar) have medium level of stakes, and 3 have minor and the rest one has negligible stake with the forest.
3. There are six tea estates surrounding the park, of which 4 border the park (i.e. Fulbari, Khaichara, Jakchara, Gilachara tea estates) and the other two (namely, Bharaura tea garden and Noorjahan tea estate) are located nearby. These tea

estates have a substantial number of unemployed inhabitants; some of them enter into the NP and exploit forest resources. Sometimes, the illegal fellers use Bharaura, Jakchara and Gilachara tea estates as routes for transporting illegally felled trees to Srimangal.

4. A total of 19 stakeholder (SH) groups (excluding institutional SH) have been identified in the NP area, of them 15 are primary stakeholders and are involved directly in resource extraction and forest conversion activities, and the rest are secondary stakeholders. Three SH groups (fuelwood collectors, illegal timber feller, betel leaf cultivator) play a major role in forest degradation, while 6 have medium stakes (bamboo collector, house building mat. collector, land encroacher, timber trader, sawmill owners, furniture shop owners) and the rest have minor or negligible level of stakes with the forest. The local poor people including the ethnic forest villagers are involved with extraction of most resources from the forest. The middle class and rich people have little direct role in exploiting resources from the forest.
5. It is estimated that approximately 200-250 people from the adjacent villages enter the forest for fuelwood collection each day, and generally each person gathers about 20-40 kg fuelwood/day. In addition to individuals, it is thought there are 5 or 6 organized gangs, each consisting of about 15-20 people, engaged in illegal timber felling. These people predominantly come from a few villages. About 20-25 people collect bamboo from the forest each day.
6. All forest villages HH are dependent on fuelwood, house building materials and some vegetables from the forest for their HH needs. However, their major activities are confined within the areas allocated to them for betel vine cultivation. Traditionally, the local people collect various resources from the Lawachara NP. About 80% HHs of the villages closest to the NP also depend on the forest for their HH fuelwood requirements. It is estimated that 7-10% HHs are entirely dependent on this for their livelihood. Similarly, a large number of HHs has undertaken this activity to supplement their HH income. Generally 100% of

illegal tree fellers sell the timber they collect to supplement their income, however, some HHs are entirely dependent.

7. It is estimated that forest cover has only decreased by about 25%, forest thickness and abundance of tall trees by about 60%, medicinal plants by 60%, compared to pre-liberation period. Abundance of herbs, shrubs and sungrass has also decreased by about 80% due to the clearing and claiming of forest land for plantations. Except for birds, the abundance of major wildlife has also decreased by about 80%. The abundance of bamboo and cane has increased because of plantations, but indigenous and wild bamboo and cane species have decreased. Widespread tree felling, although increased during liberation and immediately after liberation period, slowed down remarkably during 80's and early 90's, but again increased in the 1990's. The activity further increased from 1999 and has declined again from 2003. Fuelwood collection has increased compared to 1985, while hunting has decreased due to prohibition on hunting and unavailability of game animals and birds.
8. By now many wildlife species have become locally extinct, including asiatic black bear, gaur, leopard (Chita Bag) and sambar deer. In addition there are some locally endangered species, such as barking deer, hoolock gibbon, langur, hornbill, parrot, wild fowl, porcupine, doves, turtles (2 species) and whip snake (lau-doga). Some plant species have also become endangered.
9. About 12 different types of resource are extracted from Lawachara NP. Of them, two (fuelwood and timber) are extracted on a large scale, three on a moderate scale (bamboo, house building materials, sungrass), four on a minor scale and rest three are on a very negligible scale. The main purposes for resource extraction are meeting HH needs, selling for added income and/or to support and supplement livelihood. These activities are seen to be posing threats to the forest and have a huge impact on forest regeneration and local biodiversity.

10. Extraction of resources from the forest is season dependent. Timbers are illegally felled mostly during the rainy season as forest patrolling is poor during that period. Fuel wood is mainly collected during the dry season because of easy accessibility and mobility inside the forest. Bamboo extraction mainly takes place in drier months that correspond with local needs for house building materials.
11. Major causes for forest degradation in order of magnitude are as follows: illegal timber felling, FD's plantation strategies, fuelwood collection, hunting, bamboo and cane collection, collection of house building materials and land encroachment. The prevailing extreme poverty in the locality, unemployment, coupled with weak law enforcement has made poor local people become reliant on the forest resources for meeting HH needs and added income. Fuelwood collection has also been linked to development of transportation facilities and marketing opportunities. Local scarcity of these resources is also an underlying cause for dependence on forest resources. The NSP is unlikely to prevent illegal forest extraction activities unless these underlying causal factors are addressed. The local poor people, including ethnic forest villagers, are mainly involved with direct extraction of forest resources and are responsible for causing most harm to the forest.
12. FD's poor forest patrol, easy negotiation with local FD staff, inadequate man power of the FD, and the emergence of increased number of locally influential people all contribute to illegal timber felling. There are conflicts between the FD local staff and the illegal timber fellers, sometimes leads to exchanges of fire. Excessive forest cases lodged by the FD are also driving the people to increase the rate of timber felling. While there has been large number of forest cases in the past, recently the trend has declined.
13. In addition to local consumption at the HH level and by local hotels and restaurants, a substantial amount of fuelwood is transported to other urban areas. There are about 14 fuelwood traders in Vanugach and Srimongal. In addition, some local brickfields (3), which burn coal, use fuelwood for initiating fires.

There are 9 sawmills in Bhanugach-Kamalgonj and 12 in Srimongal, owned by very influential people. It is alleged that the sawmills receive illegally felled trees as well at a cheap rate. It is also alleged that the large number of local furniture shops that exist in the area (about 30 in Bhanugach bazaar alone), also have links with timber fellers and sawmills and thus appear as important secondary stakeholders.

14. Since the declaration of the NP only legal tree felling has stopped. Encroached land was recovered by the FD, but later retaken by the encroacher after winning a court case. The forest patrol is poor, partly due to inadequate man power and partly due to lack of logistics. There are now only 14 staff including the plantation worker and no staff designated for the management of the park biodiversity. No specific management regime has been undertaken for the management of the park.
15. FD's plantations strategy is seen as one of the major causes for forest and biodiversity degradation. The plantation is targeted on production forestry, biodiversity conservation has not been considered. In addition to high valued timber trees, the park is planted with exotic trees, sometimes as a monoculture. Bamboo and cane have also been planted in an extensive area, as well as agar and rubber plantations. The plantation practices include clearing and weeding of the planted areas and thus have contributed to biodiversity and habitat loss for wildlife.
16. In the villages surrounding the park, the majority of people are poor (approx. 48%), followed by middle class (30%), extreme poor (17%), and 5% rich. This picture in the tribal community is different, with about 97% of HHs poor or extreme poor, and the rest belonging to the rich and middle class. The major primary occupation of the local people is agriculture (65-70%), principally paddy cultivation, followed by day labour (10-15%), fuelwood collection (5-10%), small business (3-5%), service (3%) and overseas employment (1%). The literacy rate is low (43%). On average, about 15% people of the area are unemployed, although

this figure varies according to the seasons, being most from April to July (Boishak, Jaistha and Ashar).

17. The local power structure remains a crucial issue to the management of the National Park. There are about 33 local influential people, who have major control over the local people, locality and the local administration. Some of these people have linkages with illegal tree fellers. Information on their domain of power has been collected. The local public representatives (including MP) are also very influential and are the main focus of local conflict resolution. The tribal people have a traditional governance system, with community leaders. Forest villagers have also have a governance system of their own, under the leadership of an elected community leader.
18. Betel leaf cultivation by the forest villagers is confined only to the land allocated by the FD for the purpose. The vines are grown on trees which they use as a climbing support. The management practice includes pruning of tree branches and weeding areas adjoining each vine. This activity reduces the biodiversity value of these allocated areas and contributes to habitat loss.
19. There are 2 ethnic communities, Khasia and Tipra, located within and around the park. The Khasia tribes live in the two villages inside the Park - Magurchara and Lawachara punji. They are the recognized forest villagers of Lawachara NP. Their main occupation is betel leaf cultivation, followed by day labor. The Tipra people inhabit in an adjacent village, Dolubari. Their main source of income is cultivation of lemon and pineapples, day labor and agriculture (jhum-outside NP) and weaving. The rate of literacy among the tribal community is very low, only 20% are literate but now a day's 100% of the tribal children go to primary school, although only 5-8% goes to High School and only 5% study in college.
20. The major NGOs that operate in the locality are: HEED-Bangladesh, ASA, BRAC, Grameen Bank, CARITAS, IRPK (exclusively for ethnic groups). Their major activities are concentrated on health, education and alternate income

generation. Some of them have credit programs exclusively for women. There are also 4 community organizations which deal with local problems, welfare and cultural activities. These organizations could play a significant role toward the implementation of NSP.

21. Several NGOs and 2 banks provide micro-credit to local people. Bank loans are mainly given for agriculture. NGOs provide credit mainly for IGA. NGO's IGA programs concentrate on small business development, fish culture, poultry, livestock rearing etc. NGO's credits are mainly focused on the women. Skill development activities by the NGOs are limited. Local people, particularly the tribal people, have skills such as bamboo basket and mat making, or weaving (e.g. Tipra).
22. The main sources of conflict in the locality among local people occur over children's affairs, land disputes, livestock grazing, family affairs, stealing, money lending, local politics, rivalry among different syndicates, affiliation and cooperation with FD and forest cases. Conflicts are resolved by arbitration by local elites & public representatives (MP, UP chairman, members), or at the Gram Sarker. If the local efforts are not fruitful it may lead to filing cases with the Thana-police or even ending up in the courts.
23. Local Police have substantial stake with the forest. As they patrol in the area and on the highway and enforce the forest protection laws and thus has developed a process of negotiation with the resource extraction group. However BDR play positive role in the case of forest conservation.

Acronyms

Acronym	Detailed name
AGA	Alternate Income Generating Activities
ASA	Association for Social Advancement
BDR	Bangladesh rifles
BO	Beat Office
BRAC	Bangladesh Rural advancement Committee
BRDB	Bangladesh Rural Development Board
CBO	Community based Organization
CODEC	Community Development Centre
Dept.	Department
FD	Forest department
FGD	Focus Group Discussion
Fig.	Figure
FRMP	Forest Resource Management Plan
FSP	Forestry Sector Project
GD	Group Discussion
Govt.	Government
HHs	Households
IGA	Income generating Activities
Int.	Interview
IRG	International Resource Group
Kg	Kilogram
KI	Key Informant Interview
LGED	Local Government Engineering Department
LNP	Lawachara National Park
Mat.	Material
MP	Member of Parliament
NACOM	Nature Conservation Management
NGO	Non Government Organization
NP	National Park
NTFP	Non Timber Forest Products
PA	Protected Area
PRA	Participatory Rural Appraisal
RDRS	Rangpur Dinajpur Rural Service
RF	Reserve Forest
RO	Range Office
RRA	Rapid Rural Appraisal
SH	Stakeholder
Tk.	Taka
UP	Union Parisad

1. INTRODUCTION

1.1 Project Background

In Bangladesh, natural forests are under constant pressure and have already been significantly degraded and fragmented. In an estimate, forest cover in the country has fallen by more than 50% since 1970. This situation is threatening the value of these forests as habitat for biodiversity and for provision of vital environmental services. If this trend continues, it will soon result in a serious ecological catastrophe and a declining spiral of production and productivity irreversibly detrimental to the livelihood of people living in and around the forest, historically dependant on them. Therefore, there is an urgent need to reduce or reverse the detrimental impact on forest biodiversity and maintain resource sustainability through improved management and creating alternate livelihood opportunities for people dependent on forest resources.

The concern for biodiversity assets in the country has a long history and Bangladesh has a strong commitment to the cause of biodiversity conservation from the national, regional and global perspective as reflected in its endorsement and ratification of many national, regional and international conventions, treaties, protocols etc. related to biodiversity conservation.

The alarming situation in forest degradation in the country and the governments commitment to national and international community, spurred government effort to designate and establish a number of protected areas, (including National Park, Wildlife Sanctuary and Game Reserve,) with biodiversity significance under the provision of Wildlife Preservation Act, 1973. But there has been a little change in the degrading situation of these PAs with regard to biodiversity and its environmental services. Poor governance and lack of appropriate and pragmatic management regimes for these PAs has been linked to the failure in PA management in the country.

Responding to the urgent need to address the forest conservation and related economic opportunity creation, the US government and Government of Bangladesh elaborated and signed a Strategic Objective (SO 6) Grant Agreement to improve management of open water and tropical forest resources. This agreement sets target for improving forest management.

In the context of the agreement, the Forest Department has worked with USAID to jointly develop a project, called Co-management of Tropical Forest Resources of Bangladesh to accelerate and consolidate protected area management and more active local participation in *Site-Level Field Appraisal: Lawachara NP*

forest resource management. The Forest Department and USAID recognize the need for the continued effort to manage the forest resources of Bangladesh and has set long-term greater vision with renaming the project as Nishorgo Support Project.

The Nishorgo Support Project (NSP) is to demonstrate a replicable case for establishing a good governance system that will ensure sustainable management of protected areas of Bangladesh, while working in a number of selected pilot protected areas. Specifically, the project is designed to develop, promote and implement forest co-management model, to halt and/or reverse degrading trend in forest resources and its habitats, reduce unsustainable practices, bring about changes in policy environment in favor of co-management, strengthen stakeholders capacity in natural resource management, improve livelihood of local poor people in order to curb dependency on forest resources.

1.2 Information needs of NSP and logical basis for conducting PRA/RRA

For any project, development or research, information are needed for designing and planning project interventions, setting implementation strategies, evaluation and monitoring of project performance and impact. Information at the initial stages of the project thus helps the project in carrying out its activities effectively and efficiently.

It has been emphasized from the beginning that that NSP will avoid information overload, rather it will concentrate on collection of relevant information by using appropriate methodology. Therefore, it was necessary to carefully scrutinize the information needs and determine its relevance to the project objectives and activities.

The generation of information, in principle, is guided by project objectives and goals. The NSP is particularly concerned with the establishment of co-management mechanism of forest resources in one hand and developing a prescription for the technical management of its resources, on the other hand. Therefore, generation of information is thus centered on the characterization of local community (stakeholders) likely to be involved with the project and local resources that are to be managed.

- Co-management -----stakeholders and their activities, socio-economics, behavior, community power structure, their needs and expectations, conflict, challenges etc.
- Resource management ---- resources and its status, trend and causes for resource degradation, resource exploitation, threats to local resources and biodiversity

This preliminary assessment of information needs for NSP through scoping exercises provided precursors for brainstorming for identifying specific information needs that will be collected through subsequent appraisals. It was thought that at the initial stage of the project a rapid appraisal would be very appropriate in terms of cost effectiveness, usefulness, reliability, and overcoming time constraints.

Rapid Rural Appraisal (RRA)/Participatory Rural Appraisal (PRA) are packages of methods and tools for collection of qualitative information about local people, their life, environment, their resources, activities and living conditions in a short time. The purpose is to utilize knowledge of the local people in designing and setting implementation strategies of a project/program and /or to monitor and evaluate project performances and impact. It is also considered as a process for involving local people in the project planning and /or implementation and monitoring. In fact, RRA/PRA is thus considered as an integral part in down-top planning process in many development or resource conservation projects.

RRA was carried out as an initial activity in the field with primary focus on stakeholder assessment and also equally intended for generating information that will help to get a sense of range of key issues and challenges that need to be addressed and be better informed on the context (social, economic, ecological) in which the project is likely to intervene.

Built upon the outcome of the RRA, subsequently PRA was planned to collect in depth information on the identified issues and to ensure greater participation of local people in information collection.

1.3 Purpose of the Report

The main purpose of the present report is to present a synthesis of all findings from RRA and PRA exercises conducted in Lawachara National Park during May-July, 2004. The report also details the methodology and tools used and highlight the issues in forest management and biodiversity conservation and identify the challenges for the NSP. Finally the report makes suggestions on what the project and Forest Department need to do immediately. Finally, the report puts forward set of recommendations for the improved management of the LNP.

1.4 Outline of the Report

The site level appraisal report, at first, provides an executive summary which summarizes the entire ranges of the findings, methods used, issues and challenges until identified during PRA. The report starts with general introduction in **chapter 1** that includes the information on background of the project, information needs of NSP and logical basis for conducting PRA/RRA, the purpose of the report etc.

A brief description of the site is provided with a site map in **chapter 2**.

Chapter 3 sets out the methodology of the study that deals with the approach to implementation of the fieldwork of RRA and PRA, study team and study period, objectives and methodology of the study. The chapter also includes study period, setting RRA and PRA issues and questions, formation of RRA and PRA field teams, selection of RRA and PRA spots, choice of RRA and PRA methods and tools and the limitation of the field work. Outcomes of the RRA and PRA exercises are described in **chapter 4** which contain major findings and analyses. The findings are mainly presented as situational analysis of the forest resources, stakeholder analysis, resource and resource extraction, trend analysis, socio-economical situation of the surrounding area, seasonal trends in resource extraction, etc. In short, this chapter reflects the current status of the forest dynamics with social dynamics.

Chapter 5 presents issues and challenges for NSP, an extended section based on PRA/RRA outcomes, identifying present issues of concern and challenges for NSP. The final **Chapter 6** embodies a set of suggestions and recommendations regarding the implementation of the project. At last a number of necessary references of all documents consulted and photographs are appended as annexure with the report.

2. DESCRIPTION OF THE PROJECT SITE

The Lawachara National Park is a part of the West Bhanugach Reserved Forest and located in Kamalgonj Union of Kamalgonj Upazila in the district of Moulavibazar. The park is under the jurisdiction of Moulavibazar Forest Range under Sylhet Forest Division and is divided into two forest blocks. Lawachara NP stands on the Habigonj-Moulavibazar Highway and is about 7 km east of Srimongal Upazila head quarter and lies in between $24^{\circ}30'$ - $24^{\circ}32'$ N and $91^{\circ}37'$ - $91^{\circ}47'$ E. The park was established through a gazette notification in 1996 and further proposal was made for extension of the park. The current notified area covers an area of 1250 ha and the proposed area of 281 ha. The park includes the Forest Blocks 3 and 4.

There about 18 villages, of which two are located inside and the rest are located outside of forest area. The villages comprise about 2113 (excludes HHs in 4 villages) households (HHs). The forest area is undulating with slopes and hillocks, locally called *tilla*, average elevation ranging from 10-50 m and are scattered in the forest. Numerous streams flow through the park. The south-east, south and east sides are boarded by tea gardens and west by coffee plantation. The forest is semi-/and mixed evergreen, where tall trees are deciduous and the under storey evergreen. The forest originally supported an indigenous vegetation cover of mixed tropical evergreen forest. However, almost all of the original forest cover has been removed or substantially altered and thus has turned into a secondary forest.

The major coverage of natural primary forest is represented by 8.6 acres of land in the extension area and also by unconverted betel leaf plots of the forest villagers. The long rotation plantation (teak, jarul, chapalish, garjan etc.) covers an area of about 1110 ha and a short rotation plantation of about 187 ha. Bamboo and cane plantation covers an area of about 25 ha. About 110 ha covered by betel vines area and the rest are homestead lands. Fig.1. shows the map of the NP.

The Lawachara National Park is a semi/mixed evergreen forest. The associated long rotation timber trees include Jarul, Chapalish, Shegun, Lohakath, Kadam, Pitraj, Chandan, Kanthal, Supari, Litches, Agar, Dhuna, Garjan, Dewa, Awal, Gamar, Jam, Nageswar, Sundhi, Bohera, Tairol, Chloroform tree and a variety of other species. Trees like Acacia hybrid, Mangium, Malacanna, Eucalyptus, Pine, Akashmoni, Rubber, Jhau are common within the short rotational plantation areas. Besides, various species of bamboo (such as *Jai bansh*, *Muli bansh*), cane (i.e

Jali bet, Golla bet), grass, various types of climbers and vines, herbs and shrubs are also profuse in the NP. Approximately, 167 plant species, 4 species of amphibians, 6 species of reptiles, 246 species of birds, 20 species of mammals are found in the park.

MAP OF LAWACHARA NATIONAL PARK



Fig. 1.

3. METHODOLOGY

As mentioned in the preceding section a two-step rapid appraisal strategy was taken. RRA was conducted as the first in the appraisal process, followed by PRA.

RRA was carried out as an initial activity in the field with a primary focus on generating information that would help to get a sense of the range of stakeholders, key issues and challenges that need to be addressed and provide information on the context (social, economic, ecological) in which the project will operate.

Built upon the outcome of the RRA, a subsequent PRA exercise collected in-depth information on the identified issues and was designed to ensure greater participation of local people in information collection.

The overall purpose of the RRA and PRA was to come up with a comprehensive situational analysis of the Chunati WS with a view to understand: -

- Who destroys and how the forest is destroyed
- What are the underlying driving forces for the forest degradation
- Cause and effects of the behavior of local people
- Opportunities for improvement in forest management

3.1 Developing the RRA and PRA: Issues and Methods

A interactive and consultative planning workshop was organized on 3rd April to 4th April 2004 at NSP north office, Srimongal, to identify, prioritize and finalize the RRA issues and questions. The type and nature of issues, the research team's accessibility and mobility in the area, the behavior of local people and their rapport with the field staff were all taken into consideration in the design of these methods and tools. The workshop was attended by specialists and representatives from NACOM, field implementation partners (RDRS) and local FD staff, who were likely to be involved in the RRA field exercise. This workshop provided an opportunity to prepare a field protocol, decide and agree on approaches, methods and tools to be used and also to make and consolidate team understanding.

The detailed methodology for these activities was embodied in a manual and used in training workshops with the field teams to give instruction in using the research tools and to ensure that the methodology remained same across the team and across the sites. A one-day training workshop was organized for the RRA team members on 8th May 2004. A similar workshop was

also held for PRA on 22th June. The purpose was to give the RRA and PRA field team instructions in using various tools. The workshop was held at the BTRI Training Centre, Srimongol, on RRA and PRA, respectively.

The RRA was mainly based on unstructured and semi-structured household interviews, KI interviews, group and focus group discussions. A limited number of other RRA tools were also used like trend analysis, seasonal analysis, sketch mapping etc. The issues and activities covered in the RRA is shown in Table 1.

Table 1. Selected RRA Issues for Lawachara NP, Specific Activities and Tools Used

Sl.	RRA Issues	Specific activities	Tools Used	Participants
1	Stakeholder Assessment	- Identification of settlements, resource users, local institutions and agencies and organization, community organizations etc and their roles and activities	HHs Interview, KI FGD GD Sketch mapping	Local HHs, Local school teacher, Doctor Community people (villagers, elites etc), Local community people, Local people
2	SH Demographic profile	- Settlement wise no. of HHs/population - HH occupation, education, forest use, land holding	Secondary Info HH Int., KI, GD, FGD Trend Analysis	Local union parishad HHs heads/members Community people School/College teachers & local public representatives
3	SH Economic Activities/ Livelihood Strategies and Human Capital Development	- HH primary and secondary income sources of HH - Richness/poverty - Unemployment and its seasonal trend - Credit and alternate income generating opportunities - Skill and skill development opportunities - Seasonal workload of male and female	HH Int. GD KI FGD Seasonal Calendar	HHs heads/members Teacher, retired officers, old people Public representative Local elite Community people Forest villagers
4	Gender Issues	- General impression on living standard, education and health status etc. - Participation in decision making (household and PA management)	HH Int. GD FGD KI,	HHs heads Women group Community people Local elites

		<ul style="list-style-type: none"> - Women mobility in the area - Access to IGA and credit etc 	Direct observation	RRA team members.
5	Behavior of local people	<ul style="list-style-type: none"> - Initial response of the local people and FD staff towards the project 	FGD GD	Local community FD staff
		<ul style="list-style-type: none"> - Sources of conflict and conflict resolution 	HH int.	HHs heads
6	Local Level Awareness	<ul style="list-style-type: none"> - Awareness and perceptions about resource degradation and conservation - Willingness for resource conservation - Awareness about the existence of nearby park/game reserve and reserved forest - Knowledge about forest and wildlife preservation acts 	HH int. GD FGD	HHs heads Local community FD staff
7	Resources /resource status	<ul style="list-style-type: none"> - Trend in changes in major resource bases - Endangered/extinct plant and animals - Causes for the decline in different resources 	Trend analysis, HH int, FGD GD KI	Local people/FD staff Local HHs heads FD staff Community people Local educated old,
8	Resource exploitation	<ul style="list-style-type: none"> - Major forest resources collected, including NTFPs: - Reasons and extent of exploitation of different forest resources - Dependency on the forest/forest products - Seasonal trend in resource exploitation - Future risks - Medicinal plant uses and reason for not using these 	HH int, FGD, GD KI, Trend analysis, seasonal calendar	Local HHs heads Public representatives & FD staff Community people Local educated old, Local elite and FD staff HHs interview and KI
9	Resource regeneration practices	<ul style="list-style-type: none"> - Plantation status in the locality - Problem with natural regeneration in the forest - Plant nursery - General land use pattern in the buffer zone - Major agricultural crop - Seasonal pattern in agriculture 	Secondary Information, FGD, GD, KI, Seasonal calendar	Secondary data from FD FD staff Community people Local elite, teacher Community people
10	Legal aspects	<ul style="list-style-type: none"> - Access to the forest by locals - Forest villagers and land use agreement - Conflict and negotiation with FD staff - Land encroachment/recovery - Law enforcement mechanisms in the PA - Illegal tree felling and forest cases 	FGD GD KI FGD KI	FD staff and forest villagers Local community and local govt. members Local elites FD staff, community people Teacher, ex-

				officers,
11	Power structure	<ul style="list-style-type: none"> - Local influential and their role, local hierarchy - Nature and sources of power and their domain of influence - Conflict and conflict resolution - Social cohesion and adhesion 	HH int, FGD, GD, KI	Local HHs heads Local community and local govt. Local community Local elites
12	Others	<ul style="list-style-type: none"> - Access to areas and settlements - NGO activities in the locality - Challenges for conservation - Local problems - Mobility in the area 	HH int, FGD, GD, KI	HHs heads Local community and local govt. Local people & FD staff Local elites

PRA issues and questions were developed by a 3-person team of experts on the basis of field experience and outcomes of the RRA exercise. During the PRA, tools like Venn diagramming, resource mapping, seasonal analysis, trend analysis, livelihood analysis etc., were used in addition to interviews, focus groups and more informal discussions. More than one tool was used to research any particular issue to allow the research teams to triangulate the information gathered. The issues and activities performed in the PRA are summarized in Table 2.

