



Site-Level Field Appraisal for Protected Area Co-Management: Satchari Reserve Forest



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Site-Level Field Appraisal for Protected Area Co-Management: Satchari Reserve Forest

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EXECUTIVE SUMMARY

1. A two-step rapid appraisal process, initially RRA, followed by subsequent PRA, was undertaken to make a comprehensive situational analysis of the Satchari Reserved Forest during May-July, 2004, aiming at helping to shape the future activities for the improved management of the within the Nishorgo Support Project. Specifically, the appraisals focused on the assessment of major stakeholders, understanding causes for the forest degradation and its underlying facts, identifying the challenges for the project and exploring the opportunities for its improved management. In addition to application of various RRA and PRA tools, like trend and seasonal analysis, venn diagramming, livelihood analysis, ranking, scoring, resource mapping etc., a series of household and group interviews, and focus group discussions were also conducted.
2. The Satchari Reserved Forest is situated in the Paikpara Union of Chunarughat Upazila in the district of Habigonj. The forest is under the jurisdiction of Satchari Forest Range under Sylhet Forest Division and stands on the Dhaka-Sylhet Highway and is about 130-140 km northeast of Dhaka, between Teliapara and Srimongal. The forest covers an area of about 1760 ha.
3. A total of 19 villages having varied degree of stakes with the forest have been identified, of which one village (Tiprapara) is located inside and the rest are located outside of the forest in the range of 5-8 km away from the forest. Tiprapara Forest village has major stakes with the forest. Two villages, namely Gazipur and Deorgach have medium to major stakes with the forest. Four villages (Ratanpur, Kalishiri, Ghanoshyampur, Doulatkhabad) have medium stakes with the forest. Six villages have minor-medium stakes (namely Goachnagar, Baghbhari, Teliapara, Ektiarpur, Marulla and Nayani Bongaon), while five villages (Shahjanpur, Rasulpur, Promanandapur, Bhagaru, Enatabad and Holholia) have minor stakes. The majority of the fuelwood collectors mainly come from

Goachnagar, Baghbari and the illegal feller mainly come from Kalishiri, Ghannoshympur, Telia para, Goachnagar and Deorgach, seasonally from Gazipur.

4. There are eight tea estates bordering the forest, of which five estates (Surma, Satchari, Chaklapunji, Laskarpur and Kapaichara tea estates) have medium level of stakes with the forest, as many of its unemployed labor are involved with fuelwood collection and illegal timber felling and the rest have minor and/ or negligible stakes.
5. Based on resource exploitation, a total of 17 stakeholder groups has been identified in the area, of them 13 are primary stakeholders and are involved directly in resource extraction and forest conversion activities, and the rest are secondary stakeholders. Of the primary SH, three SH groups (moholder, illegal timber feller, fuelwood collector) have major stakes with the forest having major role in forest degradation, while other three have medium (Bamboo collector, house building materials collector, lemon cultivator) and the rest have minor stakes with the forest. Demographically, the stakeholders fall into four categories, viz. forest villagers, local poor people, tea estates labor, moholders. The local poor people, including the ethnic forest villagers are involved with major extraction of resources from the forest. Moholder (auctioneer), who are rich and locally influential, are involved with legal tree felling and destroy the forest biodiversity in the way of clear felling operation.
6. About 100-150 people (about 50-100 people on a regular basis) from the outside villages and tea estates enter the forest for fuelwood collection. The collectors are usually adolescent and adult male and females. In addition to individuals, there are a number of organized gangs engaged in illegal timber felling and they are predominantly from few villages. About 10-20 people collect bamboo from the forest each day.
7. All HHs of the inside settlements (Tiprapara) mostly dependent on the forest for their everyday household needs of fuelwood, house building materials, vegetables

and others. They also collect some vegetables, fruits and other NTFPs from the forest for their HH needs and also hunt wildlife. They are also involved with lemon cultivation within a confined area of the forest. Traditionally, the local people are used to collect various resources from the Satchari and other adjacent reserved forests. Many HHs, mainly the poor, from the identified villages, entirely or partially dependent on the collection of fuelwood, timber, bamboo collection. Almost 100% illegal tree feller sells the illegally felled timber, but most of them undertake it for added income. Many HHs are however entirely dependant on this activity.