Table 2. PRA Issues, Specific Activities Performed and Tools Used In Lawachara NP

Sl.	Issues	Specific activities	Tools used	Participants
1	Forest make up dynamics	<ul style="list-style-type: none"> -observation on forest physiography and topography and forest make up -land use cover, resource exploitation and regeneration areas, animal distribution -changes in forest cover, thickness, vegetaion, settlements, animals and availability of resources 	Transect walk KI Resource mapping Secondary data, FGD,KI Trend analysis	PRA Team Local elite, FD staff FD staff and village headman, forest villagers. Local people and FD staff, forest villagers
2	Local governance system and community structure and functions	<ul style="list-style-type: none"> - Decision makers--- influential people - Local community organizations and institutions and their linkages - Local conflict and conflict resolution - Social cohesion and adhesion - Collective action 	Venn diagram Ven diagram Venn diagram FGD/GD	Community people Community As above As above and

		extraction		
7	Collection of trees as building materials	<ul style="list-style-type: none"> - Information on collector - purpose and reasons for collection - uses of the resource and extent of extraction - dependence on the extraction and marketing - conflict and negotiation with FD or other people over the extraction - alternate source for the collection of the resources - needs and expectation of the collector - impact on the forest and future risk for the collector 	FGD, Gdand KI	Community people, FD staff , , forest villagers, local public representative and elite
8	Bamboo and cane collection	<ul style="list-style-type: none"> - Information on collector - purpose and reasons for collection - uses of the resource and extent of extraction - dependence on the extraction and marketing - conflict and negotiation with FD or other people over the extraction - alternate source for the resources - needs and expectation of the collector - impact on the forest and future risk for the - seasonal changes and trend in abundance 	FGD, GD Seasonal calendar and trend analysis	Bamboo and cane collector, community, people and FD staff Bamboo collector and local people
9	Information on Forest villagers	<ul style="list-style-type: none"> - Distribution of forest villager's settlements - Registered and actual number of forest villagers - compliances to FD agreement - Present economic activities - Resources exploitation and dependence on forest resources - land encroachment by the forest villagers or by their dependant - relationship and conflict with FD - internal governance system - needs and expectation 	FGD Secondary data	Forest villagers and FD staff FDs villagers register
10	Betel leaf cultivation	<ul style="list-style-type: none"> - distribution of betel vine yards within and approximation of its number - historical perspective of flourishing the activity in the area - information on cultivator - ownership of land - dependence on the activity - Impact on the forest resources - Conflict with FD 	FGD GD GD	Betel leaf cultivator FD staff Local community
11	Land encroachment	<ul style="list-style-type: none"> - Historical perspective and trend 	Secondary data and trend	FDs encroacher

		<ul style="list-style-type: none"> - information on encroaches and reason for encroachment and what drives to undertake the activity - Legalization of process - Conflicts and negotiation process - Uses and transformation of encroached land - Local mechanisms/system or traditional practice for land encroachment 	analysis FGD and KI	register Encroacher Group and FD staff, local elite And community people
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Each PRA tool was used to collect information about more than one issue, as shown below:

Venn diagramming: local power structure, local community organizations, local institutions and agencies, local conflict and conflict resolution, family decision making, mobility of women & men, local NGO/CBOs

Seasonal calendar: fuelwood, bamboo and timber collection, unemployment, workload, accessibility to forest, transportation problem, brickfield/sawmill operation, forest patrol, agricultural activities, collection of building materials, hunting, vegetable collection, damages by elephant, sand collection, sungrass extraction.

Trend analysis: forest cover, forest thickness, tall trees, herbs and shrubs, forest use, unemployment, local solvency, land encroachment, settlement/population solvency/income, livelihood expenditure, literacy, unemployment, use of forest for income, use of forest for HH needs, transportation and mobility, homestead plantation, food scarcity, credit and IGA, occupation, damages by elephant, wildlife, hunting, illegal tree felling, fuel wood collection, bamboo and cane collection, fruit bearing trees in the wild, livestock, turtles and tortoises, agricultural activities, medicinal plants.

Ranking and scoring: local problem ranking, wealth ranking, and livelihood analysis

Transect walk: Soil, vegetation, land use, elevation, crops, wildlife, human activities etc

Forest resource mapping: forest land use cover, resource zones, resource exploitation zones, animal distribution, settlements.

3.2 Fieldwork Preparation

3.2.1. Selection of RRA and PRA Sites

On the basis of information provided by local FD staff and the field implementing NGO (RDRS), various sample locations were selected for the purpose of information collection. These locations are hence called RRA and PRA spots. The selection of locations was based on a number of selection criteria. The selection process was completed during planning workshop. While the number of sites visited during the RRA was limited, the team focused on gaining an overview of issues covering the whole of the Wildlife Sanctuary area. However, because of the size of the Wildlife Sanctuary, it became clear there would have to be a trade off between the size of the study area and the depth and quality of the information collected. Therefore, a decision was made that the PRA would focus on only issues and stakeholders relating to the management of forest within the Lawachara Reserved Forest area. A list of the selected RRA and PRA spots for Lawachara NP is given in Tables 3 and 4.

Table 3. List of Selected RRA Spots & Schedule for Visits

Date	Name of spots (villages) visited		Remarks
	Villages	Location	
08/05/2004	Orientation and briefing session on RRA field exercise at Tea Board		Team arrived Srimangal on 07 May, 2004. Stayed at Tea board rest house
09/05/2004	Magurchara Punji and Lawachara Punji	Villages inside of PA.	Both villagers are of Khasia community and appointment were made prior to visits
10/05/2004	Bagmara and Bade obahata village	Villages adjacent to and outside of PA, to the north eastern side of the PA	One team interviewed at Bagmara, another team went to Badeobahata
11/05/2004	Dolubari, Tipra para tribal village and Radahanagar	Villages adjacent to PA, to the south west of the PA	One team went to Tipra para and the other to Dolubari. Then both teams went to Radhanagar
12/05/2004	Baligaon village and FGD with FD staff at Lawachara Rest house	Village outside of PA, to the south east of PA	At evening another, another FGD with UP chairman and members at Kamalganj

Table 4. PRA Schedule, Spots and PRA Activities in Lawachara NP.

Date	Beat	Village/ Location	Performed activities	Remarks
23/6/04	Lawachara	Dolubari	GD (2) HH interview (3) Social Mapping	GD with Tribal community to know illegal timber felling, fuel wood collection, forest dynamics, and problem-ranking etc. and HH interview with female participants.
24/6/04		Magurchara punji	FGD(1), KI(1), HH interview(4) Social Mapping	FGD with forest villagers, KI with Headman, HH inter view with female participants.
		Lawachara punji	FGD (1), KI (1), HH interview (4), Social Mapping	FGD with Forest villagers, KI with Headman (minister), HH inter view with female participants.
25/6/04		Biranpur slum	FGD (1) KI (1) HH interview (4)	FGD with female fuel wood collectors, KI with a previous illegal timber feller
		Jackchara TE slum	GD (1) Social Mapping	GD with TE workers to know about illegal tree felling and fuel wood collection
26/6/04		Lawachara forest	Forest Resource Mapping, Transect work	Discussion, Resource Mapping, Transect work with FD staff.
27/6/04		Bagmara	FGD (1), GD (1), HH interview (5),	FGD with female fuel wood collectors, GD with community group, HH interview with female participant
		Baligaon	GD (1), KI (1),	GD with community group, KI with present up member,
28/6/04		Rashtila	FGD (2), HH interview (4)	FGD with illegal tree feller, fuel Wood collectors, HH interview with female participant
		Chatakchara	GD (1)	GD with community group

3.2.2 Formation of RRA and PRA Field Teams

The RRA field teams were formed with representatives from NACOM, RDRS and FD local staff, having biological and sociological background. The teams make up for the RRA and PRA field exercises are provided in the table 5 and 6. During RRA two separate RRA field teams were formed, each team consisting of 4-5 members. And during PRA, three separate PRA field teams were formed, each team consisting of 2 members. The teams worked simultaneously in the field, but at different locations.

Table 5. RRA Team for Lawachara NP

Team 1		Team 2	
Name	Duties/Organization	Name	Duties/Organization
Mr. Dhruva Kanta Kundu	Team Leader, NACOM	Mr. Shiba Prasad Kar	Team Leader, NACOM
Mr. Raihanul Islam	RDRS	Mr. Md. Abdul Jalil	RDRS
Mrs. Hellen Rahman	Report Writing, NACOM	Mrs. Lutfun Nahar	RDRS
Mr. Haresul Islam	RDRS	Mr. Golam Mostafa Dewan	FD
Mr. Sobhan	NACOM	-	-

Table 6. PRA Team for Lawachara NP

Team 1		Team 2		Team 3	
Name	Duties/Organization	Name	Duties/Organization	Name	Duties/Organization
Mr. Dhruva Kanta Kundu	Team Leading and field exercise with all teams, NACOM	Mr. Haresul Islam	Coordinating all teams, RDRS	Mr. A. Sobahan	Social Mapping GD, FGD with female group NACOM
Mr Raihanul Islam	Trend analysis, Transect work, RDRS	Mr. Md. Abdul Jalil & Mr. Ataur Rahman	Conduct GD, FGD, KI with different SH , RDRS	Mrs. Lutfun Nahar	Gender issues, (HHs interview, formats fill up with female group) RDRS
MA Mannan	Technical Personnel, NACOM	Kate Studd	Technical Personnel, NACOM	Kate Studd	Technical Personnel, NACOM

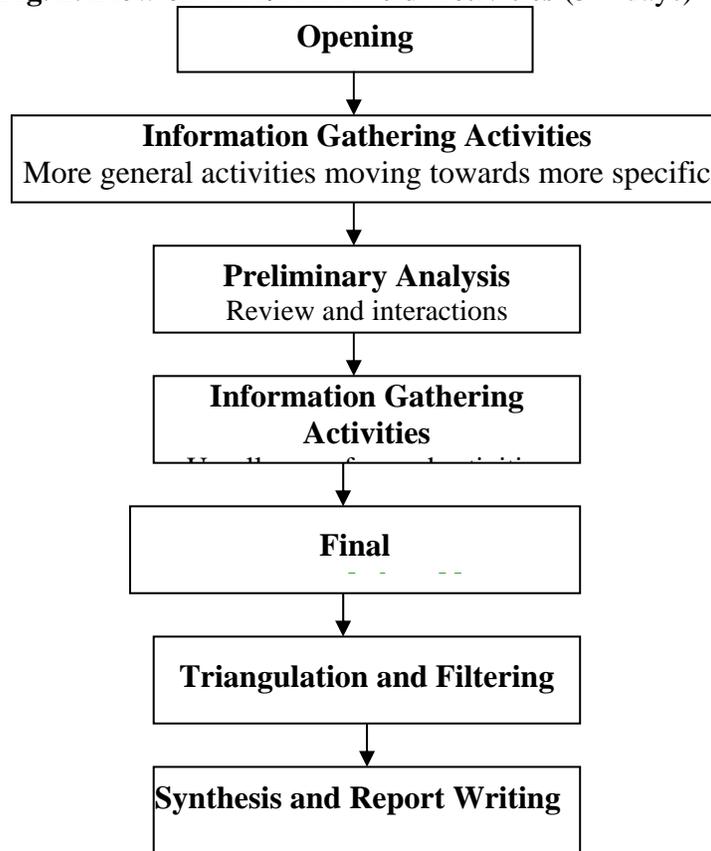
The RRA field exercise was conducted between 16th and 19th May 2004, and the PRA exercise between 29th June and 4th July 2004. The detailed time schedule for the field activities are provided in Tables 3 and 4 respectively.

3.3 Field Implementation Strategies

3.3.1. Organization of the RRA and PRA field work

The organization of field exercises involved a series of logical steps. The field teams always made efforts to adhere to those steps. The flow of activities is shown in the following flow chart.

Fig. 2. Flow of RRA/PRA Field Activities (3-4 days)



During RRA exercise, a total of 20 HHs interviews, 4 group interviews, 5 key informant interviews, and 2 Focus group discussions (one with forest villagers of Khasia punji and another with FD staff lead by DFO, Sylhet) were conducted. The other RRA tools were applied during above mentioned interviews and discussions. Similarly, during PRA a total of HH 24 interviews, 6 Group interviews and 6 focus group discussions, 4 key informant interviews were conducted. This is summarized in Table-7.

Table 7. Summary of performed activities in Lawachara NP during PRA

Appraisal	Village/ Settlement covered	FGD	GD	KI	HH Interview	Transect	Resource and social mapping
PRA	9	6	6	4	24	1	5
RRA	8	2	4	5	20	-	1

The other PRA tools were used either during the above exercise or in separate exercises dedicated for this purpose. Further details on the implementation of the fieldwork methods used are provided below.

3.3.2 *Household (HH) interview*

- Individual/HH interviews were conducted with randomly selected interviewees, typically visiting one household at each stop.
- Both male and female respondents were considered.
- Typical HH interview last for about 1 hr – 1:30 hr
- The interviewees were not treated as respondents to a questionnaire, but active participants in an unstructured/semi-structured interview. A checklist of issues was used as a basis for questions, not necessarily addressing all questions in each interview and sometimes departing from basic questions to pursue interesting, unexpected or new information, relevant to the project and situation.

3.3.3 *Key informant (KI) interview*

Key informants are local people who have extensive knowledge on the local environment, situation and events. The purpose of this interview was to utilize them in collecting information from them relevant to the project needs.

- KI interview was by prior appointment. A local guide helped in making appointment with the KI. The interview was taken by paying visit to Key informant HH or by inviting him to the team base
- A preliminary discussion with local FD staff, NSP field partner staff and interview of local people gave adequate clue for selecting KI. Preferably local schoolteachers, retired officials, local elites or local public representatives would be selected as the KI.
- A typical KI interview lasted for about 1.5 hrs. The entire team took part in the interview taking session
- As with HH interview, a similar checklist of questions was used for the purpose of KI interview.

3.3.4 *Group interview*

- The purpose of the planned Group Interviews was to collect some information on the locality and local situation based on the consensus of the local people.

- Interviews were conducted at places, preferably at local tea stalls, road junctions and other local community places, where local people gathered spontaneously. No formal invitation to the local people was made for participating at the group interview.
- Mapping, seasonalities, ranking and scoring exercises, whenever possible, were done in such group interviews.
- Typically a group interview lasted for about 1-1.5 hrs
- At least one group interview was held each day
- This was basically an unstructured interview and a checklist of issues was used as a basis for questions

3.3.5 Focus Group Discussion

Focus Group Discussions were carried out with different professional groups, resource user groups, local public and government representatives with a view to collect information on specific areas.

- During PRA, FGDs were principally conducted with different stakeholder groups, mainly with local FD staff, forest villagers, local public representatives etc. other professional groups, like fuelwood collector, sawmill owner, etc.
- The FGDs were conducted by invitation and a local guide was used to invite the people.
- Senior project personnel /or senior personnel from the partner NGO /and or senior FD Official and/or experts were usually present in the FGD sessions.

3.3.6 Other PRA tools

Other PRA tools were either incorporated into the interview and discussion processes outlined above or carried out through separate exercises dedicated for this purpose. Resource mapping, Venn diagramming, seasonal calendaring, trend analysis, ranking, scoring etc. were done usually in separate sessions dedicated to these activities. However, sometimes, these exercises were also performed during group, focus group and key informant interviews. The participants were either invited local people or local people instantly gathered at places.

3.3.7 Direct Observation

The team while walking through the project area, talked to local people, discussed many things and made observation on the resources, people's behavior and their activities, etc. These observations and informal discussions helped to triangulate collected information and generate new questions for interview or discussions.

3.3.8 Secondary Information Collection

Some demographic data was collected from the relevant local Union Parishad sources. The report on secondary information collection on the WS prepared under NSP was also consulted, whenever necessary.

3.3.9. Reflection and Analysis

After each day of fieldwork, the team sat together for about 1 ½ hours for team interaction and triangulation. The activities performed during the session included:

- Reviewed information gathered that day and made summary of the information, triangulated whenever necessary. The person designated for report writing took note of discussions
- Planned the next day's activities
- Methodological review

3.3.10 Triangulation and filtering

A single information may be collected by using several tools or from several sources. The team cross-checked their results and accepted the most logical analysis. During these feedback sessions and subsequent data analysis, team members were required to use their own judgment to ensure the most reliable analysis of the situation was presented.

3.4 Limitations of the Fieldwork

The main limitation of the field work was that it took place during the rainy season. This made working conditions difficult, and in particular meant that the traditional PRA approach of participants working together to complete large scale matrices on the ground was impossible, and researchers recorded information in note form and by completing matrices themselves either during the group discussion or afterwards. Therefore this work does not match the usual

requirements of a PRA where information is analyzed and owned by the participants. Conditions were particularly constraining for the PRA field team in Lawachara where flooding and bad roads meant access to remote areas was really difficult. The difficulty of access and the time required to travel to the actual sites, meant that time actually collecting data was often limited to 4 or 5 hours a day. These difficult conditions also meant that accessing the forests to undertake transect walks, was also frequently impossible due to bad weather and impassable tracks.

One problem that was particularly noticed in discussions with stakeholders in the tea garden around the NP area that it was felt that people were not being honest and open with the project team – almost as if there had been some kind of collective decision that only certain representatives from the community would speak. This has introduced a potential bias into the data collected. The reasons for the withholding of this information, and who was behind it, are, at present, unclear. On the other hand in the tea garden, most of the respondent was employee of the garden and did not feel comfortable in responding to the queries regarding their stake and resource collection from the NP. They and also the FD staff were in a defensive mood and a kind of fear, it had influenced their answers. It was also expressed by some that they had received the job after a long ordeal and would not take the chance on being too open with honest answers as it might bring negative influence in their employment situation and if the worst happens, they might even lose their jobs. Especially the tea estate inhabitants were not friendly and also asked to take permission from their authority.

4. OUTCOMES

4.1 Status and Trend in the Forest and Forest Resources

Except a small area near BFRI establishment, natural forest is almost absent in Lawachara NP. In fact, the natural forest has been altered by clear felling and subsequent long- and short rotational plantation practices. However, in some of the oldest long-rotation plantations, the vegetation cover has taken on the structure of a secondary natural forest with the re-growth of creepers and naturally occurring trees and undergrowth species. Secondary data collected on the park show that there are about 167 plants, 4 species of amphibians, 6 species of reptiles, 246 species of birds, 20 species of mammals in the park (NACOM 2003). The major timber trees are represented by Jarul, Chapalish, Shegun, Lohakath, Kadam, Pitraj, Chandan, Kanthal, Supari, Litches, Agar, Dhuna, Garjan, Dewa, Awal, Gamar, Jam, Nageswar, Sundhi, Bohera, Tairol, Chloroform tree. Among exotic short-rotational trees, Acacia hybrid, Mangium, Malacanna, Eucalyptus, Pine, Akashmoni, Rubber, Jhau are common in plantation areas. There are many types of bamboo such as *Jai bansh*, *Muli bansh* and various canes like *Jali bet*, *Golla bet*. Besides, there are many types of climbers and vines, herbs and shrubs.

Fig. 3 shows the distribution of various plantations within the Lawachara NP. The old plantations have tall trees and regrowth of undergrowth, and some of them are comparatively thick. The tall and thick forests are located nearby the railway line and FD offices. The long rotational tall trees are dominated by chapalish, jarul, treak, gamar, garjan etc. The short-rotational and new plantations are located near the peripheral areas. The short-rotational timber plantations are mainly planted with exotic trees, like akashmoni, mangium, eucalyptus, pine, jhau. There are also plots of rubber and agar plantations. Bamboo and cane have been planted in many plots covering an extensive area. There are two agricultural plots belonging to forest villagers of Lawachara and Magurchara punji. There are also two areas for betel leaf cultivation with old indigenous trees. There are also three encroached areas located at the northeast corner of park and some areas have been converted to homesteads.

Lawachara National Park Land Use Cover Map
(not to scale)

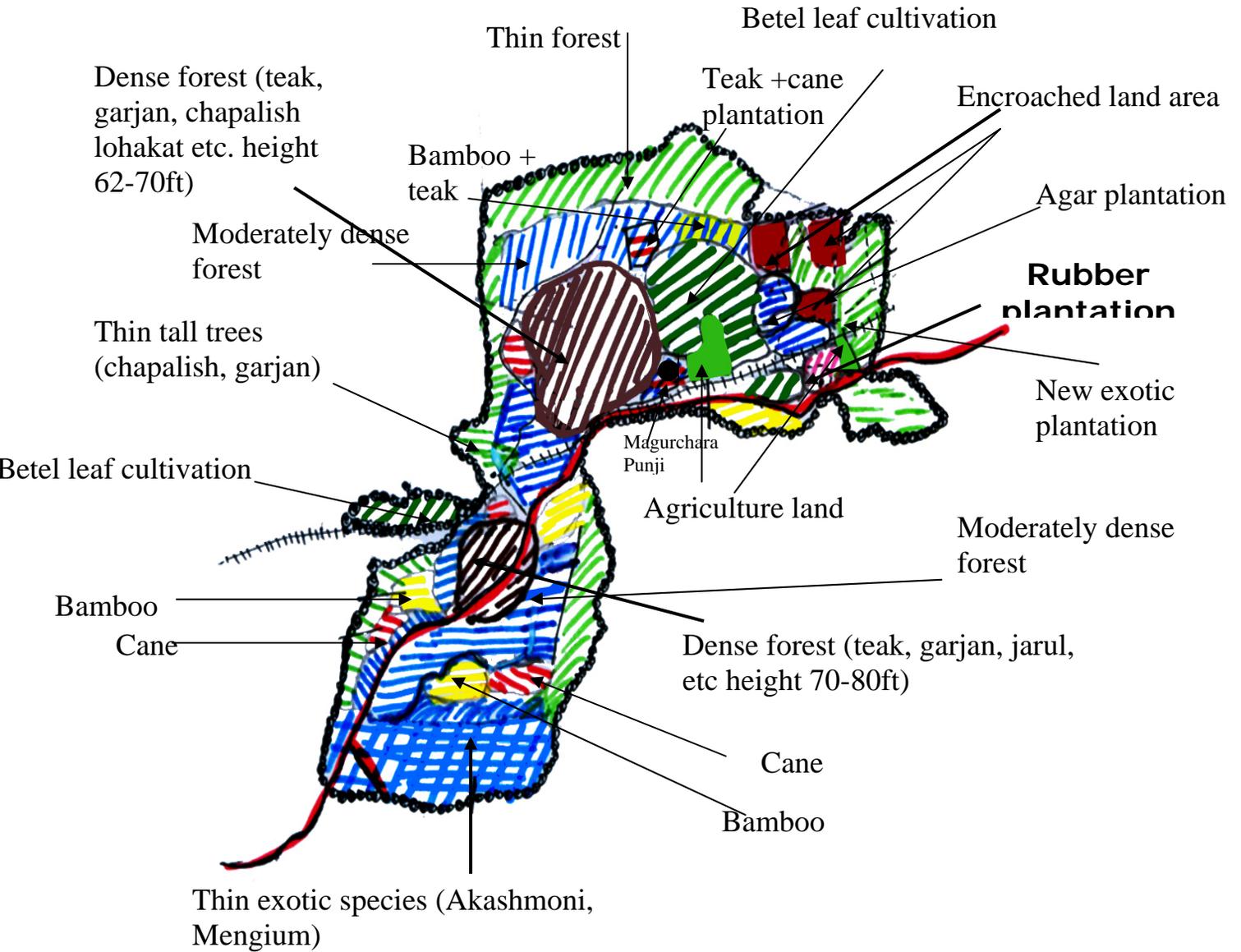


Fig. 3

Lawachara National Park :Spatial Distribution of Major Wildlife
(not to scale)

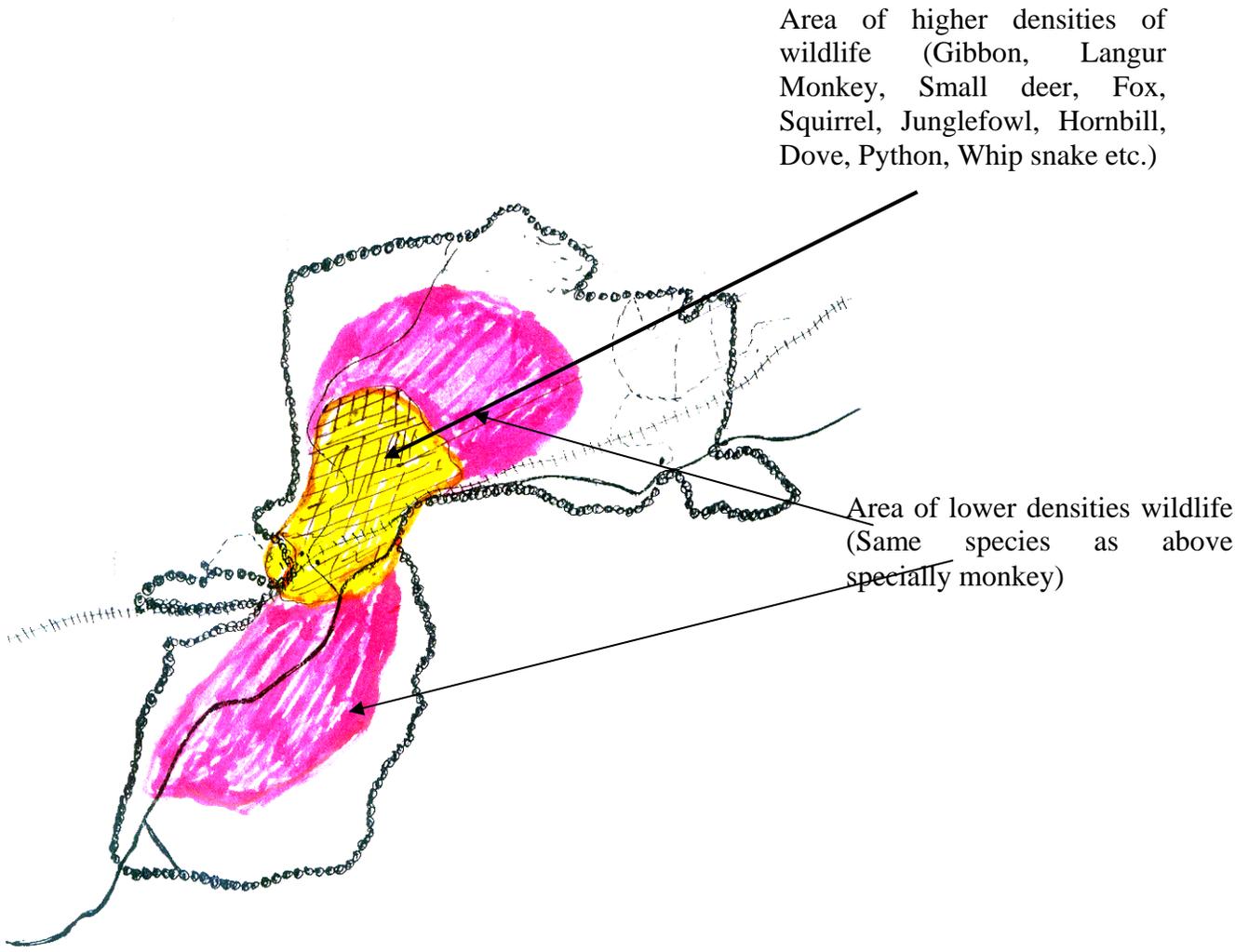


Fig. 4

Fig. 4 shows the areas where the major wildlife is concentrated. Animals like gibbon, langur, monkeys, small deer, fox, squirrel, python etc. are concentrated in the thick long-rotational planted areas. They are also sparsely distributed in the thin old plantation areas. The new plantations of exotic trees are very poor in its wildlife. The monkeys are also found in the peripheral areas of the park.