8. According to local people's perception, the forest cover has decreased by only about 15-20%, compared to pre-liberation period. On the other hand, forest thickness and abundance of tall trees have decreased approx. by 60%. The abundance of herbs and shrubs and sungrass has also decreased by about 50-60% due to clearing and claiming land for plantations. Indigenous bamboo now remains only by 15%. Except birds, the abundance of major wildlife has also decreased by more than 60%. The abundance of medicinal plants has also decreased by 60%. The decrease in the abundance in wildlife has probably caused by 60-70%. The abundance of fruit bearing trees has decreased by 60%. The NTFPs, like honey and sungrass have also decreased alarmingly.
9. By now, many wildlife species have become extinct from the forest. Among the extinct animals, tiger, sambar deer, leopard, porcupine, gaur, francolins etc. are notable. Some other wildlife, like barking deer, bear, fishing cat, gibbon, python, wildfowl, cobra, hornbill, hill myna, vultures and turtles have also become variously threatened.
10. Compared to pre-liberation period, activities like illegal timber felling and fuelwood collection have increased by 60-65%. On the other hand, collection of wild bamboo decreased by about 40%, and honey by about 60% owing to unavailability of these resources. Collection of sungrass has however increased during 80's due to large scale felling and then slightly declined by now, again due

to claiming of sungrass beds for plantations. Hunting of wildlife has also decreased by more than 80% mainly due to serious decline in the resource.

11. About 12 different types of resources are extracted from Satchari Reserved Forest. Of them, two (fuelwood and timber) are extracted on a large scale, two on a moderate scale (bamboo and building materials), 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. Timber felling, fuelwood and bamboo collection, collection of house building materials, hunting etc. are posing threats to the forest and has a huge impact on forest regeneration and local biodiversity.
12. Extraction of resources from the forest is season dependant. Most of the timber illegally felled during the rainy season as forest patrol is poor during that period. Fuelwood is mainly collected during dry season due to easy accessibility and mobility inside the forest. Bamboo extraction mainly takes place in drier months that corresponds to local needs for house building.
13. Major causes for the degradation to forest in order of magnitude are as follows: clear felling, FD's plantation strategies, illegal timber felling, fuelwood collection, hunting, bamboo and cane collection, collection of house building materials, lemon cultivation by forest villagers etc. The prevailing extreme poverty in the locality, unemployment, coupled with weak law enforcement situation made poor local people to be reliant on the forest resources for meeting HH needs and added income. Scarcity in the availability of these resources in the locality is also the underlying causes for forest use. It is unlikely to prevent the illegal forest extraction activities unless these underlying causal factors are addressed. The local poor people, including the ethnic forest villagers, are mainly involved with direct extraction of forest resources and are responsible for causing most harm to the forest. In Satchari RF, the moholders have a great role in the destruction of forest biodiversity.

14. FD's poor forest patrol, easy negotiation with local FD staff, inadequate manpower of FD, and the involvement of influential moholder with the forest are all contributing to illegal timber felling. Increased fuelwood collection has also been linked to development of transportation system and marketing opportunities. Excessive forest cases lodged by the FD are also driving the people for increased timber felling.
15. In addition to local consumption at HH level and by local hotel and restaurants, a substantial amount of fuelwood is transported to other urban areas. There are about 4-5 fuelwood traders in Teliapara Bazar and about 8-10 in Deorgach and Chunarughat. But, they receive fuelwood from other forests as well. Besides, 3 local brickfields, which burns coal, also use about 40-50% fuelwood as burning material and a substantial quantity of it comes from Satchari RF. There are about 18 sawmills in Teliapara (1), Deorgach (5) and Chunarughat (12), owned by very influential persons. It is alleged that the sawmills receive illegally felled trees as well at a cheap rate. It is also alleged that the local furniture shops, a large number of them exist in the area (about 20), have also links with timber feller and sawmills and thus appear as important secondary stakeholders.
16. FD's plantations strategy is seen as one of the major causes for forest and biodiversity degradation. The plantation is targeted to production forestry, no biodiversity conservation strategy was considered. In addition to high valued timber trees, the park is planted with exotic trees, sometimes with mono species. Bamboo and cane, and agar (2 plots) have also been planted in an extensive area. The plantation practices include clearing and subsequent weeding of the proposed plantation areas and thus have contributed biodiversity loss and habitat loss for the wildlife.
17. Based on limited HH survey, it appears that in the locality, majority of the people (55-60%) are poor, followed by middle class 22-25%, extreme poor 17-20%, and 4-5% are rich. This picture in tribal community is different, about 65% HHs are poor and 12% extreme poor and the rest belong to rich (1%) and middle class

- (2%). The major primary occupation of the local people is agriculture (65-70%), principally paddy cultivation, followed by day labor (20-25%), fuelwood and timber poaching (3-5%), small business (2-3%), service (3%) and overseas employment (1-2%). The literacy rate is low (35-40%). Currently 80-85% children go to schools. In average, about 15 % people of the area (including tea estate) are unemployed, this figure vary with seasons, being most in chaitra, Baishakh, Jaistha, Ashar.
18. The local power structure remains as a crucial issue to the management of the forest. There are about 24 local influential people, who actually have major control over the local people and locality and even over local administration. Some of them have linkages with the illegal tree feller. The local public representatives (including MP) are also very influential and are main sources for local conflict resolution. The tribal people have their traditional way of governance of their community, among forest villagers, Mr. Jogesh is the most influential person.
 19. Lemon cultivation is the main economic activity among the Tipra forest villagers. The cultivation by the forest villagers are confined only to a land area nearby their village. . The cultivation practices include clearing and weeding of the land. Therefore reduce the biodiversity value of the areas as well as contribute to habitat loss.
 20. There is one ethnic community, Tipra, located inside the forest. They are the recognized forest villagers of Satchari RF. They have no written agreement and no land was allocated to them. Their main occupation is day labor, followed by fuelwood collection, lemon cultivation, etc. This community is mainly dependent on the exploitation of forest resources for their HH needs.
 21. The major NGOs that operate in the locality are: HEED-Bangladesh, ASA, BRAC, BASA, Grameen Bank, CARITAS, etc.. Their major activities are concentrated on health, education and alternate income generation. Some of them

- have credit programs exclusively for the women. There are also 2 community organizations and deal with local problems and welfare and cultural activities. However, they are not much active.
22. Many NGOs and 2 banks provide micro-credit to local people. Bank loans mainly given for agriculture. NGOs provide credit mainly for IGA. NGO's IGA programs concentrate on small business, fish culture, poultry, livestock rearing etc. and their activities mainly focused on the women. Skill development activities by the NGOs are limited. The tribal people have skills in weaving and pig rearing.
23. The main sources of conflict among local people occur over land disputes, livestock grazing, children affairs, money lending and transaction, marriage affairs, family affairs, etc. Conflicts are resolved by arbitration by local elites & public representatives (UP chairman and members,), Gram Sarker. If the local efforts are not fruitful it may lead to filing cases with Thana-police, and may end up in courts.
24. Major concerns regarding forest biodiversity conservation and management include clear and illegal timber felling, fuelwood and bamboo collection, FD's plantation strategies, hunting, local poverty and unemployment, weak law enforcement etc. the challenges for the project seem to be stopping illegal felling, changing FD's production forestry and plantation strategies, reducing local poverty and unemployment, building relationship with neighboring tea estates etc.

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
BREB	Bangladesh Rural Electrification Board
CBO	Community based Organization
CODEC	Community Development Centre
Dept.	Department
DFO	Divisional Forest Officer
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
Mat.	Material
MP	Member of Parliament
NACOM	Nature Conservation Management
NGO	Non Government Organization
NP	National Park
PA	Protected Area
PDB	Power Development Board
PRA	Participatory Rural Appraisal
RDRS	Rangpur Dinajpur Rural Development Society
RO	Range Office
RRA	Rapid Rural Appraisal
SH	Stakeholder
TE	Tea Estate
Tk.	Taka
UP	Union Parishad

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 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 scooping 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 Satchari RF 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 RF.

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 identified during PRA. The report starts with general introduction in **Chapter 1** that includes the background information 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 taken for the 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 and highlights the opportunities for the project. 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 Satchari Reserved Forest is situated in the Paikpara Union of Chunarughat Upazila in the district of Habigonj. The forest is under the jurisdiction of Satchari Forest Range under Sylhet Forest Division and is divided into two forest beats, namely Stachari forest beat and Telmachara forest beat. Stachari Reserved Forest stands on the Dhaka-Sylhet and is about 130-140 km northeast of Dhaka, between Teliapara and Srimongal.

The Satchari Reserved Forest covers an area of about 1760 ha and is basically governed by the Forest Act 1927 (with subsequent amendment). The forest area is undulating with slopes and hillocks, locally called tilla, ranging from 10-50 m and are scattered in the forest. The forest is drained by a number of small, sandy bedded streams, all of which dry out following the end of rainy season in October-November, and are subject to intensive commercial harvesting of sands during the dry season. Dhaka-Sylhet metallic road criss-cross the forest from east to west.

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. About 200 ha of the reserved forest are in natural condition and most of the remainder parts of the forest under in plantations, both long- and short rotations. Some natural and long-term plantations have natural underneath vegetations. Bamboo and cane have been planted in many plantation areas after clearing undergrowth vegetation. Many short-rotation monoculture plantations have no undergrowth. Lemon is cultivated by the inside forest villagers. They have also established an agricultural area in the reserve.