Table 8 shows the changes in forest make up, forest resources and activities related to resource regeneration and exploitation. There has been a little change in forest cover, compared to pre-liberation period, the forest cover has decreased by only about 25%. However, forest thickness and abundance of tall trees have decreased by about 60%. The abundance of herbs and shrubs has decreased about 60% and sungrass has also decreased by about 80% due to clearing and claiming of land for plantations. Except birds, the abundance of major wildlife has also decreased by about 80%. The abundance of medicinal plants has also decreased by 60%. The abundance of bamboo and cane has increased due to plantations, but that of indigenous and wild bamboo species have decreased.

Wide spread tree felling occurred during liberation and immediate after liberation period. Then the trend slowed down remarkably during 80's and early 90's and again increased after 90's and the activity further increased from 1999 and has declined around 2003.

Many wildlife species have become extinct by now, including asiatic black bear, gaur, francolins (titir), leopard (chita-bagh), sambar deer etc. Locally endangered animals include barking deer, hoolock gibbon, langur, hornbill, parrot, wild fowl, porcupine, doves, turtles (2 species), whip snake (lau-doga) etc. Some of the plant trees also have become endangered like *Kumbir pata* which was extensively used for preparing *bidi* (leaf cigarette).

Table 8. Status and Trend in Changes of Forest Resources in Lawachara NP

Issue	Pre-1971	15 years ago	Present	Cause of changes	Future Risk
Forest Cover	00000	0000	0000	Clear felling in the past, land encroachment	High risk
Forest Thickness	00000	000	00	Legal felling in the past, illegal tree felling, burning and weeding practice for plantation, fuelwood collection etc.	High
Tall trees	00000	000	00	Legal feeling in the past, selective illegal felling	High
Herbs and Shrubs	00000	000	00	Burning, wedding, new plantations, plantation practices, fuelwood collection,	Medium
Wildlife	00000	000	0	Loss of habitat, food scarcity, lack of safety, hunting in the past, disturbances by visitors	High
Hunting	00000	000	0	Prohibition, and unavailability of game animals and birds	less
Illegal Tree Felling	0	000	00000	Local poverty and unemployment, excessive forest cases, greed of some FD local staff for extra income	High
Fuelwood collection	00	000	00000	Local poverty, HH needs and little alternate source for fuelwood, increased population	Moderate
Land Encroachment	0	0	-	Increased population, migration from other areas	less
Bamboo	00	0000	000	No permit now although permits were given previously, less bamboo stock	Medium
Cane	000	0000	00000	Plantation by FD	less
Fruit bearing trees in the wild	00000	000	00	Felling, natural death, fuelwood collection, absence of fruit trees in new plantations	Medium
Livestock	0000	000	000	Less grazing area, lack of fodder	High
Turtles and tortoises	-	-	-	-	-
Agricultural activities	000	0000	0000	Cultivation of various agricultural species, new variety cultivation	Less
Betel Leaf cultivation	00000	0000	000	various diseases, less fertility	Medium
Sun grass	00000	000	0	Over exploitation, land reclaimed for plantation,	Moderate

				plantation practice, over exploitation	
Medicinal plants	00000	000	00	Habitat destruction, land clearing in the way of plantation, fuelwood collection, grazing	Medium
Vegetable	00000	000	00	-do-	Medium
Fodder	00000	000	0	-do-	Medium
Honey	00000	00	0	Clear felling of trees, decrease in fruit trees, and monoculture with exotic plant species	High

4.2 Settlements in and around Lawachara NP and its level of stakes with the NP

A total of 26 villages having varied degree of stakes with the forest have been identified. Fig. 5 shows the location of the identified villages in and around the park. In Lawachara NP, only 2 villages (inhabited by Khasia community) are located inside, 4 are just at the outskirts of the forest and others within one to three km away. Table 9 provides information on the village HH number, its location and level of stakes with forest. Including 6 villages for which data was unavailable, the total number of households in villages surrounding the park is approximately 4000. Of the identified villages, 12 (Magurchara punji, Lawachara punji, Bagmara, Baligaon, Dolubari, Bishamoni, Arshidron, Dilvernagar, Birainpur slum, Lamua, Kalapur and kakiabazaar) have major stakes, as more people from these villages extract various resources from the forest, 4 (Verachara, Saraibari, Noagaon and Tilagaon) have medium to major level of stakes, 6 (Rashtila, Chatakchara, Radhanagar, Garobosti, Mazerchara and Sirajnagar) have medium stake, 3 (Langurpar, Ballarapr and Bongaon) have minor stakes and the rest have very negligible stakes with the forest.

Fig. 5 shows the human pressure on the forest that are exerted from different settlements. People from Birainpur, Bagmara, Dolubari, Lawachara and Magurchara punji mostly involved with fuelwood collection, while people from Bagmara, Radhanagar, Dilvernagar, Ashirdron, Bishamoni, Rashtila, Baligaon, Verachara, Chatakchara, Lamua, Kakiabazaar, Sirajnagar are mainly involved with illegal tree felling. Of the villages, HHs of the inside villages (Magurchara and Lawachara punji) and Dolubari mostly depend on the forest for their every day HH needs.

There are four tea estates bordering the NP namely Fulbari, Khaichara, Jakchara, Gilachara, tea estates. Besides, there are some more tea estates near to NP, namely Bharaura tea garden and Noorjahan tea estate etc. Almost all the bordering tea estates have substantial number of unemployed inhabitants who enter into the NP and thus have stake with the NP. Of them, unemployed rate among the inhabitants of Fulbari, Khaichara, Jakchara tea estates are high and they are mainly involved with fuel wood collection and illegal extraction of timber. Sometimes, the illegal feller uses Bharaura, Jakchara and Gilachara tea estates as routes for transporting illegally felled trees to Srimangal.

Table 9. Information on Villages Having Stakes with Lawachara NP

Sl. No.	Name of village	HH Nos.	Community type	Location	Level of stake
1.	Magurchara punji	41	Khasia tribe	Inside	Major
2.	Lawachara punji	23	Khasia tribe	Inside	Major
3.	Bagmara	300	Migrant and local-Bangali	Adjacent to NP	Major
4.	Baligaon	300	Local	Near to NP, beside HEED	Major
5.	Rashtila	171	Local and migrant	Northeast corner of NP	Medium
6.	Chatakchara	61	Local and migrant	Northeast corner of NP	Medium
7.	Verachara	118	Local	Northeast corner of NP	Medium to major
8.	Saraibari	190	Local	North of Verachara	Medium to major
9.	Langurpar	92	Local	Southeast to NP	Minor
10.	Ballarpar	61	Local	Southeast corner of NP	Minor
11.	Noagaon	150	Local	Southeast to NP	Medium to major
12.	Tilagaon	80	Local	Near to Nosgaon	Medium to major
13.	Mazerchara	-	-	South side of NP	Medium
14.	Dolubari/ Doluchara	84 (72+12)	Tipra and bangali	Adjacent	Major
15.	Bishamoni	-	-	South west to the NP	Major
16.	Ashirdron (Begun bari)	-	-	South west to the NP	Major
17.	Dilvernagar	-	-	South west to the NP	Major
18.	Radhanagar	325	Local	Southwest of NP	Medium
19.	Bhasanigaon		Local	Southwest corner of NP	Negligible
20.	Bongaon	47	Local –muslim and Hindu	Northeast corner of NP	Minor
21.	Birainpur slum	300	Migrant-homeless	West to NP (near Srimongal)	Major
22.	Lamua	349	Local	North-west corner of NP	Major
23.	Kalapur	460	Local	do	Major
24.	Kakia bazaar	-	Local	do	Major
25.	Sirajnagar	313	Local	do	Medium
26.	Garo bosti	-	Garo people	do	Medium

Lawachara National Park: Human Settlements and Pressures on forest from neighboring villages
(not to scale)

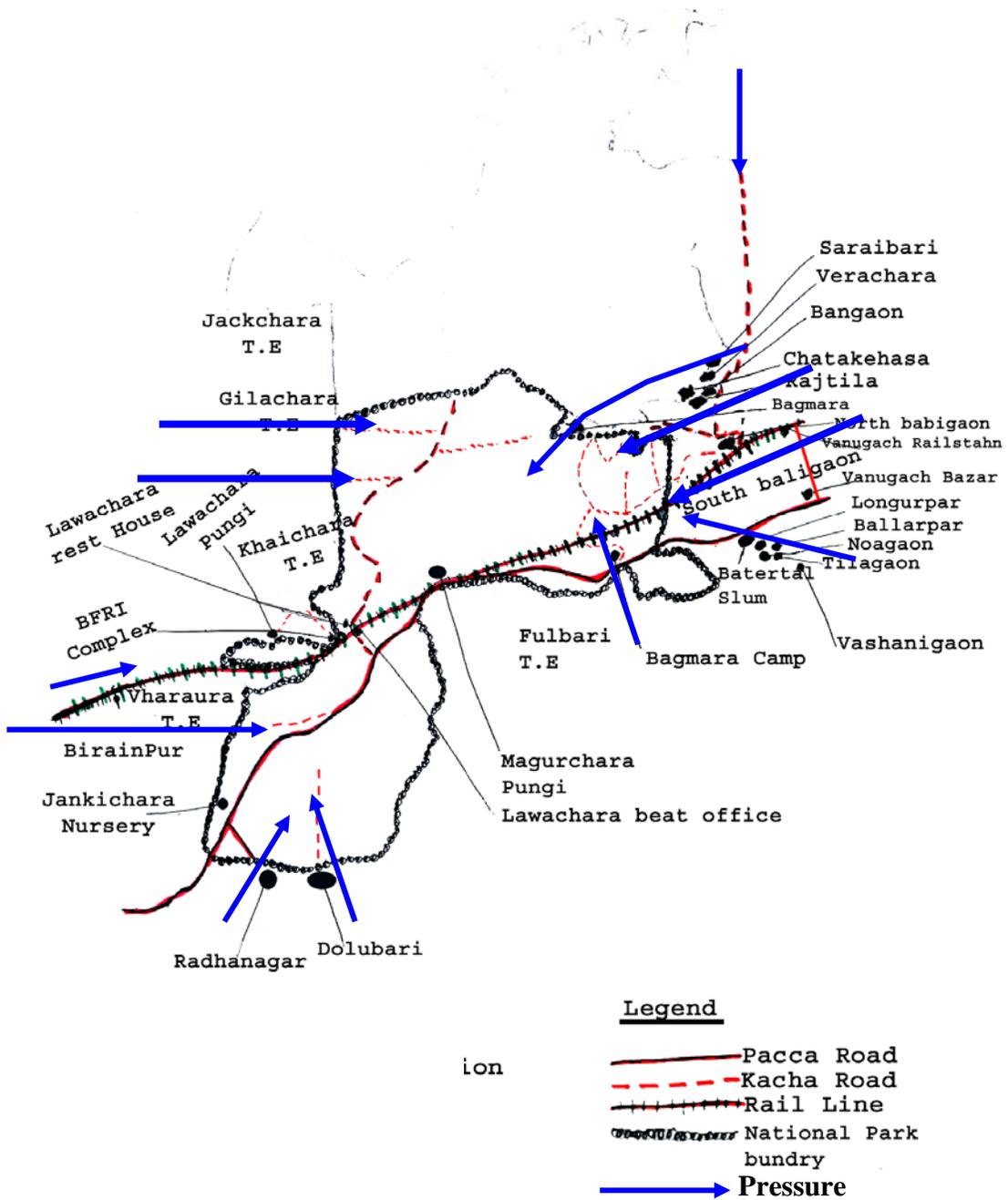


Fig. 5

4.3 Stakeholder Assessment

At least 3 categories of stakeholder could be recognized in Lawachara NP, viz.

- *Primary stakeholder*- involved with direct extraction of resources from the forest or their activities directly affect the forest
- *Secondary stakeholders* – indirectly linked with the forest, involved with trading or exert influences on the forest
- *Institutional stakeholder*- involved with developmental activities and administration of the adjoining areas

4.3.1 Primary stakeholders

Table 10 provides information on the stakeholder type & category, stakeholder description, their activities, dependency, relative level of stakes with the forest and their influence. A total of 19 stakeholder groups (excluded institutional SH) have been identified in the NP area, of them 15 are primary stakeholders and are involved directly in resource extraction and forest conversion activities, and the rest are secondary stakeholders. Of them, 3 SH groups (Fuelwood collector, Illegal timber feller, Betel leaf cultivator) have major stakes with the forest as they have major use of forest, while 6 have medium stakes (Bamboo collector, House building mat. collector, Land encroacher, Timber trader, Sawmill owners, Furniture shop owners) and the rest have minor stakes with the forest.

Most of the primary stakeholders are poor people from the inside forest villages and as well as from adjacent villages of the forest. Women and children are mainly involved with fuelwood and vegetable collection. Sometimes old and unemployed adults also collect fuelwood. Illegal felling of timber trees are carried out by adult people and usually they are poor. Usually, the rich and middle class people are not involved with direct extraction of forest resources. However, they buy many forest resources, including fuelwood and bamboo, and other products from the primary stakeholders.

Fig.6 shows the relative level of stakes of different villages with Lawachara NP based on resource extraction. Table 18 shows the village wise distributions of fuelwood collectors, illegal tree fellers associated with Lawachara NP, respectively. Almost all HHs of the inside villages (Forest villages) are involved with resource extraction, mainly for meeting their HH needs. Other than these two villages, most resource extractor come from Bagmara, Baligaon, Biarinpur, Dolubari and some other adjoining villages.

The detail information on the important primary stakeholders are given in Section 4.4.4

Table 10. Information on the Stakeholders of Lawachara National Park (Based On Resource Extraction and Direct Activities in the Forest)

Sl. No	SH name	SH type	SH description	SH activities	Dependency	Level of stake	Remarks
1	Fuelwood collector	Primary	Local poor people Forest villagers Tea garden labor (mainly women and children)	Collect dead trees, small trees, non-timber trees, young trees of timber trees. Cut, chop, bundle and carry away	Meet HH needs Livelihood of many families entirely depend on it Some sell for added income	Major	Mainly from Bagmara, Biarinpur, About 200-250 people enter into the forest for collecting fuelwood
2	Illegal timber feller	Primary	Adult male from adjacent villages Many of them unemployed and mostly poor	Illegal felling of valued timber trees selectively	Many HHs entirely dependent on this activity Many depend partly on it for their livelihood	Major	They are mainly organized gangs. Some influential people are also behind it Mainly from villages
3	Bamboo collector	Primary	Forest villagers Local poor people	Cut both naturally occurring bamboo and planted bamboo	Meet HH needs Use for mat and basket making Some HH sell for added income	medium	About 20-25 people everyday enter into the forest
4	House building mat. collector	Primary	Forest villagers-main Local poor and middle class people from adjacent settlements	Collect small trees both valued and less valued timber, vines and other plant materials (excludes sungrass)	Meet HH needs Some sell at local market for added income	medium	All forest villagers and most people from adjacent villagers

Sl. No	SH name	SH type	SH description	SH activities	Dependency	Level of stake	Remarks
5	Vegetable collector	Primary	Forest villagers Some por people from adjacent villages	Collect dheki shak,, kalar thor, kachu, kachur lati, , palng shak, dumur, manthana (bamboo shoot) etc.	Forest villagers partly dependent	Minor	Fuelwood collector sometimes coollect vegetable Tribal people collect bamboo shoot
6	Honey collector	Primary	General people	When comb encountered collect honey	Not dependent	negligible	Presently, honey is seldom available
7	Sungrass collector	Primary	Forest villagers, local poor people	Collect sungrasses as house building mat.		Minor	
8	Land encroacher	Direct /primary	Mostly the migrant people of Bagmara village	Encroached land, converted to homestead, agriculture land etc. About 73 HHs on the land, agric. activities in about 10 ha area	Become established	Medium	Presently no encroachment is taking place now Once recovered and again taken back
9	Betel leaf cultivator	Direct / Primary	Forest villagers	Grow betel leaf on FD allocated land, clear undergrowth, prune trees	Major, sometimes only income source	Major	Done in two areas near Magrchara and Lawachara punji
10	Fodder collector	Primary	Mostly cowboys and poor people	Collect grasses of different grass species for feeding livestock	Not dependent	Negligible	Some people graze livestock and disturb forest regeneration
11	Agic. farmer	Direct/ primary	Local people, encroacher Forest villager	Cultivate land around the NP	Not dependent	Negligible	
12	Visitors	Direct	People form different parts of the	Walking across the forest, litter throwing, causing	Not dependent	Minor	Unplanned tourism

Sl. No	SH name	SH type	SH description	SH activities	Dependency	Level of stake	Remarks
			country, including scientists	disturbances to wildlife			
13	Bark collector	Primary	Some local people	Extract bark from certain trees for use ... and sell it	Not dependent	Negligible	
14	Hunter/trapper	Primary	Some local people Forest villagers	Kill, trap jungle fowl, pigs, occasionally small deer and monkeys for HH consumption	Not dependent	Minor presently	
15	Fruit collector	Primary	Local poor people, mostly forest villagers	Collect vegetables like kachu, palong, bamboo shoot.	Not dependent. Forest villagers are partly dependent	Minor	Fuelwood collectors collect vegetable while they collect fuelwood
16	Timber trader	Secondary	Influential people from locality and from outside of the area, usually rich	Buy timber from illegal feller and mix with legal timber and make arrangement for its transportation	Not dependent, results from greediness	Medium	Helps illegal feller
17	Sawmill owner	Secondary	Influential, but outside of the Lawachara area	Usually saw timber of local people or from clear felling auctioneers	Not dependent	Medium	Help the illegal feller
18	Brickfield owner	Secondary	Influential people from outside settlements	Use some fuel wood for initiating fire. They get it from local collector	Not dependent	minor	
19	Furniture shop owner	Secondary	Business men from the locality and outside of the locality	Use illegal timber with legal timber. Encourages illegal timber feller to carry out the activity.	Not dependent	Medium	

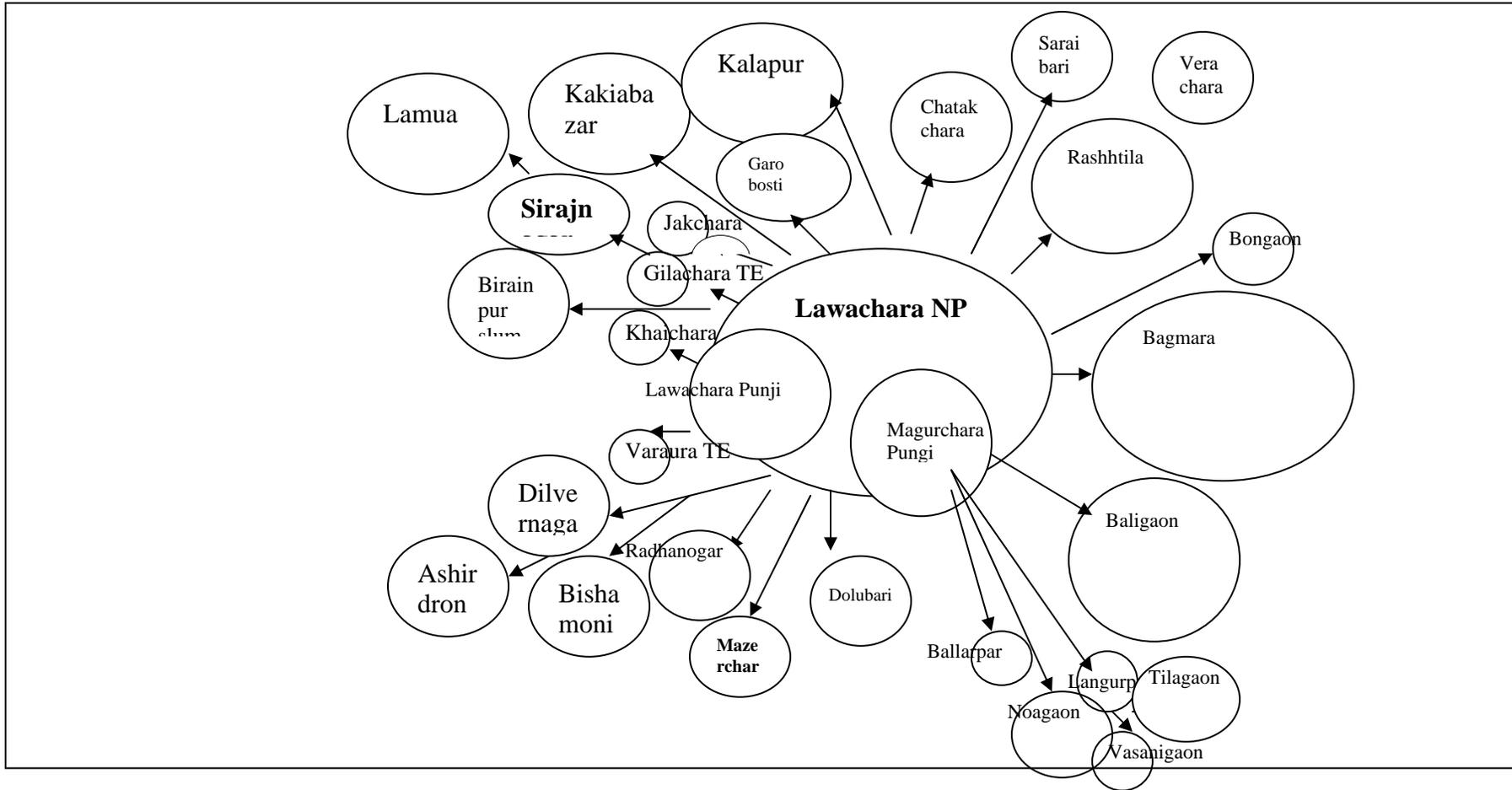


Fig. 6. Relative level of stakes of different villages with Lawachara NP based on resource extraction

4.3.2. Secondary Stakeholders

A total of 4 secondary SH groups have been identified. They are not directly involved with forest resource extraction from the NP but are linked either with its process, trading and utilization. A brief description those stakeholders and their activities are given below:.

4.3.2.1 Timber traders (Mohalders)

There are about 10-12 persons in Srimangal and 15-20 persons at Bhanugach Bazaar who are involved with timber trading. They usually have legal license for timber trading, to bid in the FD auctions in different forest areas. However, majority of them have linkages with illegal timber feller/syndicates. As alleged, they usually buy the illegal timber at a very cheap rate (250-300 taka/ cft) and mix those with legal timber that are bought at a higher rate (500-600 taka/cft) through auctions and transport those other places, such as Moulavibazaar, Sylhet, Sunamganj, Akhaura, Brahmanbaria, Dhaka etc. They have strong linkage with police, sawmill owners and sometimes with FD and furniture shop owners (Fig. 7).

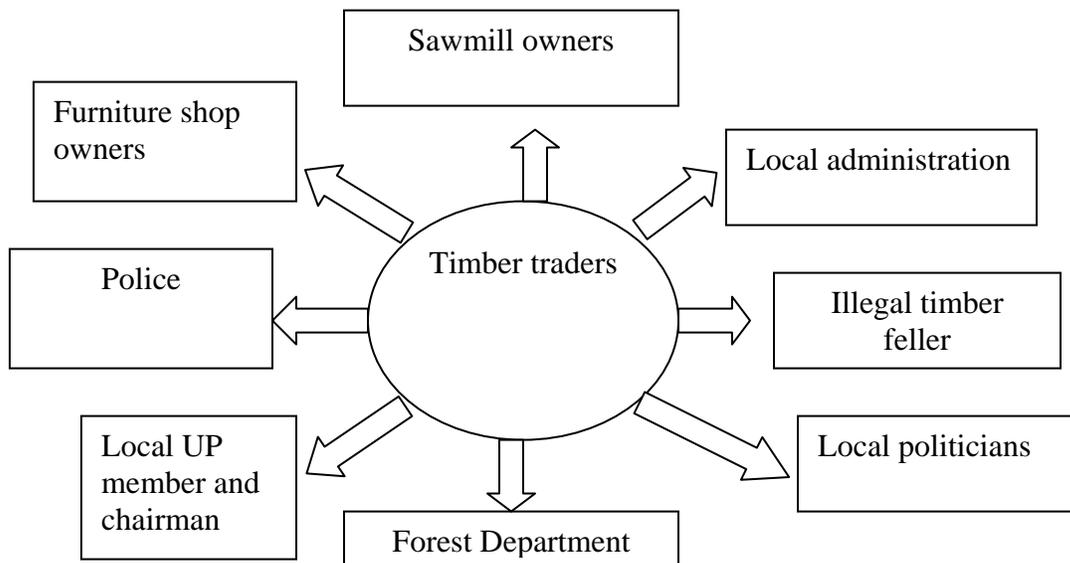


Fig.7. Linkages of different stakeholders with timber traders

4.3.2.2 Sawmill owners

There are 9 sawmills in Kamalganj area, mostly in Bhanugach Bazaar and about 12 sawmills in Srimangal which are bit away from the Lawachara NP. These mills are owned by some

influential people of the locality and usually receive both legally and illegally felled timbers for sawing into the logs or planks. The sawmill owners buy illegal timbers at a cheaper rate, e.g., 250 taka per cft, whereas the actual market price would be of more than 500 taka per cft. It appears that sawmill owners encourage illegal felling of trees from nearby forests, including Lawachara NP. Sometimes they may have internal linkages with timber traders, FD and illegal fellers (fig.8). It is also reported that they sometimes help the illegal fellers by giving money in advance. It is alleged that the owners have some sorts of mechanism for preparing legal paper in favor of illegal timber and sometimes they put fake marks on the illegal timber.

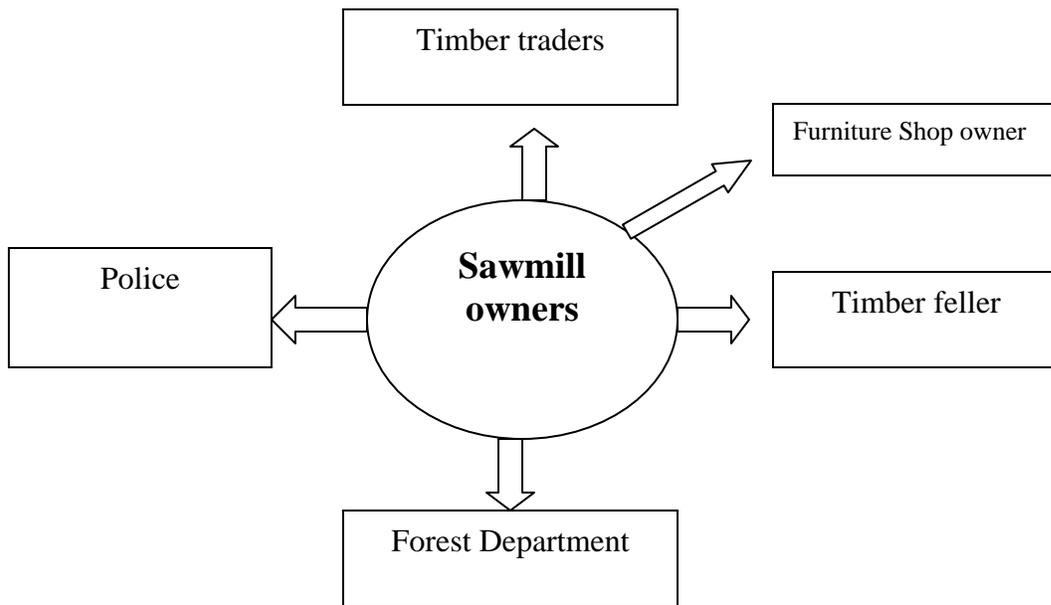


Fig. 8. Linkages of different stakeholders with sawmill owners

Inspection of sawmills by FD is very limited and probably that has little impact as the owners are powerful. However, in a recent effort FD with support from law enforcement authority seized the machineries of two sawmills, in the ground of their alleged involvement with illegal timber business. The FD is not aware of the fact that how many sawmills have valid license and whether they comply with the forest laws.

4.3.2.3 Furniture Shop Owners

There are about 30 furniture shops in and around Bhanugach Bazaar and about 20-25 in Srimangal town. Furniture shop owners have good links with the sawmills and sometimes with illegal feller as well. According to local people, the shops, in addition to legal timber, also use smuggled timber from the forest. They usually collect sawn timber from the sawmills, sometimes

shops buy round timber directly from the illegal fellers or timber traders and get it sawn in sawmills. Majority of the traders are from outside of the project area.

4.3.2.4. Fuelwood trader

There are about 5-7 fuelwood traders in Srimangal town and about 7-8 in Kamalganj Bazaar. Besides, Bhanugach bazaar and Kailkabazaar, which are very near to NP, are now a day known for its trades in fuelwood. The traders procure fuelwood from the individual collectors, stack them, some sell to local consumers, while the others transport it by trucks, train etc., to Moulvibazaar, Habiganj, Sylhet, Shamsbernagar, Kulaura, Mirjapur and other local markets. The marketing opportunities have increased during the recent times at the local level. The fuelwood is traded at the rate of Tk. 50-60 taka for buying and at Tk. 65-75 taka/maund for selling (1 maund = approx 37.5 kgs).

4.3.2.5 Brickfield owners

There are about 7 brickfields located near Kamalganj and Srimongal. The brickfields burn coal for its operation. However, they need fuelwood for initiating fires in kiln. It is estimated that they use about 5-6% fuelwood of its total fuel requirements. For the operation of the brickfields. Therefore, the local brickfields seems to have little stakes with the park.

4.3.3. Institutional/ Organizational Stakeholders

Besides the primary and secondary stakeholders, there are a number of institutions and organizations which have stakes with the Lawachara NP. A description of the most involved institutions/ organizations are given below.

4.3.3.1 Forest Department (FD)

The FD has the overall responsibility for management, conservation and development of the NP through planting, harvesting, patrolling and guarding the forest resources. At present, there are 14 local FD staff who manage the NP at the local level. Among them, one is Deputy Ranger, 2 Foresters, 7 Forest Guards and 4 Gardeners. Overall, the Forest Department plays a positive role in the protection of the NP, a few FD local staff at the NP are alleged to be involved indirectly with illegal felling activities. In addition, local people also reported that FD staff takes money

(e.g. 5-10 taka for each entry) from fuelwood and bamboo collectors to allow them to enter into the NP. However, it was denied by the local FD staff.

4.3.3.2 NGOs and Banks

The major NGOs that operate in the locality are: BRAC, ASA,, CARITAS, HEED-Bangladesh, CARE- Bangladesh, Grameen Bank, IRPK (exclusively for ethnic groups). Besides, Krishi Bank and BRDB also operate in the area. The major activities of the NGOs are concentrated on health, education and alternate income generation. Some of them have credit programs exclusively for the women. Two banks and several NGOs provide micro-credit to local people (Table 11) for improving livelihood of the local people.

Table 11. List of NGOs / Banks in the Lawachara Area and Their Activities

Name of NGO/ Banks	Location	Activities
BRAC	Srimangal, Kamalganj	Micro credit programmes, education, health, awareness, poultry and livestock development
ASA	Srimangal, Kamalganj	Microcredit for agriculture, small business, poultry and livestock
BRDB	Srimangal, Kamalganj	Credit programmes, training on agriculture and other IGA
Krishi Bank	Srimangal, Kamalganj	Loan for agriculture
CARITAS	Srimangal, Kamalganj	Education, Technical training for income generation, health awareness, micro-credit for agriculture
HEED Bangladesh	Kamalganj	Health, education, nursery development and tree plantation
Care	Srimangal, Kamalganj	Health awareness specially on AIDS
Posobi	Srimangal, Kamalganj	Mirco credit programmes

The micro credits are mainly given for agriculture, small business and undertaking other IGA. These IGA programs concentrate mostly on small business, poultry, livestock, betel leaf cultivation etc. NGO's credits are mainly focused on women.

Overall, NGO activities are insufficient to support the livelihoods of the surrounding village people of NP. So far the NGO activities have not been able to bring desirable success as there is a lack of willingness among the group members of the somity to return the credit in time. There

is also a lack of coordination and motivation by the NGOs working in the locality. More IGA initiatives are essential for upgrading the livelihood of the local people. better. Skill development activities of the NGOs are limited in the area. Local people, particularly the indigenous people (Tipra), have got some skills, like bamboo basket and mat making, weaving, etc. Khasia and Tipra community are also interested to rear pig as an alternative income generating activity. Fig. 9 shows relative influences of NGOs in the area.

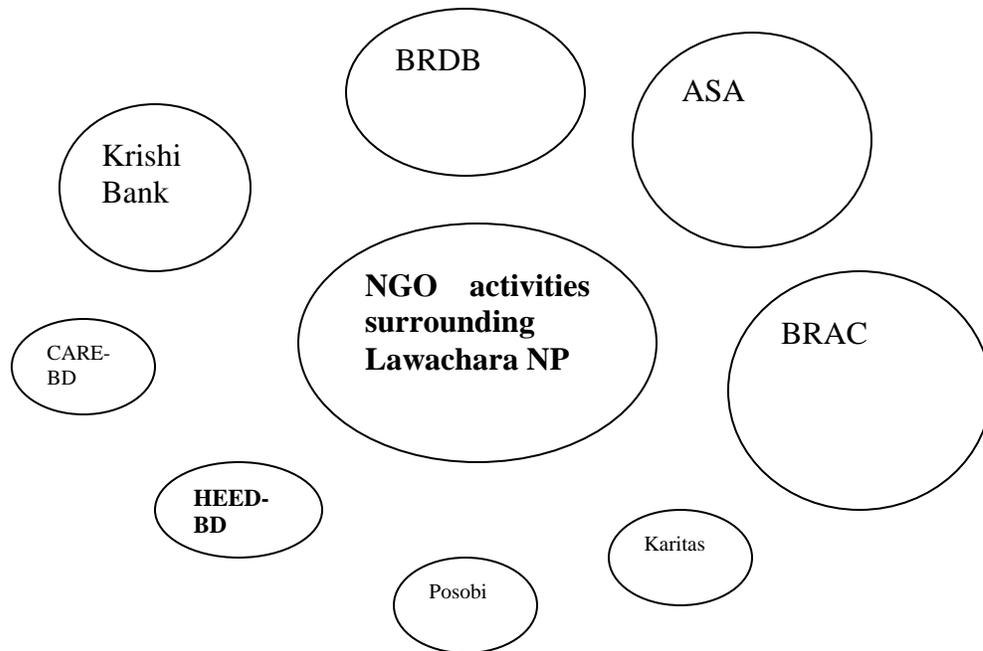


Fig. 9. Scale of activities of different NGOs in Lawachara and its surrounds

4.3.3.3 Police and BDR

Police and BDR also emerged as two important institutional stakeholders as they patrol in the area and on the highway to enforce the forest protection laws. However, sometimes, they develop a process of negotiation with the illegal tree fellers and other resource users. Forest cases are initially lodged with the local police stations. It was reported that police at Kamalgonj Police Station provides about 1500 tokens each month to local illegal fellers at the price of 2000 taka each. There is an informal post of *cashier* at the police station to handle these activities and collecting money in each Police Station. There is also good understanding and negotiation between police and timber trader, furniture shop owner, sawmill owner. However, no such activities were noticed during the PRA exercises in the area.

Since Lawachara NP is located near to Indian border, BDR are also involved in patrolling and guarding the forest and forest resources. In most cases, BDR plays positive role towards forest protection. It is said that BDR gets 10% of the ceased timber value from the FD informally when they cease any timber nearby the forest area and in border region. They also can file forest case with permission from their higher authority. However, BDR is more active to conserve forest resources than police department. Sometimes, Occasionally, BDR help the local administration in raiding the local markets and *bazaars*. For example, on 18 May 2004, BDR ceased about 100 cft teak timber from Jalalabad train which was being transported illegally from Lawachara NP (*Srimangaler Chithi* 18 June 2004).

4.3.4 Dependency of the Stakeholders on the Forest Resources

Traditionally, the local people are used to collect various resources from the Lawachara NP. However, they are mainly dependent on the fuelwood supplies from the forest for their HH needs, whether, they get it directly or indirectly. Many local HHs also get some bamboo and other house building materials from the forest.

Table 12. Uses of Various Resource by Different Stakeholders in and Around Lawachara NP.

SI	Name of Resources	Users	Causes	Extent	Dependency on resources	Risk
01	Timber	Saw mill owner	Business Purpose	medium	25%	High risk and an alarming threat to forest
		Furniture Shops	Business Purpose	medium	35%	
		Timber trader	Business Purpose	medium	20%	
		Local People	household use as furniture and building materials	high	80%	
02	Fuel Wood	Local household	Domestic use, selling for livelihood	High	80%	Moderate risks
		Local tea stall/restaurant owners	burning in tea stalls	medium	30%	
		Local Brickfields owners	burning in brickfields	less	2-3%	

SI	Name of Resources	Users	Causes	Extent	Dependency on resources	Risk
		Outside household users	Domestic use	medium	5%	
		Outside tea stall/restaurant owners	burning in tea stalls	very less	2%	
		outside brickfield owners	burning in brickfields	nil	0%	
03	Bamboo	Local users	As poles, fencing, ceiling, basket, fuel and others	Medium	80%	Less risks
		outside users	As poles, handicrafts, fencing, and others	Very less	15%	
04	Cane	Local users	Basket binder / others	Less	5%	Less risks
05	Medicinal Plants	Local People, a few Kabiraj	As medicine	Less	25%	Less risks
06	Honey	Local People	Food, medicine	Less	5%	Less risks
07	Bird	Khasia community	For meat (wild fowl, Ghughu)	Very less	2%	High risks
8	Fruits	Local People	Food	Very Less	10%	Less
9	Vegetables	Local People	Food	Less	5%	Less
10	Grass	Local People	For Cattle feeding	Less	3%	Less

Table 12 shows the dependence of different stakeholder groups on different resources for their HHs needs and supporting their livelihoods. Almost, all HHs of the two forest villages are dependent on the fuelwood and house building material, vegetables etc. supplies from the forest

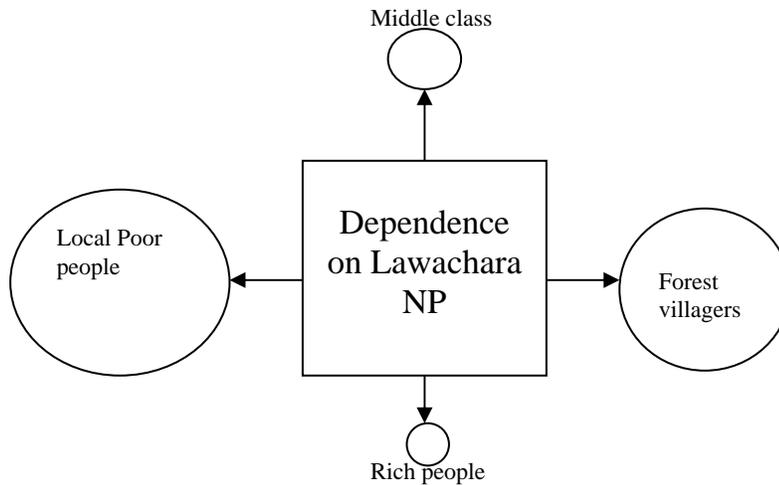


Fig. 10. Relative level of stakes (by resource extraction and dependence) of 4 major groups of people with Lawachara NP

for their HH needs. But, they do not collect these for commercial purposes. Many poor people from the adjacent villages are completely dependent on selling of fuelwood and many of them sell it for added income. Table 18 shows that about 70% of fuelwood that are collected by people of Birainpur, 20% of fuelwood collected by Bagmara people and 40% of fuelwood collected by Chatakchara village people are sold for supporting their livelihood, partially or entirely. Almost all-illegal tree feller sells timber and many of them completely depend on it, while others do it for added income. Poor fuelwood collectors are mainly dependent on fuelwood for their HH needs as well as for selling for supporting their livelihood. Fig. 10 shows the relative level of stakes of different groups of people with the forest. i.e. the pressure exerted by the stakeholders on the forest. It is apparent from the figure that the local poor people including the ethnic forest villagers are dependent on the forest and at the same time they are the people causing most harm to the forest. However, the activity of the forest villagers are mostly confined to the area allocated to them for betel vine culture.

4.4 Causes for the Decline in Forest and Forest Resources

4.4.1 General Causes

Based on the perception of the team developed through discussions with different cross-sections of people in the area, a Venn Diagram is constructed on the major causes for the degradation to the forest and its biodiversity and is shown in Fig. 11. The major causes for the decline in forest and its resources in order of magnitude are as follows: Illegal timber felling, FD's plantation strategies, fuelwood collection, hunting, bamboo and cane collection, house building materials land encroachment etc.

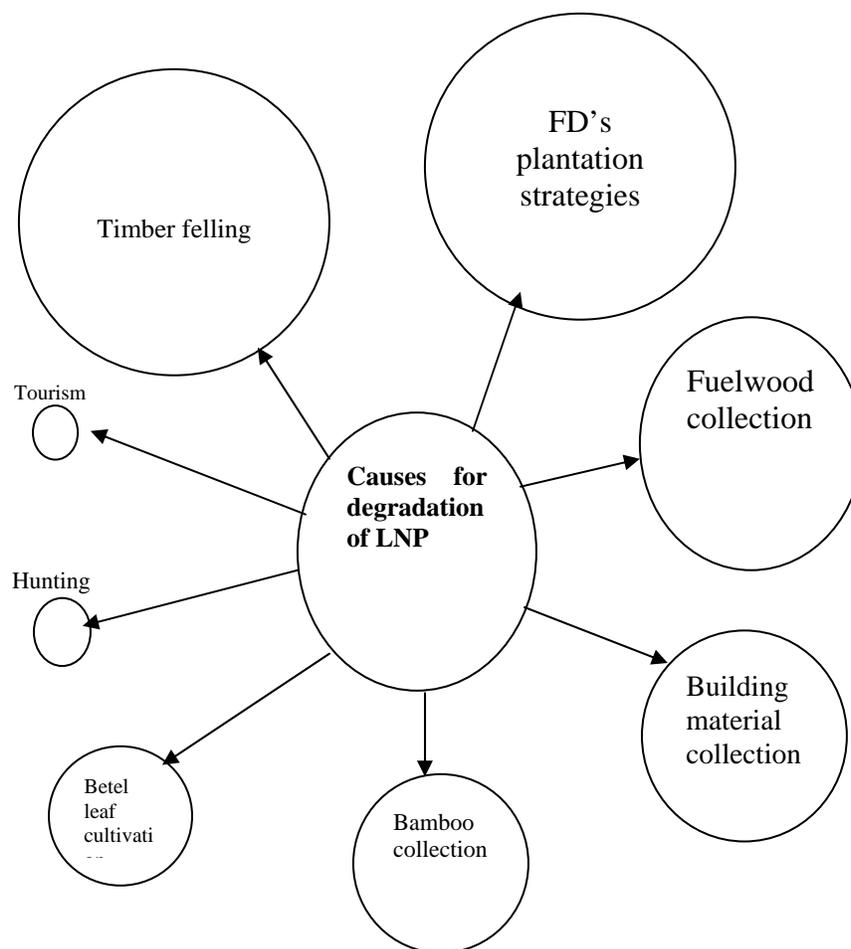


Fig. 11. Scale of major direct causes for the degradation to Lawarachara NP

Pair wise ranking during PRA shows that presently illegal timber extraction is the most important cause for the degradation to forest, followed by fuelwood collection, collection of building materials, bamboo collection (Table 13) and hunting. FD's plantation strategies have not come as an issue in pair ranking.

Table 13. Pair Wise Ranking for Identifying Main Causes For Forest Destruction

	Fuelwood collection	Timber felling	Bamboo collection	House build. mat	Hunting
Fuelwood collection	----	Timber felling	Fuelwood collec.	Fuelwood collec.	Fuelwood collec.
Timber felling	Timber felling	-----	Timber	Timber felling	Timber felling
Bamboo collection	Fuelwood collec.	Timber felling	----	House build. mat. collec.	Bamboo collec.
House build. mat. collec.	Fuelwood collec.	Timber felling	House build. mat. collec.	-----	House build. mat. collec.
Hunting	Fuelwood collec.	Timber felling	Bamboo collec.	House build. mat. collec.	-----
Rank	06	08	01	04	00

In order to investigate the underlying factors responsible for undertaking these activities by the local people cause and effect ranking was done and the outcomes are shown in the Table 14. The exercise revealed that local poverty and unemployment are the main driving factors for the extraction of forest resources, followed by additional income needs and squeezed income opportunities. Excessive forest cases lodged by the FD are also driving the people for increased timber felling (Table 14.).

FD's poor forest patrol, easy negotiation with local FD staff, inadequate man power and emergence of increased local influential people are all contributing to illegal timber felling. Fuelwood collection has been linked to development of transportation facilities and marketing opportunities (Table 15).

Table 14. Cause and Effect –Ranking (Understanding Underlying Facts for Forest Degradation)

Name of resource	Timber to sell	Fuelwood collection	Bamboo & cane sell	land encroachment	Hunting
Identified problems					
Poverty	++++	++++	++		
Unemployment	++++	+++	++		
Additional income needed	++	++	++++		
Lack of house building mat.	-----	-----	++		
Forest cases (in Lawachara)	++++				
Income opportunities squeezed	+++	+	+		

Table 15. Cause and Effect (Investigating FD’s Management Practice and Local Situation)

Practice/management practice	Timber to sell	Fuelwood collection	Bamboo and cane collection.	land encroachment	Hunting
Poor forest patrol	00000	00	00		
Easy negotiation	00	00000	00		
Poor strength of FD /increased local strength	00000	00	0		
Transportation dev.	000	00	0		
Traditional practice	0000	00	0		
Increased role of local influential people	00	0	-		

4.4.2 Exploitation of Forest Resources

A summary of information collected on resource exploitation from the NP are provided in Table 16. About 12 different types of resource are extracted from the forest. Of them, 2 resource types (fuelwood and timber) are extracted on a large scale, 3 on a moderate scale, 4 on a minor scale and rest 3 are in very negligible scale. Fig. 12 shows the major resource extraction zones of the NP.

The main purposes for resource extraction include meeting HH needs, selling for added income/and or to support and supplement livelihood.

Timber felling, fuelwood and bamboo collection, collection of house building materials, hunting etc. all is posing threats to the forest and its biodiversity.

Lawachara National Park: Resource Exploitation Zones
(not to scale)

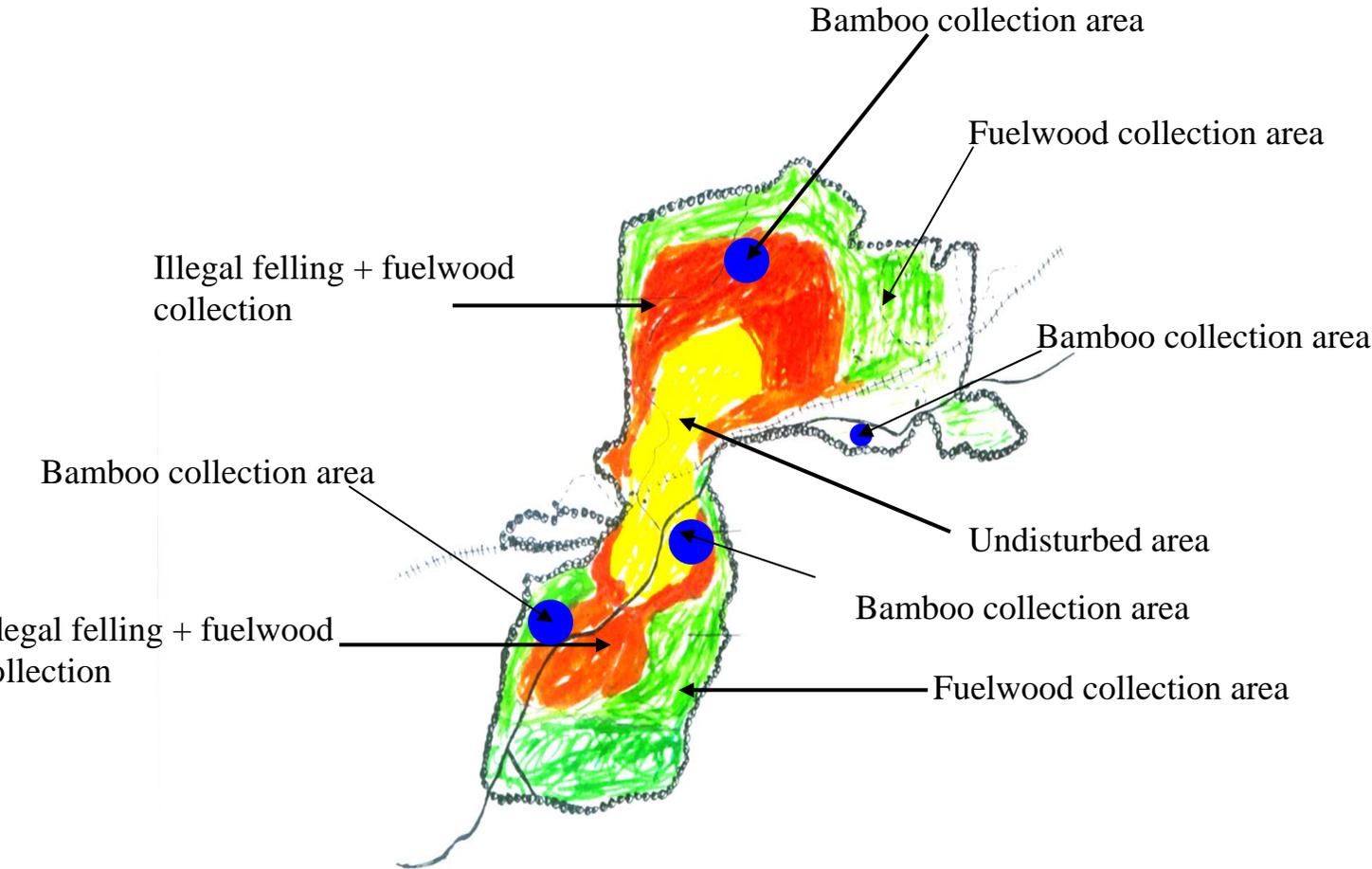


Fig. 12

Table 16. Information on Resource Extraction from Lawachara National Park

Sl. No	Name of resources	Resource collector	Purpose	Extent	Impact	Risk	Destination
1	Timber	Poor people from adjacent villages, unemployed people	For selling	Medium	Reduce selectively large tree and forest thickness, loss of habitat for gibbon and others	High	Local timber trader, sawmill, furniture shop, urban areas
2	Fuelwood	Local poor people, forest villagers, mainly women and children	For HH consumption Selling and HH comp , selling	Large	Loss of habitat, loss of forest biodiversity,	High	Local HHs, local markets, brickfield, transported to urban areas
3	Bamboo	Forest villagers, some local poor people from adjacent villages	Meet HH needs Selling for added income	Medium	Wild stock already heavily depleted, further extract aggravate the situation	Moderate	Local HHs Local and nearby areas
4	Wildlife	Forest villagers Local people	For consumption As hobby	Little	Stock heavily depleted	High	Local HHs
5	Building mat	Forest villagers Local people	Meet HH needs Selling for added income	Medium	Reduced abundance of small trees, loss of habitat, loss of wildlife	Medium	Local HHs Local markets
6	Honey	Local people	Own consumption	Negligible	None	Negligible	-----
7	Cane	Local people	HH use	Negligible	Little collected as they are not much available	Presently negligible	FD has many cane plantations
8	Fruits	Local people, children and women	Own consumption, few for sale in the locality	Minor	Hamper forest regeneration to a little extent	Little	
9	Vegetables	Local people, mainly forest villagers	Collect number of species of		No apparent impact	Negligible	

Sl. No	Name of resources	Resource collector	Purpose	Extent	Impact	Risk	Destinat ion
			vegetable				
10	Sungrass	Local people	Collect as house building mat.	Presently little	Reduce forest biodiversity	Negligible	Removed in the process of plantations
11	Tree bark	Few local people		Negligible			
12	Medicinal plants	Few local people, forest villagers	Occasionally collect some selective species	Little	Negligible	Negligible	

4.4.3 Seasonal changes in resource extraction

Table 17 shows the trend in forest resource exploitation by month. The exploitation of resources vary depending on the seasons. Most timber are felled illegally during the rainy season as forest patrol is poor during that period. Fuel wood is mainly collected during dry season due to easy accessibility and mobility inside the forest during that time. Bamboo extraction mainly takes place in drier months that corresponds to local needs for house building. Medicinal plants, vegetables and some other forest resources are extracted to some extent mainly during rainy season. A little amount of honey is also extracted during summer (Baishakh-Jaistha).

Table 17. Seasonal Calendar of Resources Exploitation in Lawachara NP

Name of Resources	Baishakh	Jaista	Ashar	Sharabon	Vadra	Ashwin	Katrik	Avqraha	Poush	Magh	Falgun	Chaitra
Timber	000	000	0000	00000	000	000	000	000	000	000	000	000
Fuel Wood	0000	0000	000	00	000	000	0000	00000	00000	00000	00000	00000
Vegetables	00	000	00000	00000	00000	00	00	00	00	00	00	00
B a m b o o , building materials	00	00	00	00	00	0000	0000	00000	0000	00000	00000	00000
Medicinal Plants	0	0	0	0	0	0	0	0	0	0	0	0
Wildlife	000	000	0	0	0	0	000	00	0	0	00	00
Honey	00	0	-	-	-	-	-	-	-	-	-	-

4.4.4 Exploitation of Major Resources from LNP

4.4.4.1. Fuelwood collection

Fuelwood collection is a major and visible activity in Lawachara NP. It is a year round activity, but most extraction occurs during the dry months. Most of the villagers, especially from inside villages and villages that are very adjacent to the NP are 80% dependant on the forest for their fuelwood requirements to meet their household consumption (Table 12). About 10% villagers are entirely dependant on this for their livelihood, a large number of families undertake it to supplement their HH income.

The collectors are dominantly women, children, but sometimes also the unemployed adult men. According to local people, in an average 200-250 people enter into the forest each day to collect fuelwood. However, sometimes, the number may exceed 500. They are predominantly from few

villages (Table 18 & Fig.13). In Birainpur, mainly the female slum dwellers are engaged in fuelwood collection and they sell almost two-thirds of their collection for supporting their livelihoods and use the rest one-third for their HH consumption. On the other hand, villagers of Lawachara punji and Magurchara punji collect fuelwood from the forest for their HH consumption, but mainly from their betel vine area.

Table 18. Village Wise (Having) Distribution of Fuelwood Collectors in Lawachara NP

Sl no.	Name of villages	Total HH	Who collect fuelwood				Use	
			Male	Female	Children	Poor	Domestic use	Selling for livelihoods
1	Birainpur	300		110	-	100%	30%	70%
2	Dolubari (Tiprpara)	72	16	20	-	100%	100%	-
3	Bagmara	300	50	100	120	70%	80%	20%
4	Rashtila	171	-	30	25	100%	75%	25%
5	Chatokchara	61		12	10	100%	60%	40%-
6	Baligaon	300	-	-	-	-	-	-
7	Lawachara punji	23	10	11	-	100%	100%	-
8	Magurchara Punji	40	20	20	-	90%	100%	-

Usually, a person collects a 20-40 kg fuelwood each day. They carry it either as their shoulder or head loads. They walk along the rail line, roads and forest trails when they return from the forest. They are used to pay Tk. 5-10 as Levi for entering the forest for collecting fuelwood. This is collected by informally designated persons employed by FD's local staff. Access to the forest for collecting fuelwood is not restricted, if the levy is paid. However, this was not noticed by the PRA team during their exercise in the field.

The collectors are allowed to collect dead branches of trees. However, in practice, sometimes they cut some soft trees, chop and bundle it. Sometimes they leave the cut trees to get a dead appearance. They also cut the young trees of valued timber trees. They also cut the small bushy trees.

As can be seen from Table 18, a large number of women are engaged in fuelwood collection especially from Bagmara village. This is probably because most of their husbands are engaged

with illegal tree felling and the female assist them by collecting branches and tops of the felled trees. In Birainpur, mainly the female slum dwellers are engaged in fuelwood collection and they sell almost two-thirds of their collected fuelwood for their livelihoods whereas one-third of the collected fuelwood is used for their HH consumption.

Besides the local HH use, local tea stalls/ restaurants use fuelwood for burning in their kitchen, some of the local brickfields also use fuelwood for initiating fire in their kilns. Other local people buy fuelwood from the local market sold by collectors.

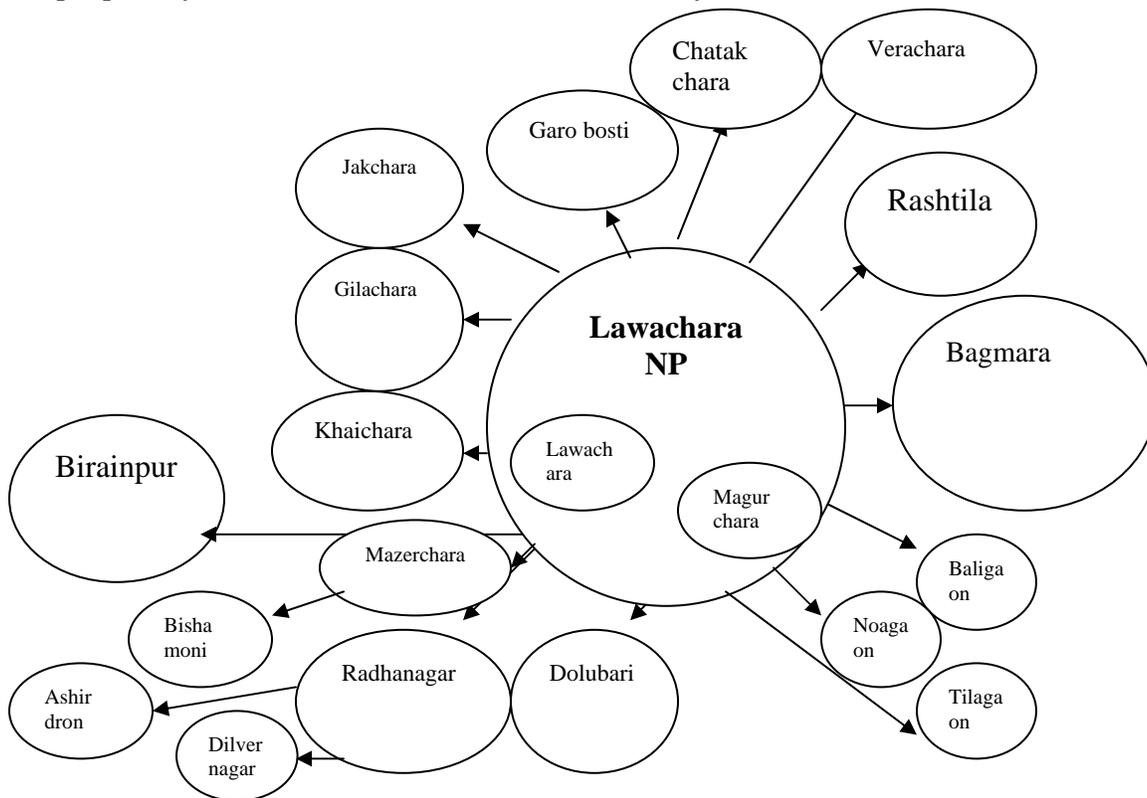


Fig.13. Relative level of fuelwood extraction by different villagers

The fuelwood collected for commercial purpose, mainly goes to Srimangal and Vanugach Bazaar where it is sold to fuelwood traders or to the local consumers... Fuelwood is sold as 50-60 taka per mond (approx 37.5 kgs) in the market. It is then transported to Sylhet, Moulvibazaar and Sherpur by train or truck. Some fuelwood is also carried to some of other local markets, such as Mirzapur, Boulashi, Baburbazaar under Srimangal Upazila.

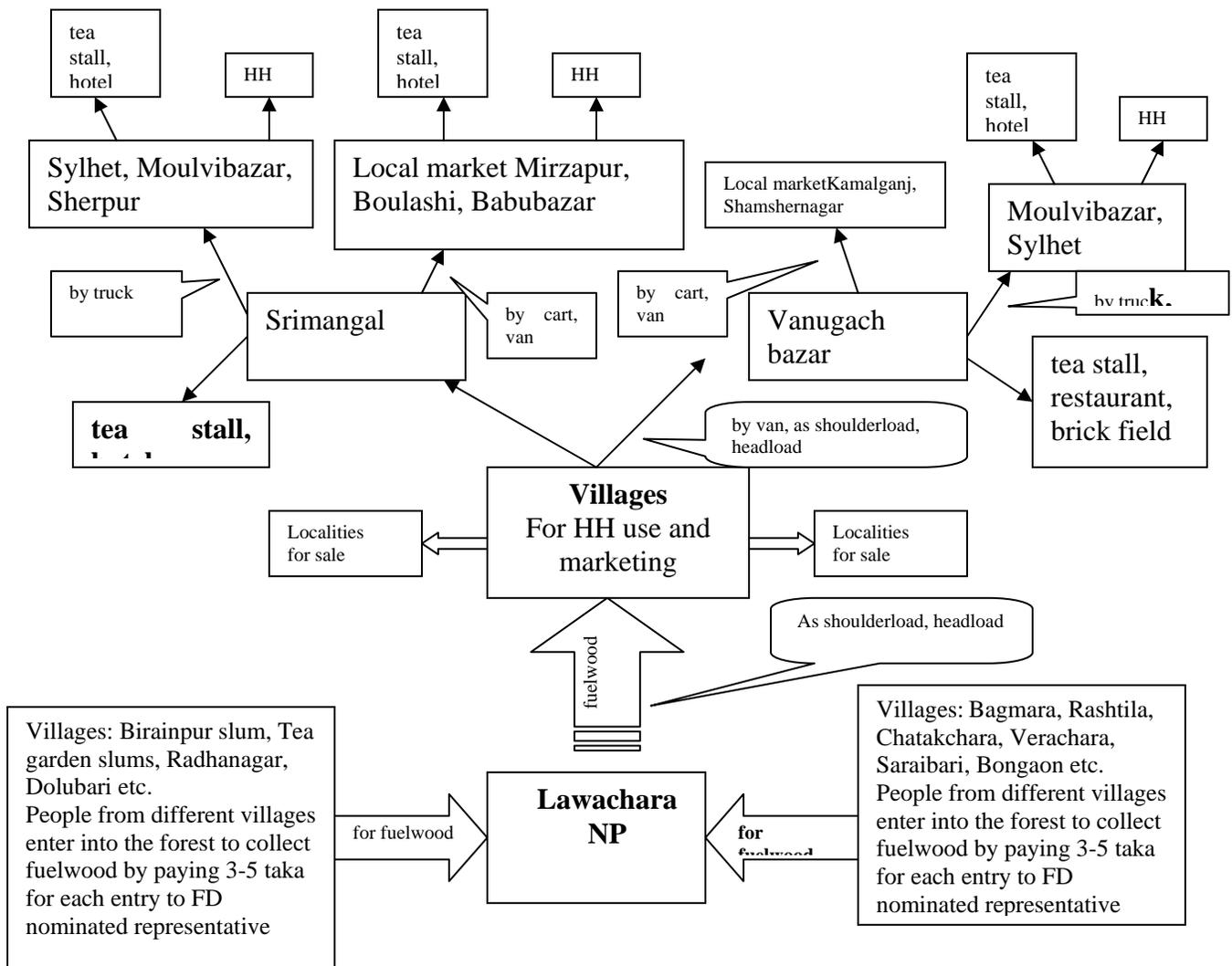


Fig. 14. Flow of fuelwood from Lawachara NP

4.4.4.2 Timber extraction

Timber extraction is also major activity in Lawachara and often regarded as the major cause for the destruction of Lawachara forest. Although, timber felling is illegal in Lawachara NP, the activity is going on in a good scale basis. Many people from surrounding villages of Lawachara NP are directly involved with illegal extraction of timber from the forest. The villages involved are Bagmara, Rashtila, Baligaon, Radhanagar, Birainpur, Verachara, chatakchara, Langurpar etc (Table19). The most involved villages in timber extraction are Bagmara and Baligaon which are very adjacent to the NP. In all other villages, in an average, about 20 – 30 people (mainly male) are involved with illegal felling of trees and most of them are poor. The villagers who are

involved with illegal felling of trees mainly carry out this activity for supporting their livelihoods. There is a cash income (200-300 taka per day) from this activity, although a bit risky.

Table 19. Village–Wise Distribution Illegal Timber Fellers Associated With LNP

Sl no	Name of villages	Total HH	Who are involved						Use	
			Male	Female	Children	Poor	Mid. class/Rich	Local people	Domestic use	Selling
1	Birainpur	300	12	-	-	-	-	100%	-	100%
2	Radhanagar	325	20			-		100%	-	100%
3	Bagmara	300	120	40	12	85%	15%	100%	-	100%
4	Rashtila	171	25	-	-	100%	-	100%	-	100%
5	Chatokchara	61	30	-	-	-	-	100%	-	100%
6	Baligaon	300	35	-	-	80%	20%-	100%	-	100%
7	Verachara	118	25	-	-	100%	-	100%	-	100%
8	Langurpar	92	12	-	-	100%	-	100%	-	100%
9	Ballarpar	61	15	-	-	-	-	100%	-	100%
10	Vasanigaon	-	14	-	-	-	-	100%	-	100%
11	Tilagaon	80	10	-	-	-	-	100%	-	100%
12	Noagaon	150	14	-	-	-	-	100%	-	100%
13	Bishamoni	-	-	-	-	-	-	100%	-	100%
14	Ashirdron (Begunbari)	-	-	-	-	-	-	100%	-	100%
15	Dilvernagar	-	-	-	-	-	-	100%	-	100%
16	Lamua	349	-	-	-	-	-	100%	-	100%
17	Kalapur	460	-	-	-	-	-	100%	-	100%
18	Kakiabazaar	-	-	-	-	-	-	100%	-	100%
19	Sirajnagar	313	-	-	-	-	-	100%	-	100%
20	Dolubari Muslimpara	30	-	-	-	-	-	100%	-	100%

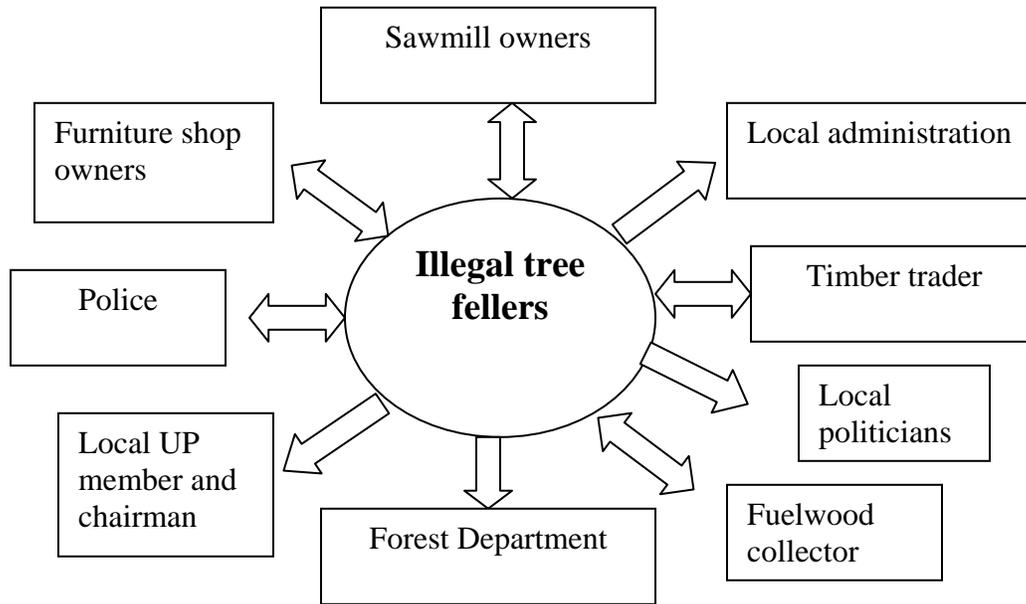


Fig. 15. Link of various stakeholders with illegal fellers

There are at least 8 –10 organized gangs (locally called syndicate) who are involved with illegal tree felling from the Lawachara NP. The members of each syndicate varies from 25-40. These syndicates are controlled by influential people (mainly timber traders and other political and elite persons).

They mainly fell the medium sized valued timber trees, like teak, chapalish, garjan. The activity is carried out at night and intensively during the rainy season when the access to the forest is very difficult and forest patrol is restricted. Usually, they select suitable trees during day time.

Sometimes, the feller come across the forest patrol. If the activity is not negotiated earlier with the local FD, they would come under fire. Sometimes, there could be exchanges of fire between the forest patrol party and armed gang of fellers.

Illegal tree fellers cannot break their affiliation with illegal felling of trees once forest case is filed against them. They need to meet the expenses to fight the case and thus try to collect the same from timber selling.

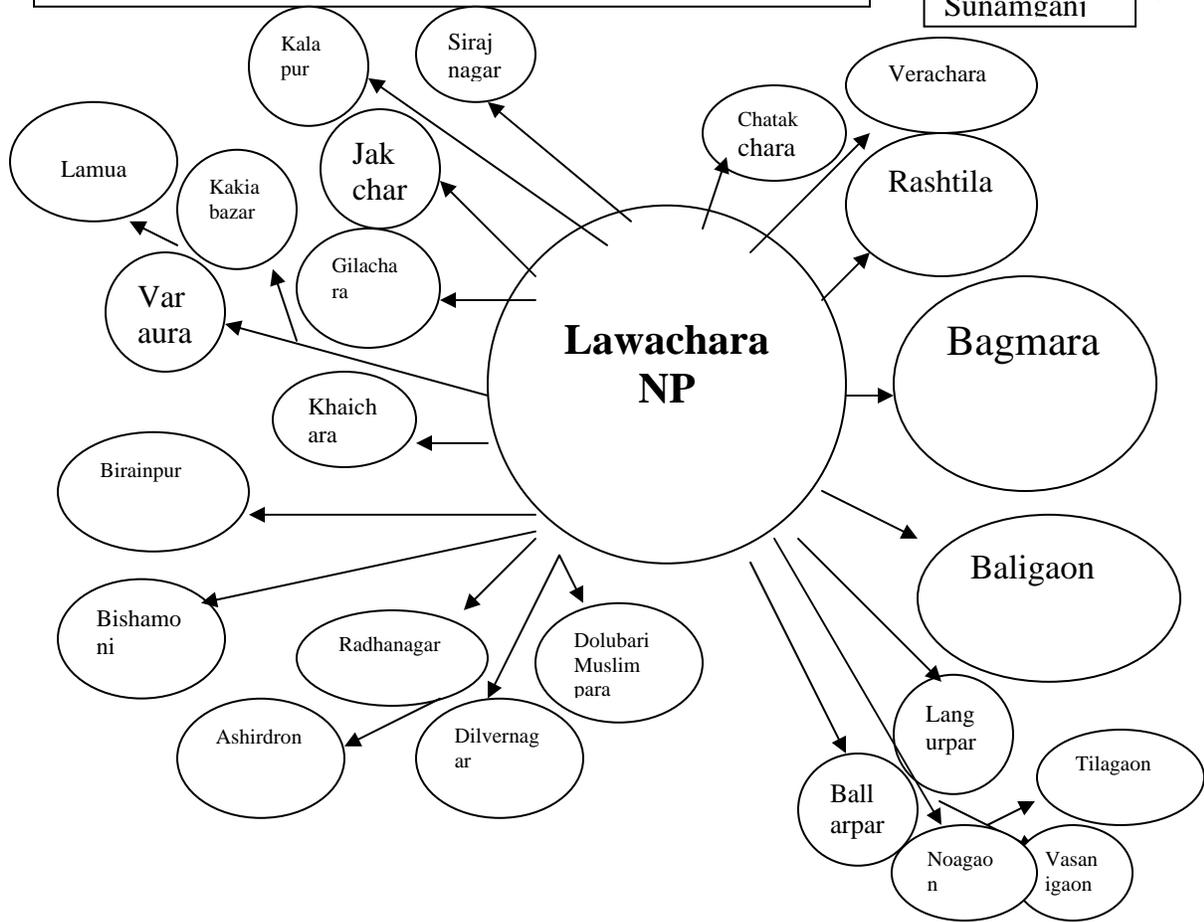
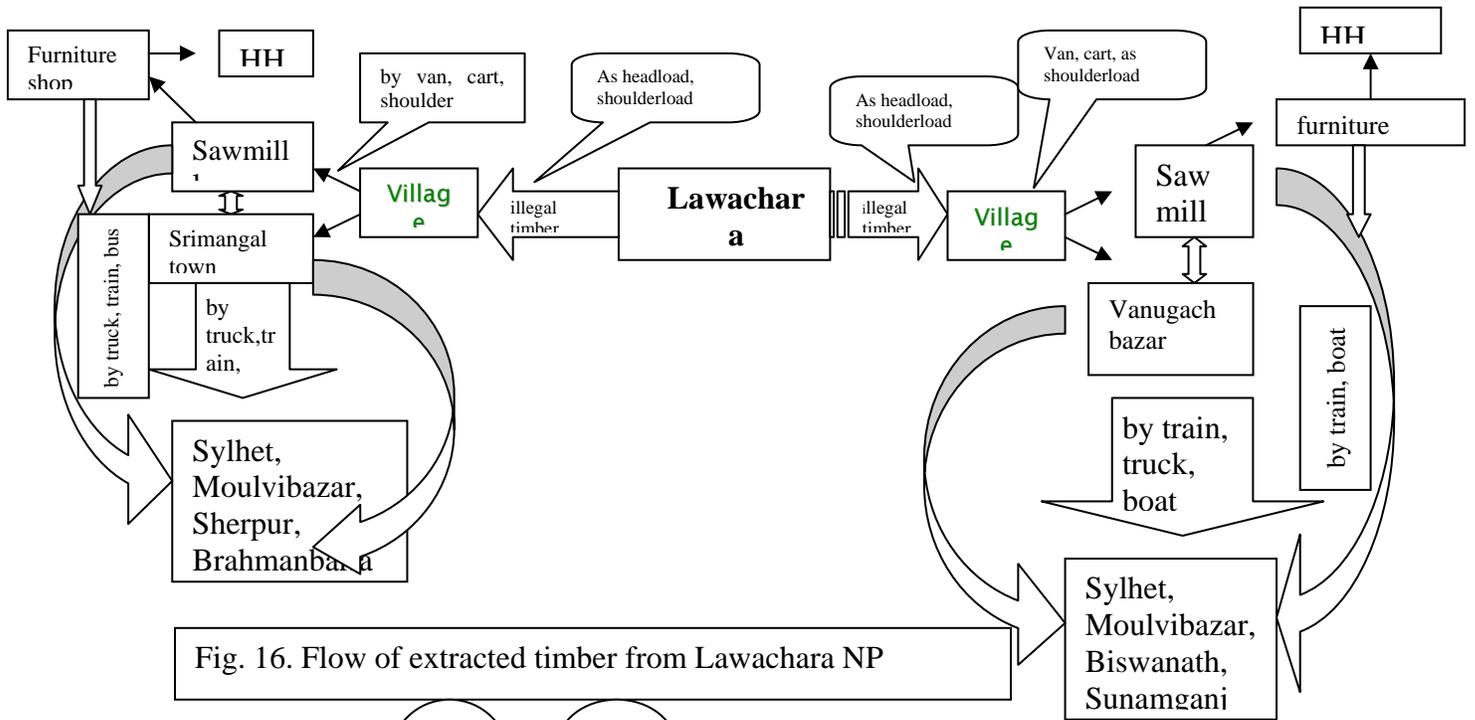


Fig. 17. Scale involvement of different villages with illegal tree felling

4.4.4.3 Bamboo Collection

Bamboo has many uses in the locality, e.g. as house building materials, as material for fencing, as roof ceiling, basket and mat making and also as fuel. Mainly two types of bamboo naturally occur in the park, tengra and mooly, and both are collected by the local people. Earlier, bamboo was abundant in the forest. Now, their stocks are seriously depleted, primarily due to extensive extraction. FD has planted jai bash in an extensive area. Forest villagers and local people collect bamboos from the wild, mainly for meeting their HH needs. It is reported by local people that some people undertook this as an commercial activity. According to local people, about 2-3% of the local HHs are completely or partially dependent on bamboo collection for their livelihood. Everyday about 25-30 individual people enter into the forest for bamboo collection. Bamboo is carried as shoulder and head load. Some traders from distant villages also come to the locality for purchasing bamboo. They prepare bamboo mats, many fishing traps and baskets and sell those to outside markets.

Bamboos planted by FD are also illegally felled. These are either consumed locally or sold at the local markets, like Bhanugach Bazaar and Srimongal. Bamboos are also available at local homesteads in the locality.

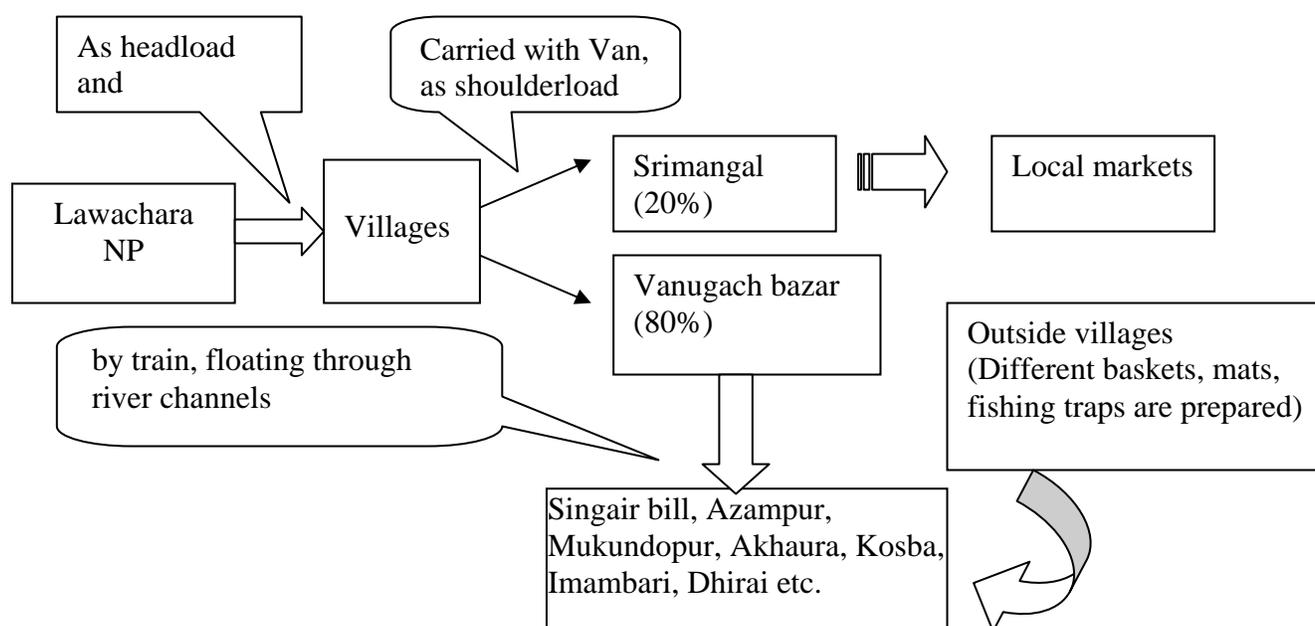


Fig. 18. Flow of Bamboo collection from Lawachara NP

Bamboo are also transport to Singair , Azampur, Mukundopur, Akhaura, Kosba, Imambari, Dhirai etc from Vanugach bazaar by train and as floating raft through river channels (Fig. 18).The extensive collection of bamboo has posed a threat to this resource sustainability. However, plantation of various bamboo species in the forest area has increased its stock.

4.5. Collection of other Resources

Local people also collect some other resources from the park. mainly for their HH consumption. The collectors are mainly from the forest villages and local poor people and children from the adjacent villages. Information on such resources are given below.

4.5.1 Vegetables

Forest villagers almost everyday collect some vegetables from the forest. Besides, the fuelwood collector collects some vegetables during the time of collection of fuelwood. The vegetables exploited are: bamboo shoots (manthana), bonkachu (bandhugi), ramkala, thankuni, aorai kalai, karam, gantha, muia, palong shak kachu, kachur lati, etc. from the NP mainly during rainy season.

4.5.2 Fruits

Some people collect wild fruits from the forest. They are usually forest villagers and fuelwood collectors and local children. The main fruits collected are *Chapalish, Kau, Kanthal, cane fruits, Banana, dewa* etc. The fruit collectors mainly collect these fruits for their HH consumption. However, a few of collectors sell those to their neighbours and markets for their additional income.

4.5.3 Fish

Fishes, like *Puti, latia, Jagor, Aku (shrimp)* are collected from the inside streams of the NP, by the inside villagers as well as by some local poor people.

4.5.4 Wildlife

Hunting is now a day is very limited in Lawachara NP as there is a serious decline in the resource and also due to increased awareness. The local people hunt for jungle fowl and other

birds. Sometimes, people from distant places come to the forest for hunting. Some people still look for barking deer. Khasia people sometimes also hunt for wild boar and occasionally for monkeys which they consume. Sometimes, some people trap monkeys and sell it to interested people.

4.6 Other Causes for Forest Degradation

4.6.1 Land Encroachment

An area of more than 500 acres of land at the northeast corner of the forest has been encroached by Languarpar, Bagmara and Chatakchara villagers, mainly the migrants from different areas of the country. Some lands have been recovered and still about 300 acres of land are illegally enjoyed by the villagers. In Barmara, about 73 HHs are on the encroached land and occupying a substantial area. The encroachers were once evacuated and but they are again resettled by winning a court case. Besides, the forest villagers established an agricultural plot inside the park nearby their punji. The outside villagers have also converted about 10 ha of land into agricultural lands.

The encroachers are well established on the land and converted forest land into homesteads and for other purposes. The encroachers claim that they have legal rights and have all valid documents. Thus the recovery of this land remains as a far cry.

4.6.2 Betel leaf cultivation

Betel leaf cultivation is done by the Khasia tribe (Forest villagers) in their allocated areas for the purpose. This is their traditional activity and each and every HH of the tribe undertakes this activity and has become a part of economic, social and culture of their life.

They grow betel vines on trees, the original indigenous trees of the forest. The cultivation practice includes the lopping of the branches each year and weeding of the area. Thus the activity drive the wild animals away from the cultivation area. The betel farming covers an huge area, over more than hundred ha and thus has a huge impact on the forest.

On the other hand, cultivation of betel leaf is the only or major income source for the forest villagers. The forest villagers are usually very poor and have limited income opportunities.

4.6.3 FD's Plantation practice

The park has been converted a plantations in the past. The earlier plantations included long rotational plants. At present plantation is being done with short rotational trees, mainly with exotic trees, often monoculture. The plantation practice includes clearing of undergrowth by burning and subsequent weeding to facilitate plant growth. This practice contributes most to the degradation in local biodiversity.

4.7 Local Community and Power Structure and Local Governance

4.7.1 Local decision makers and influential people

A total of 35 influential persons have been identified in the locality and many of them have control over the local people, their activities and even over local administration. Some of them have linkages with the illegal tree feller. Table 20 provides the name and address of the influential persons, while Fig. 19 shows their domain and locations relative to the park and interlinkages among them. The most influential person in the area seems to be the local MP of Srimangal-Kamalganj constituency, Vice-principal Shahid Uddin, who has direct links with some of the elite villagers adjacent to the NP, including Rashid Mia (South Baligaon), Siddiq Ali (South Baligaon), Sirajul Islam (South Baligaon), Abu Mia (South Baligaon) and Abdul Matin, who are locally influential.

Mr Golam Kibria Shafi, UP chairman of Kamalganj, is very much influential locally and has close association with Abdus Salam (Bagmara), Abdul Matin member (South Baligaon), Gafur Mia (Bagmara), Ali Mia (Bagmara), Yunus Mia (Bagmara), Nurul Haque member (Verachara), Taher Mollah (Saraibari) and Abdul Hasem (Saraibari). Mr Dudu Mia, UP Chairman of Srimangal, is another key influential person having indirect linkage with some of the persons from Srimangal and villagers from Birainpur, Ibrahimipur, Bharaura tea garden bosti and Jakchara tea garden bosti who are engaged with syndicates. He usually helps the people if there are any forest cases against them.

Table 20. List of Most Influential Persons of Different Villages in and Around Lawachara NP

Sl no.	Name of Village	Name of most influential people
1.	Bagmara	*1. Siddique Mia, 2. Gafur Mia 3. Abdullah 4. Yunus Mia 5. Ali Mia
2.	Baligaon	**1. Golam Kibria Shafi (UP chairman) 2. Rashid Mia 3. Siddique Ali (ex member) 4. Abdul Matin (present member) 5. Abu Mia
3.	Rashtila	*1. Sirajul Islam 2. Gias uddin Chowdhury 3. Nurul Haque Chowdhury 4. Shafique 5. Hiron Mia
4.	Chatakchara	*1. Jainal 2. Abdur Rahman 3. Abdur Razzak 4. Din Mohammad
5.	Dolubari	1. Porikshit DebBormon *2. Sadanondo DebBormon (Chow.) 3. Pobitro DebBormon 4. Bires DebBormon
6.	Lawachara Punji	*1. Phila Pothmi (Minster) 2. Babul Pamshet
7.	Magurchara Punji	*1. Gidison Schisio (Minster) 2. Jinu
8.	Birainpur slum	*1. Madhu Mia (Poroshova chairman) 2. Dudu Mia (UP chairman) 3. Shalim Mia (Elite) 4. Amorendra Debnath (UP member) 5. Moksed Mia (chief of Gram sorkar)
9.	Verachara	*1. Nurul Haque 2. Mosaid Mia
10.	Bongaon	*1. Israil Ali 2. Durud bakht
11.	Saraibari	*1. Taher Mollah 2. Abdul Hasem
12.	Lamua	*1. Nazrul Islam (UP member) 2. Mosadder Mia 3. Mozahid Alam
13.	Kalapur	*1. Mujibur Rahman (UP member) 2. Haji Aftab Mia
14.	Sirajnagar	*1. Haji Sonai Box 2. Abdul Matin 3. Rasheda Begum

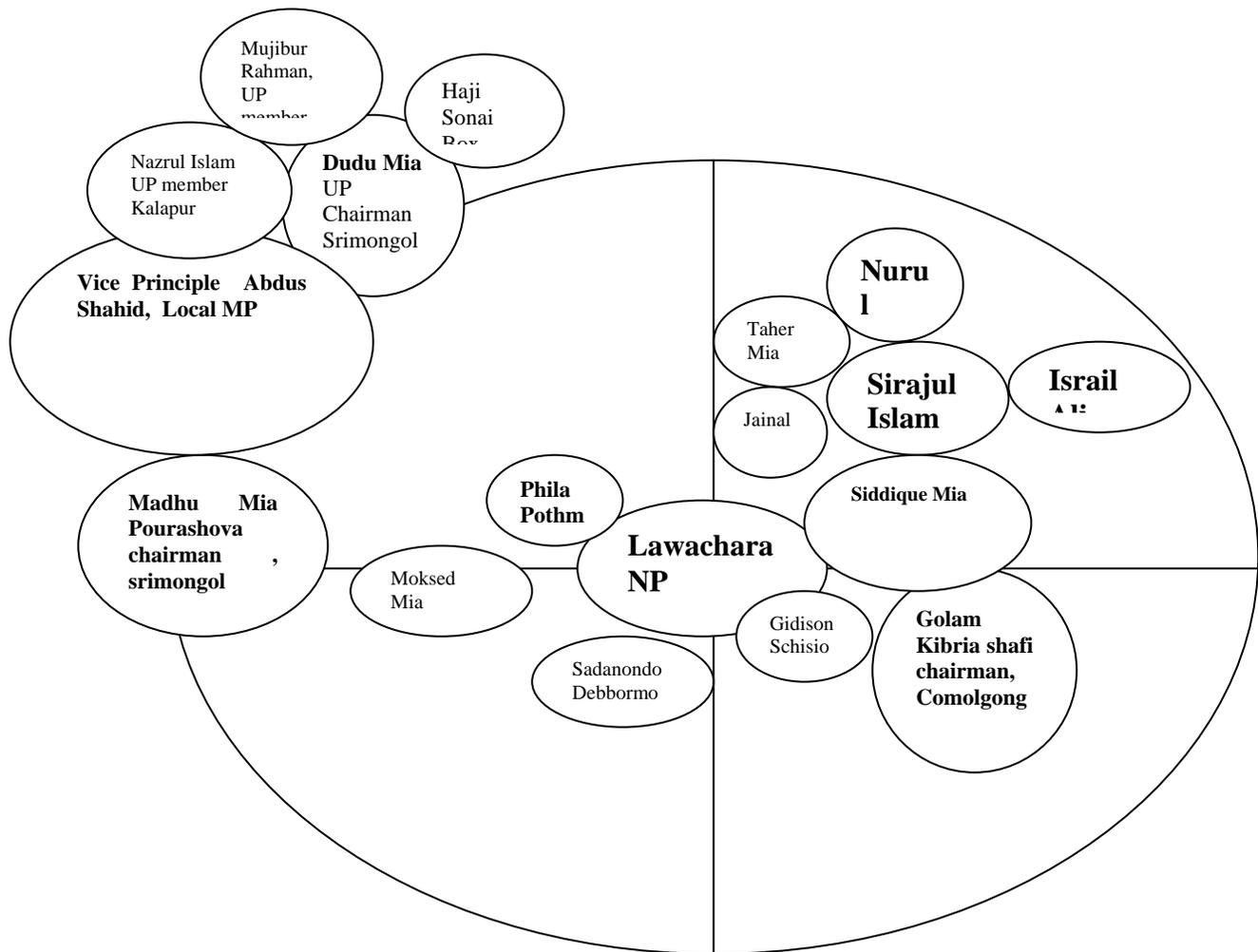


Fig. 19. Venn Diagram showing Power Structure in and around Lawachara forest

4.7.2 Local governance

Local Union Parishad is the lower level local government entity and look after local welfare and development. It has also emerged as the main center for conflict resolution. The UP members, who are elected from different areas of the Union, look after their respective areas. The local public representatives are consulted whenever there is a local issue. There is also a new local organization, the Gram Sarker (Village Government), in each ward (village) and deal with all local issue, including welfare, development and dispute and conflict. Fig.20 shows the relative involvement of different Government and Non-Government organizations in the locality for local welfare, development and administration.

Police administration at Upazila level is the local law enforcing agency and is involved with maintaining local law and order situation. The police at Kamalgonj Upazila are very active and powerful. They are the authority to make arrests of warranted person by forest cases. They claim that they help in forest protection.

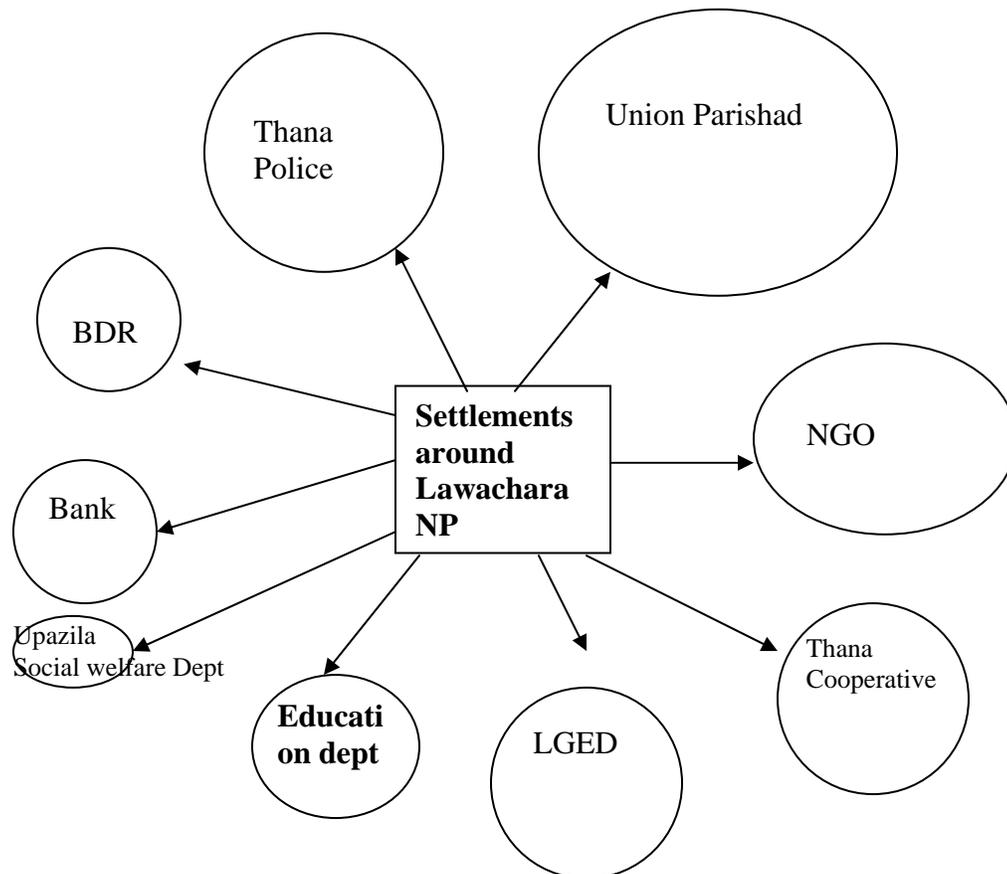


Fig. 20. Local government institutions and NGO

The tribal people have their traditional way of governance of their community. They are very organized community having respect to their community leaders. Forest villagers have governance system of their own. In lawachara in each forest villages, there is a community leader, called Montri, and recognized by the FD.

4.7.3 Local community organization

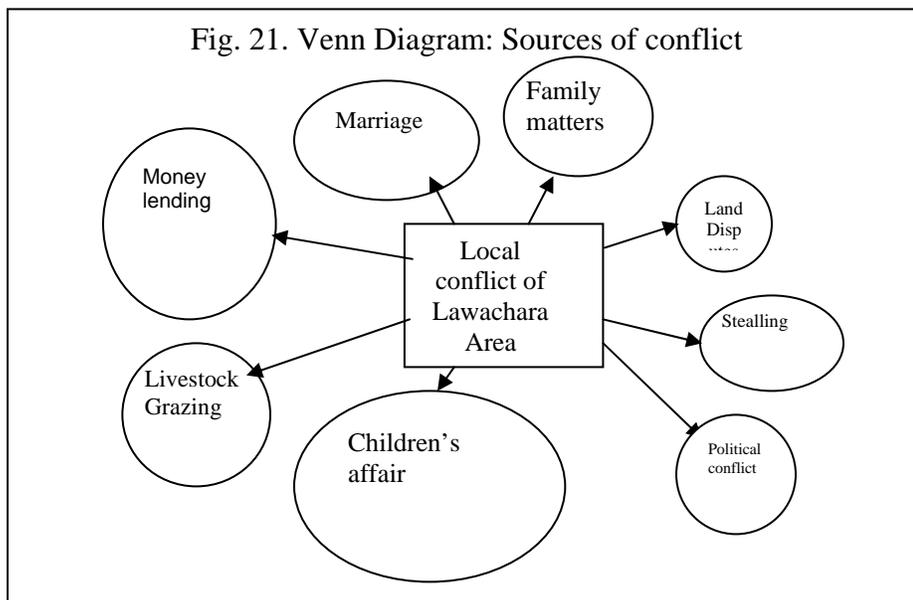
There are a few community based organizations such as social club, somity etc, .namely Khasia Welfare Society, Srimongol, Dakshin Sylhet Adivasi Forum, Srimongol, *Tripura Sanskritik*

Kendra, Dolubari, Rashtila Abakash Tarun Sangha. These are active local organizations and deal with local problems and welfare and cultural activities.

4.7.4 *Local conflict, conflict resolution, social adhesion and cohesion*

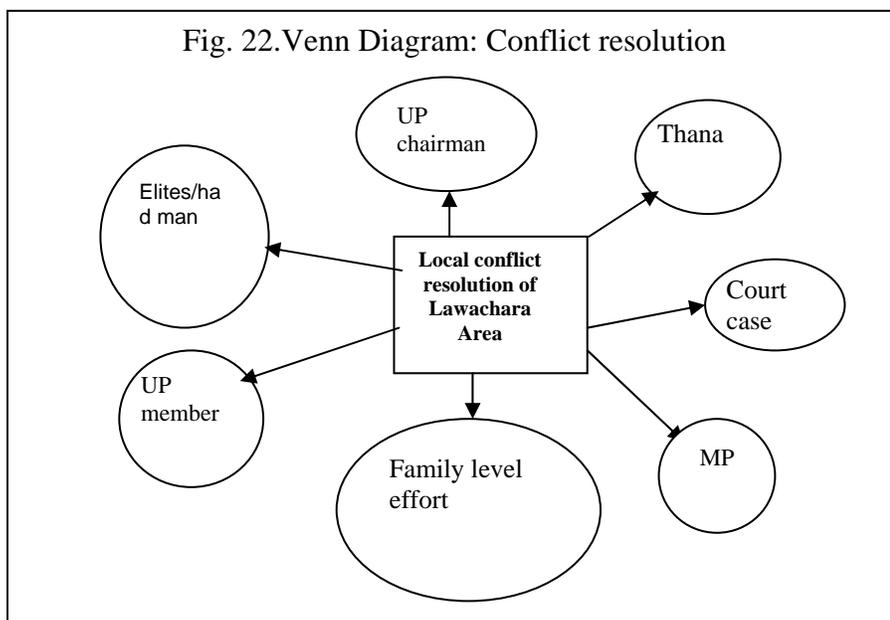
4.7.4.1 Sources of conflict

The main sources of conflict among local people are, children affairs, land disputes livestock grazing, family affairs, stealing, money lending, local politics, rivalry among different syndicates, affiliation and cooperation with FD, forest cases etc.



4.7.4.2 Conflict resolution

Conflicts are resolved by arbitration by local elites & public representatives (MP, UP chairman, members), Gram Sarker. If the local efforts are not fruitful it may lead to filing cases with Thana-police, may eventually end up in courts.



4.7.4.3 Conflict with FD

There is a huge conflict between local FD and local people, particularly with tree feller from Bagmara and Baligaon. Sometimes, there are direct conflicts with tree feller during patrolling, sometimes this leads into exchanges of fires and even may end up with murder

4.7.5. Social cohesion and adhesion

There are many social activities that maintain social adhesion and cohesion among the villagers. Some of them are Eid-ul-Azha, Eid-ul-Fitre, marriage ceremony, religious functions, collective action through local community organizations, etc.

4.8 Local Socio-economic Settings and Dynamics

4.8.1 Demographic Profile

4.8.1.1 HHs number

Except 4 villages for which data were unavailable, the total number of households in villages surrounding the park is approximately 4000 and have stakes with the forest, of them 136 HHs are tribal (khasia and Tipra) and among this 64 HHs are represented by forest villagers.

4.8.1.2 Education

Among the tribal community, now a days 100% children go to primary school, however, only 5-8% go to High School and only 5% study in the colleges. Among the adult, about 80% are illiterate (above 30 years of old). Among the Bangalee, about 95% children go to primary school, about 60% goes to High School and about 7.5% go to colleges and above. Information collected during RRA exercise is presented in Table 21.

Table 21: Educational status of The People in Adjacent and Inside Villages*

Sl no.	Villages	Illiterate	Primary	Secondary	Graduation
01	Bagmara	54%	40%	5%	1%
02	Baligaon	22%	46.5%	30%	1.5%
03	Badeobahata	30%	60%	7%	3%
03	Dolutari	45%	50%	5%	-
04	Magurchara pungu	29%	61.5%	9%	0.5%
05	Lawachara Pungi	36%	56.5%	7%	0.5%

*percentage in comparison to the total population of the village.

4.8.2 Livelihood strategies analysis

4.8.2.1 Occupation

The major occupation of almost all khasia tribe is betel vine cultivation, followed by day labour. The occupation of Tipra is mainly cultivation of pineapple and lemon, followed by day labour and agriculture (swidden agriculture / jhum cultivation-outside the NP).

The major primary occupation of Bangalee people are agriculture (65-70%), principally paddy cultivation, followed by day labour (10-15%), fuelwood collection (5-10%), small business (3-5%), service (3%) and overseas employment (1%). The major secondary occupation is fuelwood and bamboo collection (30%), day labour (22.5%). Table 22 shows the changes in occupation of the local people over time.

Table 22. Trend in Changes in Occupation of People In and Around Lawachara Punji

Sl	Occupation	Before 1971	Before 15 Years	Present
01	Agriculture	000000	0000	000
02	Day Labourer	000	0000	00000
03	Business	00	000	0000
04	Fuel wood Collector	000000	0000000	00000000
05	Illegal Log man	000	0000	000000
06	Service	0	00	000
07	Timber Trader	00	000	0000
08	Furniture Maker	0	00	000
09	Sawmill owner	0	00	0000

4.8.2.2 Richness-poverty level

Among the bangalee community, Rich 5%, 30% middle class, 48% poor, 17% very poor. Among ethnic community: Rich 1%, middle class 2%, extreme poor 10%, poor 87%. Table 23 shows village wise percent distribution of different strata of the richness and poverty level.

Table 23. Livelihood Status of the Adjacent and Inside Villagers

Sl. No	Villages	Rich	Mid. Class	Poor	Extreme Poor	Landless
1	Bagmara	2%	30%	40%	18%	30%
2	Baligaon	5%	65%	25%	5%	7%
3	Badeobahata	10%	50%	35%	5%	10%
4	Dolubari	1%	2.5%	81.5%	15%	5%
5	Magurchara Punji	1.5%	2%	89.5%	7%	-
6	Lawachara Punji	.5%	1.5%	92%	6%	-

4.8.2.3 Unemployment

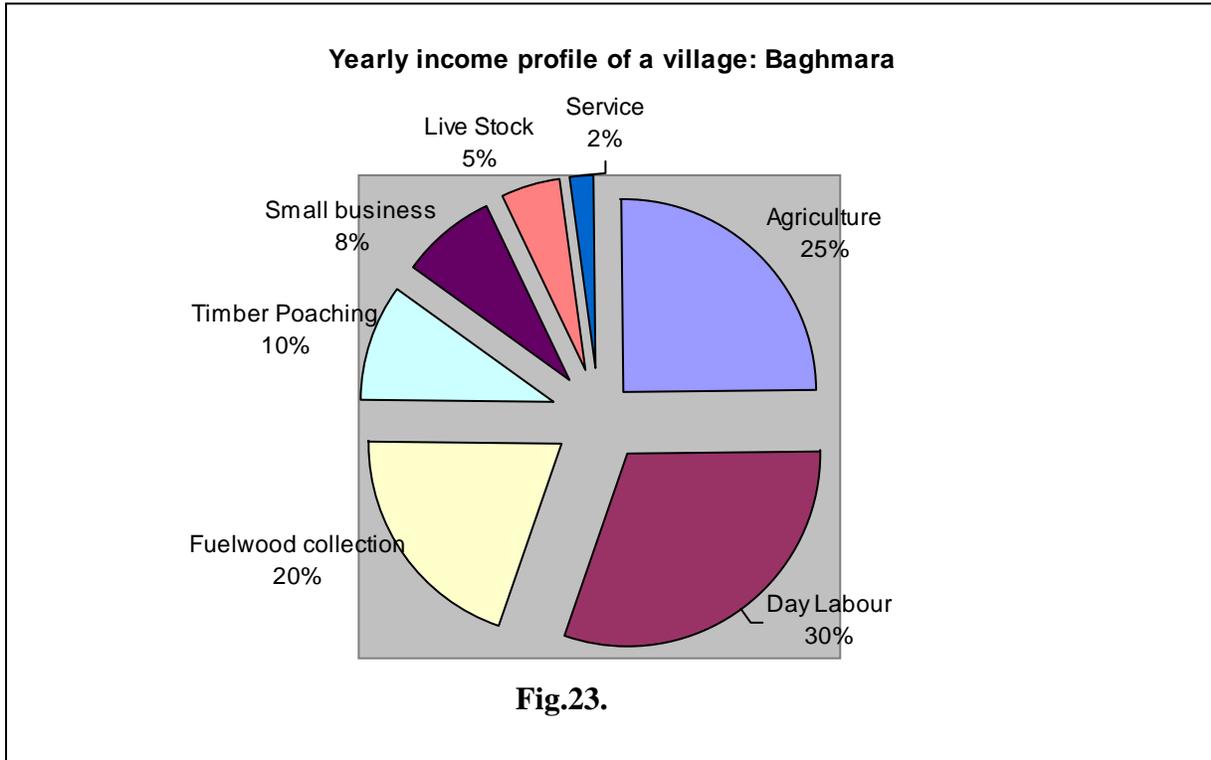
Varies between the villages. In average 15% local people are unemployed. However, there is a strong seasonal trend in unemployment level. Unemployment is a concern/problem in the area.

4.8.2.4 Credit

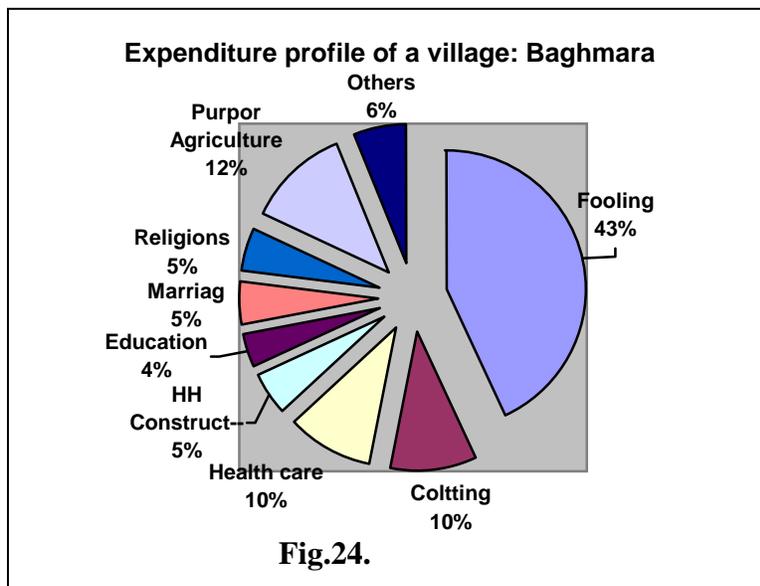
Several NGOs and 2 banks provide micro-credit to local people. Bank loans are mainly given for agriculture. NGOs provide credit mainly for IGA. NGO's IGA programs concentrate on small business, fish culture, poultry, livestock rearing etc. NGO credits are mainly focused on women.

4.8.2.5 Income and expenditure profile

Data also collected on the income and expenditure profile of the community people of the area. Data show that the main source of income of the local people is day labour, followed by agriculture, fuelwood collection, timber poaching, small business etc.



On the other hand, the expenditure profile shows that people spend major part of their income for purchasing food, followed by meeting cultivation expenses, clothing, health care purposes, but less for educational purpose. Fig. 23 and Fig. 24 represent the income and expenditure profiles of a village called Baghmara, as an example.



4.9 Social Dynamics (Trend in changes in socio-economics)

4.9.1 General Dynamics

Table 24 shows changes in some key socio-economic matrices and local activities. Compared to 1970 situation, population and income of local people had increased with corresponding decline in solvency. Although, literacy rate has increased, unemployment rates have also increased. During the time, use of forest for both as HH needs and income generation has increased. Local food scarcity has reduced while opportunities for alternate income have increased to manifold.

Table 24. Trend in Changes in Some Socio-Economic Matrices

Issue	Pre-1971	15 years ago	Present	Causes for change
Settlement/population	000	0000	00000	Population growth, migration
Solvency	00000	0000	000	Livelihood expenditure increased, lack of added income and unemployment
Livelihood expenditure	00	000	00000	Increased price of goods, use of increased commodity
Literacy	0	000	00000	Educational opportunity increased, awareness
Unemployment	0	00	00000	Lack of employment, population growth, resource depletion

Use of forest for income	0	000	00000	Poverty, lack of employment
Use of forest for HH needs	00	000	00000	Population growth, easy access and no alternate source
Transportation and mobility	0	000	00000	Development of road communication and transport
Homestead plantation	0	00	00000	For income generation, HHs consumption, awareness
Food scarcity	00000	000	00	Increased employment opportunity and agricultural development
Credit and IGA	-	-	000	Increased GO, NGOs credit and IGA programs
Occupation	00	000	00000	Increment of IGA and small business

Note: 5 circles to indicate highest abundance/intensities/

4.9.2 Seasonal changes in socio-economics of the local people

Table 25 provides information on seasonal fluctuations in some socio-economic parameters and some resource extraction activities. Unemployment is higher during Baishakh-Jaistha and during Poush-Magh. Timber felling is more during wet season while fuelwood collection is more during dry seasons. In summary, except timber felling, most forest resource extraction and related activities take place during dry months. Timber felling is inversely related to forest patrol.

Table 25. Seasonal Changes in Some Socio-Economic

	Baishak	Jaisthya	Ashar	Shraban	Vadra	Ashyin	Kartik	Agrahayan	Poush	Magh	Falgun	Chaitra
Unemployment	0000	0000	0000	000	00	0	0	0	0	0	00	000
Accessibility to forest	000	00	00	00	00	00	000	0000	0000	0000	0000	000
Transportation problem	00	00	000	0000	0000	000	00	0	0	0	0	0
Brickfield/sawmill operation	00	00	0	0	0	0	00	000	0000	0000	0000	000
Forest patrol	0000	000	00	00	00	00	000	0000	0000	0000	0000	0000
Agricultural activities	0000	0000	0000	0000	00	0	0	0	00	00	00	000
Timber felling	000	0000	0000	0000	0000	000	000	00	00	00	00	00
Fuelwood collection	0000	000	00	00	00	00	000	0000	0000	0000	0000	0000
Bamboo	00	00	000	000	000	00	00	00	00	00	00	00
Building materials	00	00	0	0	0	0	00	00	000	000	00	00
Hunting								0	0	0		
Vegetable collection	000	000	000	000	00	00	00	0	0	0	0	0

4.10 Local Problems

Problem ranking exercise (Table 27) was performed to identify and understand the local level problems and its causal factors. The causes of the problems and its possible solutions were also investigated.

The major problems, according to the magnitude, relate to poverty, unemployment, health and sanitation, road communication, education, electricity, drinking water, forest cases, etc. (Table 26).

Table 26. Local Problems: Its Causes and Possible Solutions

Name of Problems	Reason	Solutions
Poverty	Over population, little agricultural land, unemployment, lack of capital to initiate small business, lack of alternative income generating activities, lack of skills.	Creation of opportunities for new IGA and providing of credit without interest, skill dev. training, more NGO activities
Unemployment	Lack of agricultural land, lack of sufficient work, population pressure, Lack of education,	----- do-----
Education	There is no sufficient educational institution	Establishment of new and technical schools, awareness, and financial support
Road communication	Road has not be developed here.	Roads should be developed by local government or NGOs
Health care facilities	No hospital/clinic and good doctor near their villages, lack of sanitary latrine and tube well	Extension of government and NGO health and sanitation,
Early marriage	Lack of awareness, lack of education	Early marriage should be stopped through awareness and education program.
Drinking water	lack of deep tube well and deep pond	Need Government and NGO efforts to provide tub well and pond construction.
Electricity	Lack of electricity supply	Electricity should be supplied through REB or PDB.
Forest case	Cases lodged by local FD against illegal resource extraction, sometimes causes are not valid	Illegal use of forest resource should be stopped. FD should not file anycase based on falsehood.

Table 27. Pair-Ranking for Some Local Problems

Identified problems	Unemployment	Food security	Income needs	Fuelwood scarcity	Scarcity of house build. mat
Unemployment	---	unemployed	Income needs	unemployed	unemployed
Food security	unemployed	-----	Income need	Food security	Food security
Income needs	Income needs	Income needs	-----	Income needs	Income needs
Fuelwood scarcity	unemployed	Fuelwood scarcity	Income needs	-----	House build. mat
Scarcity of. H. build mat.	unemployed	House build. mat	Income needs	House build. mat	-----
	06	02	08	01	03

4.11. Gender Issue

4.11.1 HH decision-making

Table 28 and Fig. 25 show the role of different family members in taking HH decisions. In Lawachara, husband takes the major HH decisions, followed by wife and sons. Daughters are rarely consulted in decision making. Women of ethnic community have a major role in many HH decisions making.

Table 28. Information on Family Decision-Making

Name of decision	Husband *	Wife	Father	Mother	Elder Brother	Younger Brother	Son	Daughter
Marriage	00000	00	0	0	0		0	0
Sowing crops	00000	00	0					
Land purchase	00000	00	00		0			
Land selling	00000	00	00		0		0	

Treatment	00000	00	00	0				
Education	00000	000					0	0
Tree selling	00000	0	00		0		0	0
House making	00000	000	00	0	0		0	
Cattle Purchase	00000	00	0					
Loan	00000	00	0					
Savings	00000	0000						
General expenditure	00000	000						
Resource collection from the forest	Timber	00000	0					
	Fuel wood	00	00000					

** Husband is the head of the family
n.b. 5 circles have used to indicate highest intensity

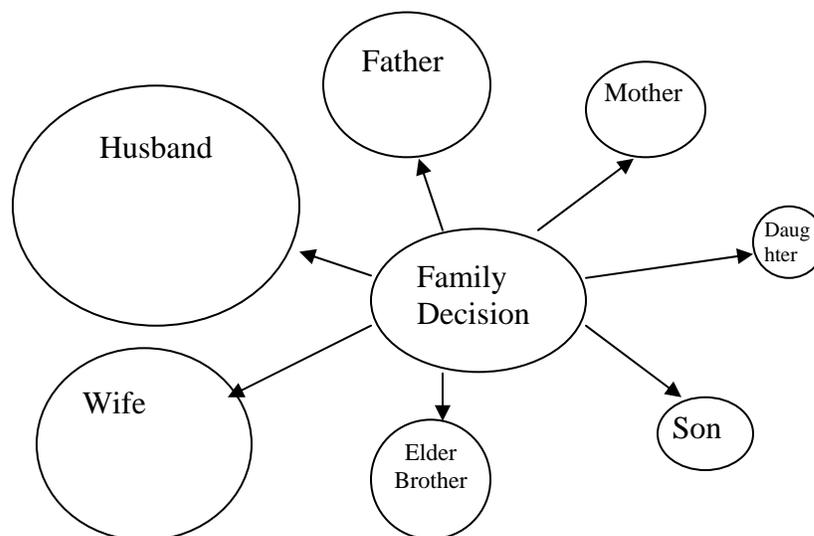


Fig. 25. Venn Diagram showing level of role of family members in decision-making

4.11.2 Outdoor mobility and access to credit and IGA

Overall, in Lawachara area, outdoor mobility of females is considered to be moderate. However, in some villages, the movement of females is restricted. Participation to social events by women is comparatively less than males (Table 29). However, now a day's

access to NGO credit and IGA is much higher in case of women. On the other hand, access to bank loan is very limited for women.

Table 29. Mobility and Participation in Social Events and Access to Credit and IGA by Male and Female in Lawachara Area.

	Outdoor mobility	Participation in social events	Access to credit	Access to IGA	Education	Employment
Male	00000	00000	00	000	00000	00000
Female	000	00	00000	00000	0000	00

Workload

In general, the men have more works during Jaistha to Bhadra and again during the winter months. The females have more work during the dry months and these periods correspond to the local agricultural activities. However, in the tribal community, the work load of both male and females are more during the wet season, the period corresponds to betel leaf growing season. Table 30 shows the seasonal work load of male and female in a Khasia inhabited settlement. In general, women in the locality have less work load than the men.

Table 30. Seasonal Workload Of Male And Female In A Forest Village Within The NP

Months across column	Baishakh	Jaistha	Ashar	Shrabon	Bhadra	Ashwin	Kartik	Agrahayan	Poush	Magh	Falgun	Chaitra
Male	00	000	00000	00000	00000	0000	000	000	000	00	00	00
Female	0	00	000	000	000	00	00	00	00	0	0	0

4.11.3 Daily work load

Fig. 26 and Fig. 27 show the daily work chart of male and female in a Khasia family in Lawachara punji, respectively. The females are typically involved with the household work and also help in the betel vine cultivation. The males mainly do the outdoor works related to income generation.

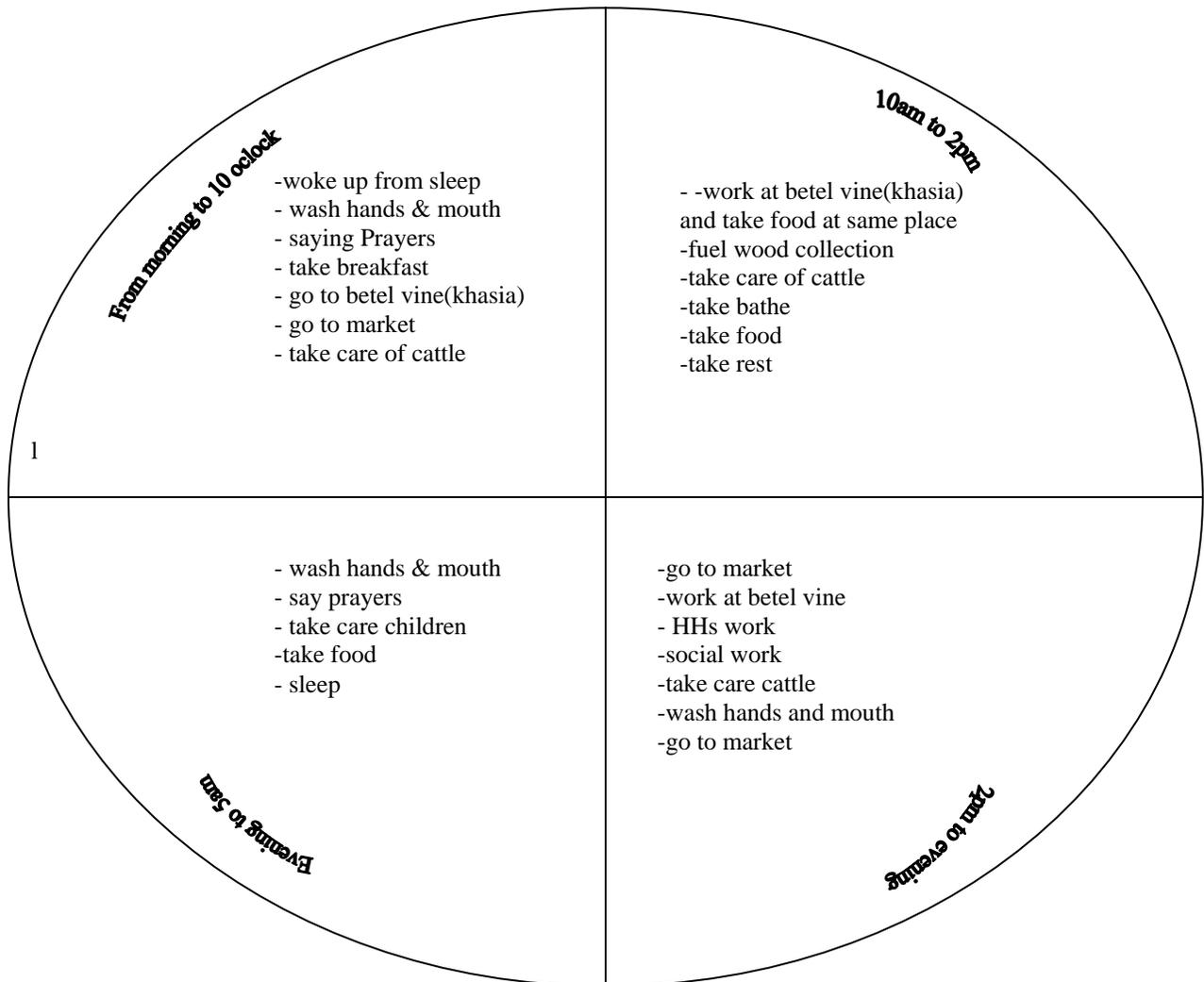


Fig. 26. Daily work chart of a men from Lawachara



Fig. 27. Daily work chart of a woman of Lawachara punji

4.11.4. Education

The overall literacy rates of male and female are close. In the recent years, the number of school going girls is higher than the boys. However, in case of higher studies girls are far behind the boys (Table 31). Overall, females are less educated than the male.

Table 31 .Comparison of Educational Status of Male and Female in Lawachara Area

Overall literacy (based on adult)		Educational level (based on students)				
		Primary	Secondary	Colleges	Above	Informal
Male	000	0000	00	00		
Female	00	00000	000	0		

4.12 Local Level Awareness and Aptitude Towards the Project

Local people know about some of the rules of forest Act, but most of them do not know the significance of the NP. About 70% people are aware of the park and many people know about some restrictions in the park. Compared to male, female are less aware of it.

Perception about the resource degradation and its impact is good. The ethnic communities are well behaved and cooperative. Most of the local Bangalee are also good people. However, some of them behave rude. Reaction to NSP is mixed. Some people expressed their concern that if the program affects the livelihood of local people they will not cooperate and may oppose the program. Initial response of the local people and FD staff towards the project is very positive and villagers are willing to cooperate.

4.13. FD's forest management regimes: current status and situation

4.13.1 Present staffing pattern

There is 14 FD staff who is engaged with the management of the NP at the local level. Among them, 1 is Deputy Ranger, 2 Foresters, 7 Forest Guards and 4 Mali. FD faces many problems regarding protection of the NP, mainly due to lack adequate number of staff.

4.13.2 FD's Plantation Strategies and Practices

The FD's plantation strategy for Lawachara NP is still guided by the production forestry. Along with the traditional plantation practice with valuable long rotational timber trees, present plantations in NP include medium (a(i.e Jarul, Chapalish, Shegun, Lohakath, Kadam, Pitraj, Chandan, Kanthal, Supari, Litches, Agar, Dhuna, Garjan, Dewa, Awal, Gamar, Jam, Nageswar, Sundhi, Bohera, Tairol, Chloroform tree etc) as well as short rotation exotic trees (i.e Acacia hybrid, Mangium, Malacanna, Eucalyptus, Pine, Akashmoni, Rubber) often with mono species. Since the declaration of NP, no significant change has occurred in plantation practices. Beside this bamboo and cane have been being planted in many blocks. Cane is planted as undergrowth.

Although not permitted under the plantation rules, the plantation techniques still include clearing of land and subsequent weeding of plantation areas. These practices replace the wilderness, seriously deplete the biodiversity and thus deprive indigenous animals from their food and shelter. This conversion of forest is the major cause for the loss of biodiversity and is likely to bring ecological catastrophe in the forest.

4.14 Law Enforcing Mechanism

In Lawachara, forest patrol is inadequate and FD staff is not capable of facing the armed gangs of illegal timber feller. Forest check post at Lawachara does not serve the purpose of checking illegal timber adequately. According to the villagers, FD staff is corrupt and help in illegal felling by the villagers and outside influential persons. Sometimes forest cases are filed against innocent villagers and this activity fell them in the cycle. Local police takes lot of interest in enforcing law. However, according to local people, their enthusiasm in forest protection goes against the forest conservation. It was alleged that local Police-in-charge provides token (in Kamalganj thana) to the villagers with 2000 taka to enter into the NP for extracting resources which is illegal.

Most of the inside and outside villagers have legal documents for their land holding but in Bagmara village there are more than 100 HH that encroached reserve forest area. Some of the villagers also hold khas land and some of the land case is running in court

4.15 Status and role of forest villagers and ethnic community

There are two Khasia villages called Magurchara and Lawachara punji, which were settled according to an agreement with forest department within the NP. The FD mainly did this agreement and took this initiative to strengthen their forest patrolling with the help of the forest villagers. Khasia people join the patrolling team of FD each day by rotation from each HH. On the other hand, FD gave them a certain area of NP land for betel leaf cultivation to sustain the livelihood of the Khasia community.



5. THREATS, ISSUES, OPPORTUNITIES AND CHALLENGES FOR THE PROJECT

5.1 Threats to the Park and its Biodiversity

5.1.1. Illegal timber felling

Widespread timber felling in the past caused to the reduction in the forest coverage, but was replanted with short rotational plantations. Timber felling is still widespread within the NP and selectively large trees are removed. This deprives the wildlife from their shelter and vines from their support and thus remains as one of the major threats to the biodiversity of the park.

5.1.2 Collection of fuelwood, bamboo and other house building materials

This is the major threat to the park. Fuelwood collected extensively both for HHs needs and commercial purposes. Almost all the inside and adjacent HHs collect fuelwood predominantly from the park area. Collector mainly collects the young plants, less valuable and fruit trees. Similarly, in this way regeneration process of the forest is severely hampered leading to reduced biodiversity of the park. Bamboo is also extensively collected for various purposes and has led to the serious depletion in bamboo stocks. Many types of small trees from the forest collected for use by the local people for building their houses. All these contribute to forest regeneration and poor abundance of these exploited species.

5.1.3 FD's production forestry

FD aims at increasing the valuable timber trees to get the maximum biomass from the forest. Therefore, plantations are done with short rotational tress of rapid growth. Very often, exotic monoculture plantations are done. This causes a great threat to the diversity of both plants and animals. Plantation practices include clearing of land and subsequent weeding to facilitate plant growth. These practices also hamper the natural regeneration

of the forest and reduce the biodiversity and thus this plantation practice remains as one of the major threat to the park biodiversity.

5.1.4 Livestock grazing

Livestock, mainly cattle and buffalos, grazing is widespread within the sanctuary area, particularly during certain period of the year the cattle brows on seedling and undergrowth and thus interfere with natural regeneration of the forest

5.1.5 Hunting

Although not widespread, the local ethnic community hunts /trap some wildlife, the important species sought are wild boar, small deer, jungle fowl, sometimes monkeys and some species of birds. It is reported that sometimes people from distant places come to the forest for bird hunting. Therefore pose a threat to the wildlife of the park as their population is now highly reduced. It may be mentioned that in the past widespread hunting of wildlife contributed to serious decline in the resource.

5.1.6 Unplanned tourism

A large number of people visit the park during the winter, mainly for picnic purposes. They enter the park and walk through the forest. They cause disturbances to wildlife. If tourism is not planned, it could be a serious problem in future.

5.2 Issues of Concern

The following are the major problems that need to be addressed in order to sustainable management of the Lawachara National Park:

- **Reduced forest regeneration:** Mainly caused due to fuelwood collection, cattle grazing and forest fires.
- **Over- and unsustainable resource exploitation:** Mainly include collection of fuelwood, bamboo, building materials, some species of wildlife etc.

- **Local dependence on the forest resources:** Almost all inside HHs (mainly ethnic community) and many HHs from nearby settlements depend on fuelwood, bamboo and other building materials for HHs needs and many HHs depends on it for their livelihood. Thus this emerges as an issue of concern for the project.

- **Poor forest management by the FD and lack of specific Lawachara National Park Management Action Plan:** As became apparent from the appraisal process that the forest is poorly managed by the FD, primarily due to lack of adequate and skilled man power for NP management, lack of logistics and incentives. Besides, the poor morale of local FD staff has been identified as a major cause for illegal use of forest. Most importantly, there is no specific management action plans for the NP and therefore these are important issues for consideration.

- **Local poverty and unemployment:** Local poverty and unemployment have been identified as the driving forces for the illegal forest use by the local people. Unless the problem is reduced it is unlikely to achieve success in the implementation of the project and therefore draws particular attention for addressing the issue.

- **Lack of awareness among local people about biodiversity conservation:** There is serious lack in understanding about benefit of biodiversity conservation and need for sustainable management of forest resources among the local people. It seems that enhancement local level awareness could help in the implementation the project.

- **Poor law enforcement for forest protection and role of local police administration:** Forest patrol is inadequate to check illegal tree felling. Often, the fellers are organized armed gangs. The help from the other local law enforcing agencies is not adequate, rather the activity of local police is not conducive to forest protection and encourages the illegal tree feller.

- **Encroached land:** Still a huge area of the forest is probably remaining under encroachment. Recovery of this land and its subsequent restoration could help in the changes in the landscape

5.3 Challenges for the Project

The possible challenges for the project could be:

- **Stopping fuelwood, bamboo and building material collection:** As there is little alternative source for these resources in the locality and as livelihood of many HHs are dependent on this, it will be difficult to make a ban on the collection of these resources. Therefore there will be a huge task in addressing the issue.
- **Reducing local poverty and unemployment:** Unless the issue is not addressed the illegal use of forest resources may not stopped. However, probably, it will be a difficult job for the project to address this issue.
- **Reversing FD's production forestry policy in favour of biodiversity conservation:** FD's production forestry is century old and therefore they are used to it. This still remain lucrative as it generate huge revenue for the government. The issue of biodiversity conservation is still to override the issue of demand for timber in the country. In the back drop of this scenario it will be difficult for the project to introduce practice for the conservation of biodiversity.
- **Establishing co-management regimes for biodiversity conservation:** Approach for resource management involving the various stakeholders is new in the country. It will be a huge task for the project in bringing the parties, particularly the local community on board could be a difficult job and to ensure their participation in all stages of project implementation.
- **Recovery of encroached land:** Past efforts in the Lawachara for recovery of encroached land were not fully successful as the encroacher managed to prepare some document which give them the right to hold the land.

- **Building relationship with neighboring tea estates:** The neighboring tea estates in many ways are linked to the NP. Some of the estates form the habitat continuity, labor from some estates comes to the forest for resource collection, while others are used for transportation of resources from the NP. Therefore, their help is required for implementing various interventions. However, initial response from some estates did not seem to be encouraging. Therefore, it remains as challenge for the project to build a good working relationship with the neighboring tea estates.

5.4. Opportunities

- **Positive responsiveness of the local people:** The general people showed interest in the project. This aptitude of local people could utilize to ensure their participation in the project and thus will help in establishing co-management.
- **Ecotourism development:** A large number of people visit the park. If infrastructures are developed this will attract more visitors and ecotourism could be planned accordingly.
- **Buffer zone plantations:** There are huge denuded forest areas surrounding the park. This land could be brought under social afforestation schemes and could be used for sustainable resource exploitation zones. This scheme may reduce the dependency on the park's resources.
- **Scope for alternate income generation activities:** There are a good scope for undertaking various AIG activities, such as basket making, handicraft making, lemon cultivation, poultry, cattle fattening, weaving, fish culture etc. This will help to reduce dependence on forest uses.
- **Habitat restoration and rehabilitation:** Still there are denuded areas within the park; these could be brought under plantations with indigenous and eco-friendly plant species. Besides, natural regeneration could be allowed to bring back the wilderness in the park.

6. SUGGESTIONS AND RECOMMENDATIONS

Administrative

6.1 Poor forest management by the FD has been identified as one of the major causes for the forest degradation. Therefore, there is an urgent need to strengthen the local FD in the Park with adequate and skilled manpower and to capacitate them in dealing with co-management of Protected Areas. Specifically the FD may strongly consider the following:

- adequate staffing, particularly for forest patrol under a skilled PA management manager
- Capacity building training for all local forest managers on sustainable management of forest resources and biodiversity conservation
- Providing appropriate logistics, like vehicle and modern arms and ammunitions for local FD
- Provision for providing incentives to local FD staff to make the job lucrative
- Steps for improving the morale of FD local staff and make them dedicated to biodiversity conservation
- Erection of fencing at strategic places of the park
- Provision for strong monitoring and supervision of local activities by a central cell.

Scientific and Technical Management of the park

6.2 An appropriate, site specific and technically sound management Action Plan should be developed with consultation of local people. The action plan, among others, should have the following provisions:

- a plan of action for re-introduction and rehabilitation of endangered plants and animal species
- a plan of action for habitat restoration and rehabilitation
- a plan of action for protection and sustainable use of forest resources and biodiversity

Some specific suggestions:

- i. Plantations with exotic trees must be stopped and no long term strategies should be taken for plantation of the forest, rather principle of increasing wilderness by natural regeneration processes should be followed.
- ii. Short-rotational plantations with exotic trees should gradually be replaced with indigenous species. To this end, the plantations which have reached near maturity (around 15-20 years) may be clear felled and be planted with indigenous species with a focus on fruit bearing species.
- iii. A rehabilitation scheme should separately be considered for the non-human primates, the most important component of the Lawachara NP ecosystem. To this end the following could be considered:
 - o re-establishment of habitat continuity between the fragmented habitats of the primates
 - o plantation scheme with food trees suitable for non-human primates
- iv. Considering local dependence on the forest resources, sustainable use of some resources like vegetables, honey, medicinal plants and other non-timber forest products may be allowed.
- v. Fuelwood, bamboo and the collection of some other major building materials should be stopped on a short term basis, but this may not be a success as long as there is a scarcity of its supplies in the area. However, once the stock is

recovered it may be possible to exploit the resources on the basis of principle of sustainable use. Therefore, project should strongly consider the following:

- establishment of a buffer sustainable resource use zone around the PA with provision for fuelwood plots, woodlots and other plantations required for house building purposes
- providing resource substitution (for example, commercialization of fuel made of rice husk and others)
- promotion of fuel efficient stoves in the locality
- promotion of homestead plantations

Project activities targeted to local stakeholders

6.3 The encroached land, if legally owned by the FD, should be recovered and/or a trade off for social forestry may be made with provision for biodiversity conservation

6.4 Poor resource users, particularly those who are dependent on the forest for their livelihood, should be identified and brought under AIG programs with provision that they give up the unsustainable use of forest resources. The possible AIG opportunities include, cane and bamboo based handicrafts, ginger cultivation, weaving, dairy and fish culture, poultry etc.

6.5 Attempts should be made to bring the local elites on board with the concept of forest protection. In particular, the project needs to consult local public representatives, including local Chairmen/Pourashova Chairman and MP, and involve them, at least in advisory role. The project should also work with existing local community organizations identified under the appraisals.

6.6 Awareness raising activities should be carried out on a priority basis in the area to make the people understand how they could benefit from this project

- 6.7 As there are many allegations about the local police helping the illegal resource users, (illegal tree fellers in particular), strong dialogue should be initiated with them involving the higher authority. A similar approach may be taken in the case of other law enforcement authorities, particularly with BDR, to ensure the effective involvement of law enforcement agencies at the local level.
- 6.8 Excessive forest cases against the local people have led to increased incidences of illegal tree felling. These cases should be reviewed and withdrawn, if necessary, as a trade off for the people's future role in the project.
- 6.9 Planned ecotourism may be promoted in and around Lawachara NP with provision for generating local funds for forest management and welfare of the local people.
- 6.10 The project should make an effort to negotiate with local development partners/agencies to extend their social welfare services to the area.
- 6.11 As an initial step, the project should concentrate its activity in Magurchara & Lawachara punji, Bagmara, Baligaon, Chatakchara, Rashtila, Botertol, Birainpur slum , Radhanagar, Dolubari, Ballarpar, Langurpar etc. villages and later with the other identified villages having minor/negligible stakes.
- 6.12 The project should initiate dialogues with sawmill owners, fuelwood traders and furniture shop owners of Bhanugach bazaar on a priority basis and later with the same of Srimongal and Kamalgonj bazaar.
- 6.13 The project should also initiate dialogue with the surrounding tea estates, like Jhakchara, Khaichara, Gilachara and Fulbari tea estates. The discussion should at least concentrate on the possibility of habitat continuity between Lawachara NP and the tea estate's forest/plantations for wildlife and the common interest for biodiversity conservation.
- 6.14 The project should also make provisions for generating a scientific and social knowledgebase about the NP. On an immediate basis a comprehensive faunal and floral inventory should be made. Investigations into the threatened categories of

plants should be made on an priority basis and a management scheme for their protection and rehabilitation should be developed.

6.15 Most importantly, a long-term biodiversity monitoring scheme should be planned with provision for database development, not for tracking the success of the project, but to track the changes in the biodiversity within the park so that necessary actions could designed and implemented immediately to conserve the biodiversity.

6.16The Protected Areas should be considered as the in-situ conservation site for biodiversity, rather than area for revenue earning.

Annexure-1: Summary Activities (pictorial description)



Map of Lawachara NP displayed at Lawachara FD Rest House



Household interview in Bagmara Village



FGD with FD Official & Staff at Lawachara rest House



FGD in Magurchara punji



Transportation of illegally logged timber from plantation area of Lawachara NP



Headload of bamboo & fuelwood collected from Lawachara NP



Fuelwood stacked in the kitchen of a Khasia household in Lawachara punji



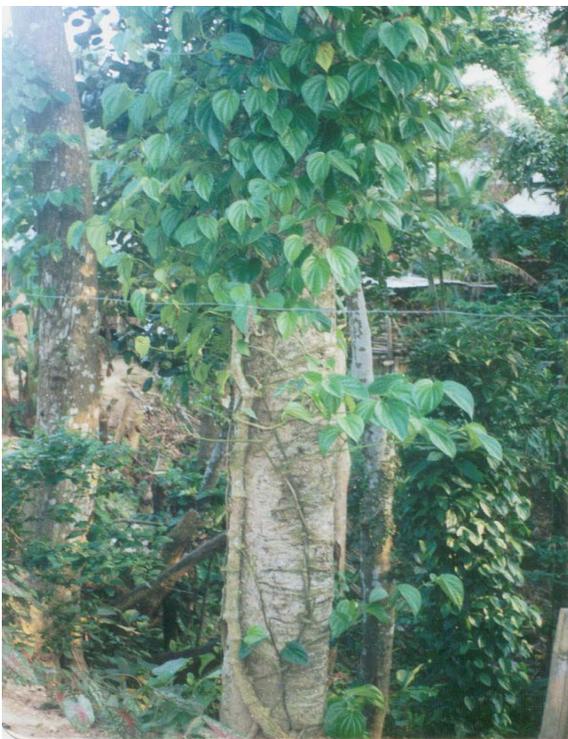
Denuded hills at north-east side of Lawachara NP



North-east buffer zone area of Lawachara NP



Pineapple cultivation in Dolubari village



Betel Leaf cultivation on trees by ethnic people at Lawachara khasia punji



Bambo made baskets- made by Tipra community in Dolubari



Interview with Kana Mia, an experienced old staff of FD at Lawachara NP



Lemon & pineapples are extensively cultivated in Dolubari village



North east buffer zone area (agricultural plot)



Honey bee keeping in Magurchara Punji



Pineapples cultivation opened a new source of income in Lawachara



Wildlife are not safe there: a hollock gibbon, killed by the villagers on 10th May 2004 from Lawachara NP

Annexure-2: Checklist of questions of RRA for FGD, KI and HHs interview

a. Checklist of questions for FGD

I. Stakeholder Assessment

1. What are the settlements/villages from where the people come to the forest and collect resources? Please indicate its location on the map.
2. What are the different categories of people who collect different resources from the forest?
3. At what extent the local people depend on the resources they collect from the forest for their livelihood, please specify for each category of resource users group?
4. What are the local organizations/institutions which are involved with the development /management of the forest or its control or its resource exploitation/and or degradation? What are the activities of these institutions/organizations?
5. Please indicate how the different resource users and other stakeholder groups interact with each other or inter-linked with each other.

II. Resources and resource status

6. Which plants and animals have disappeared from the forest in the recent past?
7. Which plants and animals in the forest have been declining very rapidly?
8. What are the causes for the decline of these animals and plants-Ven diagramming
9. What are the major shifts in the abundance of various resources over time?
Compare between pre-liberation and present status? ---Trend analysis

III. Power structure and local conflict

10. What are the sources of conflict among local people?---ven diagramming
11. Whom do the local people go for conflict resolution?
12. How the local conflicts are resolved?
13. What are the events that bring the local people together?----ven diagramming

IV. Resource exploitation

14. What are the various resources that are collected from the forest and who collect what? Please indicate on the format. ---use format
15. Exploitation of which resources is posing threat to its future availability?
16. Please indicate how exploitation of different resources varies with different seasons? ----- Seasonal analysis
17. Which animals and plants are collected more and which are collected less?
18. When there is scarcity of fuel wood in the locality and indicate how it varies with season? –seasonal calendar
19. Do the local people collect medicinal plants from the forest? Are they available now a day?

V. Demographic profile

20. What are major occupations of the people of the locality? Please rank them.
21. Are there many illiterate people in the locality? Do many people go to High school, college, and universities? Please rank them and indicate on the format
22. Do you think that the occupations of people in the locality have changed over past (30-50 years)? Please indicate the shift in occupation local people over time? Format, in which occupation the shifting have occurred (Trend analysis).

VI. Socio-economic activities/livelihood strategies

23. What are the major activities for earning of the local people and rank them according to their importance?
24. Are there many people who have no land?
25. Are there many people in the locality who have no work to do?
26. Please indicate how the availability of work changes with seasons?
27. What the local people do when there is less or no work for them to do
28. Do many people in the locality take loan from, bank NGO or other organizations and please mention the reasons for taking loans?
29. Do the local people get income generation training from various organizations?

VII. Gender issues

30. How do the roles of men and women differ in this community?
31. What are the different things men and women do concerning the forest and forest products?
 - a. Do the male and female are equally educated in the locality?
 - b. Who take the decision for HH purchase, undertaking income generation activities etc. - male or female?
 - c. Do the females have access to loan and IGA as the male have?
 - d. Is the female are associated with forest management?
 - e. Please indicate on the format, what daily works are done by the male and what daily works are done by the female?----- Chart

IX. Others

32. What are major the NGOs operating in the locality? Please indicate their activities on the format?
33. What are major challenges for the conservation of forest resources?

b. Checklist of questions for Key Informant (KI) interview

Stakeholders Assessment

1. What are the organizations/institutions, which carry out any type, work in the forest?
2. What are the villages from where people come to forest for collecting resources? Please tell which villages are more involved and which are less involved?
3. What are the different categories/groups of people who go and collect various resources from the forest?
4. Who are the other people who don not use forest resources but have linkages with resource exploitation and development of the forest?
5. Are there any people who can be important for the conservation of the forest and its resources?

Power structure and local conflict

6. Who are the more influential people in your locality? Tell who more and who are less influential among them
7. What are the sources of conflict among local people
8. Whom do the local people go for conflict resolution
9. How the local conflicts are resolved
10. What are the events that bring the local people together
11. Have the local people any conflicts with Forest Department? If yes, what are those?

Resources and resource status

12. Which plants and animals have disappeared from the forest in the recent past?
13. Which plants and animals in the forest have been declining very rapidly?
14. What are the causes for the decline of various animals and plants?

Resource exploitation and dependency on forest

15. What are the various resources that are collected from the forest? Which are collected more and which is less?
16. What are the reasons for collection of these resources?
17. Which category/group of resource users are dependent on the collection of these resources?
18. What proportion of HHs benefit from the forest?
19. Collection of which resources likely to pose a threat to those resources/availability in the future?
20. Do people collect and use medicinal plant from the forest?

Demographic profile

21. How many households are living in this community/thana? How many adults?
22. What are the major occupations of the local people?
23. What proportion of local people are illiterate and what proportion of people have read upto school, colleges and above.
24. How have the occupations of people in the locality have changed over past (30-50 years)

Socio-economic activities/livelihood strategies

25. What are the major activities for earning of the local people?
26. What proportions of local people are very poor (have food shortage), poor, middle class and rich?
27. Are there many unemployed in the locality? What proportion?
28. In which season(s) there is scarcity of work in the locality?
29. From which source the local people take credit?
30. What are the different organizations, which operate credit in the locality?
31. Do many people in the locality take loan from , bank NGO or other organizations
32. Have the local people skills that can be utilized for undertaking alternate income generation
33. Is there any work/economic opportunities that requires special skill that the local people don't have?

Legal aspects

34. Can anybody can go to the forest and collect any thing?
35. Is there illegal tree felling? Is it at large scale? Does it affect forest health? Are the feller local or come from outside?
36. What are the main reasons for tree felling?
37. Do you think that the forest department people are protecting the forest resources?
38. Is there any issue of forestland encroachment? What are problem with recovery of these land?

Gender issues

39. Does the male and female are equally educated in the locality?
40. Who take the decision for HH purchase, undertaking income generation activities etc. - male or female?
41. Do the females have access to loan and alternate income generating activities as the male do have?

Others:

42. What are the major threats to the forest habitat and its resources
43. What would be major challenges for the conservation of biodiversity and restoration of its habitat?

c. Checklist of questions for HH interview

1. Govt. has plans to preserve the forest biodiversity and to improve the socio-economic condition of the people ---- what do you think (Actually team will gave a statement on the purpose of their visit and on the project)
2. Do you know that the forest is a park/wildlife sanctuary/reserve
3. Do you know what are allowed and not allowed to do in the park/reserve/sanctuary
4. Do you think that the forest resources should be preserved/conserved ?

Stakeholders

5. What are the villages from where people come to forest for collecting resources? Please tell which villages more involved and which are less involved?
6. What are the various groups of people who collect different types of resources from the forest?
7. Who are the people who do not use forest resources but are involved with the forest or has control over the forest
8. What are the organizations/institutions which carry out any type of work in the forest

Resources and resource status

9. Which plants and animals have disappeared from the forest in the recent past
10. Which plants and animals in the forest have been declining very rapidly
11. What are the causes for the decline of these animals and plants

Resource exploitation and dependency on forest

12. What sorts of things do you use from this forest?
13. Does your household collect it/them, or do you obtain from someone else?
14. If yes, do you collect those for selling or for consumption?
15. Of those things you get from the forest, which ones won't be available in 5 or 10 years?

16. Do you use medicinal plants from the forest?

Power structure and local conflict

17. Who are the more influential people in your locality? Tell who are more and who are less influential among them

18. What are the sources of conflict among local people

19. Whom do you go for conflict resolution

20. How the local conflicts are resolved

21. Have you or your neighbors any conflict with forest department? If yes, what are those?

Demographic profile

22. What is your primary and secondary occupation?

23. How many people in your HH are educated upto School, how many in the colleges and above and how many are illiterate.

Socio-economic activities/livelihood strategies

24. What is your HH primary and secondary source of income

25. Do you have land of your own (home stead/agricultural)?

26. Is your HH income adequate to meet your family expenditure or you having surplus?

27. Have many people in the locality no work?

28. Have you work to do in all seasons? In which season/seasons people of the locality have little/no work

29. What do you do when you have no work opportunities locally?

30. Have you taken loan from, bank NGO or other organizations? Was it easy to get the loan

31. What are the different organizations, which operate credit in the locality?

32. Have you any skill to do a particular work but you don't do? Why don't you do it?

Resource regeneration practices

33. Are there many plant nurseries in the locality?

Legal aspects

34. Can anybody can go to the forest and collect any thing?

35. Do you know that there is tree poaching in the forest? If yes, from where they come (villages)?

36. Do you think that the Forest Department people are protecting the forest resources?

Annexure-3: PRA issues

PRA will build upon the RRA findings and is intended for collecting in depth information on the identified issues.

Understanding the forest make up and dynamics

Transect map : Necessary for understanding the present forest physiography and topography. A few transects across the forest will give an idea on overall make up of the forest. This exercise will also provide the opportunity for learning about the historical trend in changes in the forest make up in different areas of the forest. It will also provide the opportunity to learn many things about the forest while walk with a key informant.

The transect map should indicate

- ❑ land elevation (high/low)
- ❑ land cover/use pattern (trees/bush/grassland/agric. land/marshy land etc.).
- ❑ A similar transect map should be drawn based on the condition of the forest 30-40 years back.
- ❑ Should carry GPS to track the transect walk/take coordinate reading at intervals
- ❑ Should be accompanied by a key informant and learn about the changes over time in the forest

Trend analysis in forest dynamics: changes with time of the following: forest cover and thickness, abundance of tall trees and herbs and shrubs, settlements, population

Resource maps (on the forest): Helps in the understanding the distribution, concentration of different major resources of the forest, resource exploitation and regeneration areas. Also will show

- internal walkways, footpath trails, access roads
- encroached land areas
- settlements
- pressurized areas

- areas for plantation, agricultural and other resource regeneration
- areas for major resource exploitation
- distribution of various resources

Understanding the land encroachment process: Important for Teknaf and Chunati

- historical perspective and trend
- who and how
- uses and transformation
- legalization process
- causal factors
- impact on forest

Understanding local governance system and community structure and functions

- decision makers--- influential people
- hierarchy set up
- local community organizations and institutions and their linkages
- local conflict and conflict resolution
- social cohesion and adhesion (which brings them together)
- collective action

PRA ISSUES

Fuelwood collection/collector

Information to be collected:

- who collect (adult, boys or girls/ women, poor or rich/ employed labor, gang/armed gang, local/outsider if possible mention the settlements from where they come etc.)
- purpose of collection (for selling,HH consumption or both)
- what compels them to extract the resource
- do they depend on the extraction for their livelihood (partially/entirely, supplement income), at what extent and how

- What encourages them to take up the activity
- What are various uses of the resource
- if commercial-where do they sell, who buys, where does it go, who are the traders and where, prices at various levels
- Quantity collected/day/person
- any conflict with FD or other people over the extraction
- any negotiation or arrangement to carry out the activity
- any alternate source for the collection of the resources
- needs and expectation of the collector
- impact on the forest, as the participants see
- Risk for the collectors as the collector see, if the activity is carried out at this rate

Illegal timber felling

Information to be collected:

- Who collect (adult, boys or, poor or rich/ employed labor, gang/armed gang, local/outsider etc. if possible mention the settlements from where they come etc.)
- at individual or group level
- Who are behind the activity and indicate the network
- Purpose of collection (for selling,HH consumption or both)
- reasons for the activity
- uses of the resource at various levels
- what compels them to fell the timber
- Do they depend on the activity for their livelihood (partially/entirely, supplement income or for added income), at what extent and how
- What encourages them to take up the activity
- Anybody protect them, if they are in problem
- If commercial-where do they sell, who buys, where does it go, where are the traders-indicate the chain

- how the protection is provided by FD or by any other agencies (e.g. Police etc.) and at what stage
- any conflict with FD or other people over illegal felling
- any negotiation or arrangement to carry out the activities
- needs and expectation of the feller
- as seen by the feller, impact on the forest due to the activity on forest and its resources
- Impact on/risk for the collector, if the activity is not allowed
- Seasonalities and trend analysis

Collection of trees as building materials

Information to be collected:

- who collect (adult, boys or girls/ women, poor or rich/ employed labor, gang/armed gang, local/outsider if possible mention the settlements from where they come etc.)
- carried out at individually or in group
- purpose and reasons for collection (for selling,HH consumption or both)
- uses of the resource
- what compels them to extract the resource
- do they depend on the extraction for their livelihood (partially/entirely, supplement income), at what extent and how
- What encourages them to take up the activity
- if commercial-where do they sell, who buys, where does it go, who are the traders and where, prices at various levels
- any conflict with FD or other people over the extraction
- any negotiation or arrangement to carry out the activity
- any alternate source for the collection of the resources
- needs and expectation of the collector
- impact on the forest, as the participants see
- Risk for the collectors, as the collector see, if the activity is carried out at this rate

Bamboo and cane collection

Information to be collected:

- who collect (adult, boys or girls/ women, poor or reach/ employed labor, gang/armed gang, local/outsider if possible mention the settlements from where they come etc.)
- purpose of collection (for selling,HH consumption or both)
- what compels them to extract the resource
- Do they depend on the extraction for their livelihood (partially/entirely, supplement income), at what extent and how
- What encourages them to take up the activity
- What are various uses of the resource
- if commercial-where do they sell, who buys, where does it go, who are the traders and where, prices at various levels
- any conflict with FD or other people over the extraction
- any negotiation or arrangement to carry out the activities
- any alternate source for the collection of the resources
- Needs and expectation
- Impact on the forest, as the participants see
- Risk for the collector, if the activity is carried out at this rate

Rohinga issue (Teknaf):

- ❑ Distribution of Rohingya settlement/camps in and around the forest
- ❑ Settlementalization or process of establishing settlement (past and present)
- ❑ Present economic activities
- ❑ dependence on the forest resources and its impact on the forest
- ❑ relationship with the local people or agencies
- ❑ internal governance system
- ❑ conflict with FD or other agencies or other people with use of the forest
- ❑ needs and expectation

Information the Ethnic community:

- ❑ Distribution of ethnic community settlement in and around the forest
- ❑ Probable No. of HH in each settlement
- ❑ Present economic activities
- ❑ Resources (plants and other NTFPs) they extract and reason for extraction (consumption/selling or both)
- ❑ dependence on the forest resources and its impact on the forest
- ❑ land encroachment by them
- ❑ relationship with the local people or agencies
- ❑ internal governance system
- ❑ conflict with FD or other agencies or other people on the use of the forest
- ❑ needs and expectation
- ❑ reaction to the project

Information on Forest villagers:

- ❑ Distribution of forest villager's settlement in and around the forest
- ❑ No. registered and approx. present number of HH in each settlement
- ❑ Privileges under FD agreement
- ❑ compliances to agreement
- ❑ Present economic activities
- ❑ Resources (plants and other NTFPs) they extract and reason for extraction (consumption/selling or both)
- ❑ dependence on the forest resources and its impact on the forest
- ❑ settlementalization processes and land encroachment by the forest villagers or by their dependant
- ❑ relationship and conflict with FD
- ❑ Forest villager management / or internal governance system
- ❑ needs and expectation
- ❑ reaction to the project

Betel leaf cultivation:

- ❑ distribution of betel vine yards within and around the forest and approximation of its number
- ❑ historical perspective of flourishing the activity in the area
- ❑ Who cultivate (local people, poor/rich people, influential etc?)
- ❑ ownership of land (FD/private/khas etc./own)
- ❑ Dependence on the activity (necessary for livelihood, supplement income, entrepreneurship etc.)
- ❑ Impact on the forest resources and its sustainability
- ❑ Development of
- ❑ Conflict with FD
- ❑ Marketing chains and mechanism

Jhum (shifting) cultivation:

- ❑ Identify the areas where the activity dominate within and around the forest and indicate its extent
- ❑ historical perspective and trend of the activity
- ❑ who do practice and where do they come from (tribe of ethnic people, poor or rich, on whom land (FD/khas/privately owned
- ❑ dependence on the activity (necessary for livelihood, supplement income, entrepreneurship etc.)
- ❑ Impact on the forest resources and its sustainability
- ❑ Conflict with FD
- ❑ Trend in changes in the activity

Understanding the land encroachment:

- ❑ Historical perspective and trend
- ❑ Who encroaches and reason for encroachment and what drives to undertake the activity
- ❑ Legalization of process
- ❑ Conflicts and negotiation process

- ❑ Uses and transformation of encroached land
- ❑ What encourages them to encroach land
- ❑ Local mechanisms/system or traditional practice for land encroachment
- ❑ Trend in the changes in the intensity of the activity

FD's forest management regimes:

- ❑ Forest patrol, check post operation etc.
- ❑ Activities of other organization in relation to the forest protection
- ❑ Any special management efforts for the NP/WS/Reserve etc.
- ❑ Forest cases and punishment
- ❑ Is the present regime effective in protecting the forest
- ❑ Prevailing unlawful extraction and uses
- ❑ If not effective, what are the causes for the poor management of the forest (lack of manpower and logistics/ accessibility and problem in movement/ fear of bandits/ local people more powerful/ little help from the higher authority/ low morale of FD staff/ intervention by the local public representative or political elite etc.)

FD's plantation strategies:

- ❑ Area under plantation
- ❑ Species planted (information on clear felling etc.)
- ❑ Plantation practices
- ❑ Nursing and care (thinning etc.)
- ❑ Impact on the wilderness

Information on Brickfield/ Brickfield owners (Chunati/Teknaf):

- ❑ Nos. and distribution
- ❑ Owners and their influences
- ❑ Compliance to forest laws
- ❑ Period of operation
- ❑ Sources of fuelwood (from the forest concern or from elsewhere)

- ❑ Type of fuelwood used
- ❑ Network of supplies
- ❑ Approx. quantity used/year
- ❑ Impact on forest

Information on Sawmill/ Sawmill owners (Chunati/Teknaf):

- ❑ Nos. and distribution
- ❑ Owners and their influences
- ❑ Compliance to forest laws
- ❑ Period of operation
- ❑ Who brings timber to them
- ❑ Sources of timber (form the forest concern or from elsewhere-homestead)
- ❑ How distinction is made between timber from the forest and that from villages
- ❑ Inspection by FD/or other law enforcing authority
- ❑ Network of supplies

Livestock grazing (Teknaf):

- ❑ Identification of grazing areas
- ❑ Types and No. of livestock
- ❑ Who owns the livestock (ethnic/poor/rich/influential/general people)
- ❑ Mention whether seasonal and all time
- ❑ Description of damages /impact caused by grazing
- ❑ Alternate areas for grazing

Information on clear felling (Satchari):

- ❑ Area felled
- ❑ Name of auctioneers and their influences
- ❑ Natural or planted trees felled
- ❑ Felling practices (clearing, burning etc.)
- ❑ Operation period

- ❑ Transportation and marketing of felled trees-network
- ❑ Link with illegal feller
- ❑ Impact on the forest

FGD with Tea Garden people (Lawachara (3), Satchari (2) and Rema (1)):

- ❑ Unemployment in the labor colony
- ❑ Penetration to NP?WS /RF by tea garden people
- ❑ Resource collected from the forest
- ❑ Reasons for invading the forest and collecting resources
- ❑ Ecosystem continuity with the forest
- ❑ Role of Tea Garden management in preventing poaching

Annexure-4: Sample completed PRA formats on Work load of male and female, seasonal income, expenditure and credit, daily work chart of female and mobility map.

নির্সর্গ সাপোর্ট প্রকল্প
বাংলাদেশ বনবিভাগ
নেকম
অংশ গ্রহণ মূলক গ্রামীণ / স্থানীয় সমীক্ষা

নারী পুরুষের কাজের তুলনা সম্পর্কিত তথ্য

বনভূমি : লাউশাছড়া বিট: লাউশাছড়া গ্রাম : ডুলুছড়া তারিখ: ২০০৪

নারী পুরুষের কাজের চাপের তুলনা (মাসভিত্তিক) :

পুরুষ : _____
নারী : _____

মাস	পুরুষ	নারী
বৈশাখ
জ্যৈষ্ঠ
আষাঢ়
শ্রাবণ
ভাদ্র
আশ্বিন
কার্তিক
অগ্রহায়ন
পৌষ
মাঘ
ফাল্গুন
চৈত্র

বিঃ দ্র: - অগ্রহায়ন, পৌষ ও মাঘ - ব-ময় - কাপড় বোনে (আইনা)।

অংশ গ্রহণকারী : পীতাম্বী দেব বর্মণ, আক্ষনা দেব বর্মণ, পঞ্চাঙ্গী দেব বর্মণ, জ্যোতিষ দেব বর্মণ।

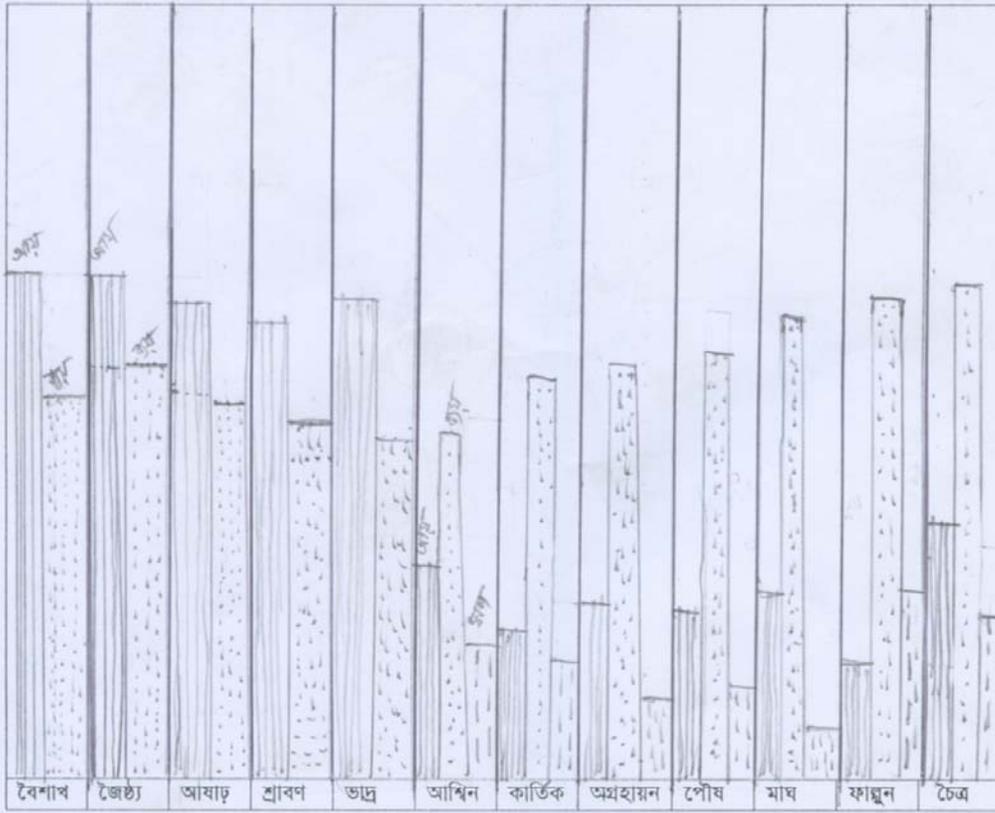
নির্সগ সাপোর্ট প্রকল্প
বাংলাদেশ বনবিভাগ
নেকম
অংশ গ্রহণ মূলক গ্রামীণ / স্থানীয় সমীক্ষা

ঋতু ভিত্তিক আয়, ব্যয় ও ঋণ সম্পর্কিত তথ্য

বনভূমি : লাউয়াহাড়া বিটঃ লাউয়াহাড়া গ্রামঃ জুমুহাড়া তারিখঃ ০৬.১০.২০০৪

ঋতু ভিত্তিক আয় ব্যয় ও ঋণ সম্পর্কিত ছক :

আয়ঃ _____
ব্যয়ঃ
ঋণঃ



বিঃদ্র: বৈশাখ থেকে চৈত্র পর্যন্ত আয় কম হয়। আশ্বিন থেকে চৈত্র পর্যন্ত খরচ কম হয়।
মাঘ থেকে আশ্বিন পর্যন্ত খরচ বেশি এবং প্রথম পাঁচ মাসের মধ্যে মজুরি দায় ঋণ পরবর্তী
মাসের কিছু খরচ চালাতে হয়।

অংশ গ্রহণকারী :

- ১) আল্পনা দেব ব্রহ্ম
- ২) গীতা হারী দেব ব্রহ্ম
- ৩) পঙ্কজ দেব ব্রহ্ম
- ৪) আশীষ দেব ব্রহ্ম