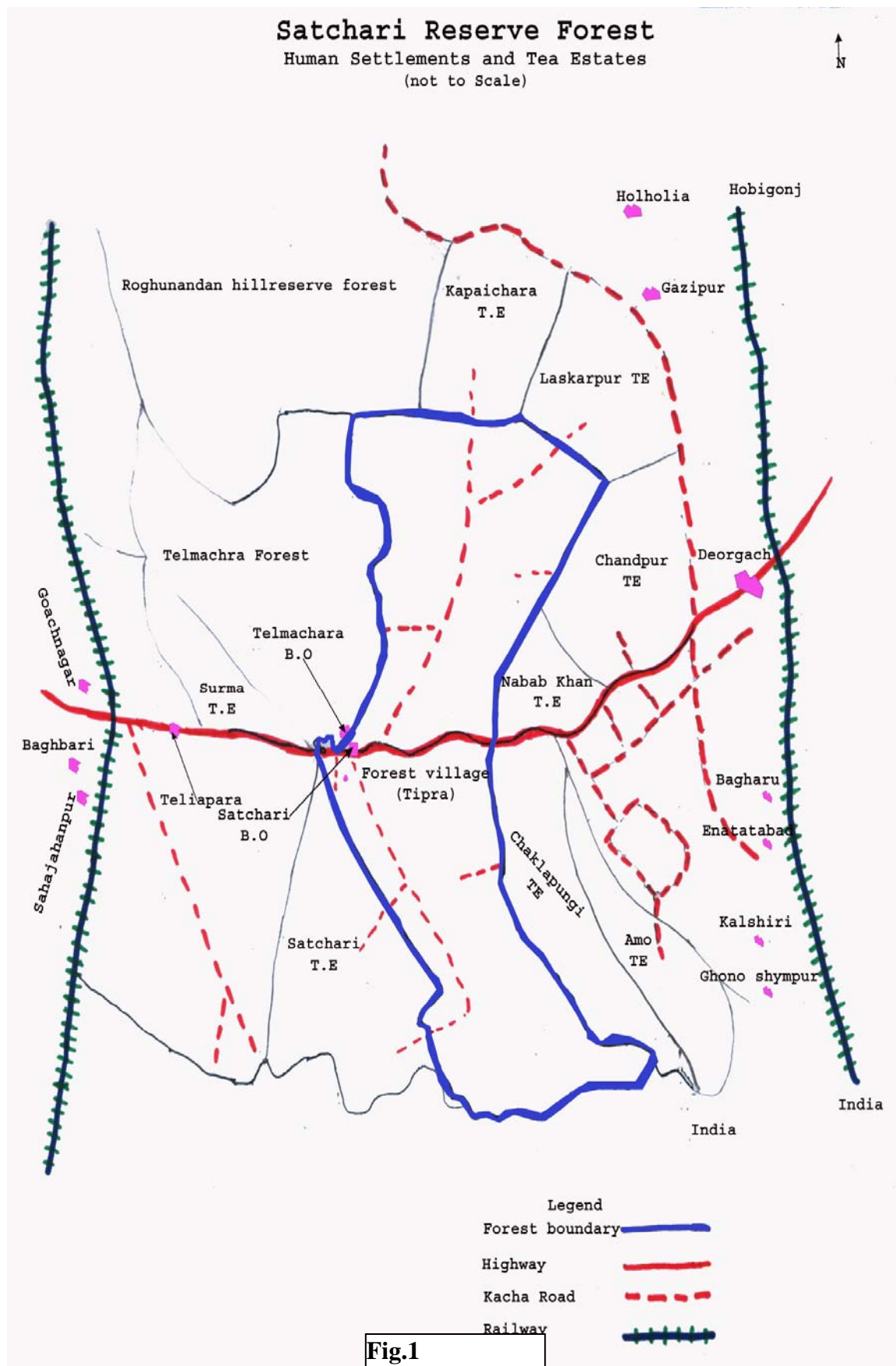
There is one forest village located within the Reserved Forest. This is a tribal community, the Tripura tribe, and has about 20 HHs. The adjacent areas are covered by Tea estates, coffee, rubber plantations and rice fields. The other settlements that have stakes with the reserve are located about 3-8 km away from the reserve. The northwestern part of the

forest is bordered by Raghunandan reserved forest. The southern boundary of the forest is bounded by Indian border line.

Satchari Forest operates on the principle of production forestry, eg. The forest is periodically clear felled and subsequently planted with valuable timber trees and other plants. Plantations in Satchari reserved forest started in 1948 and upto the period 1996 about 1150 ha have been planted. Initial plantations included only long-rotations, primarily with teak and conspicuous tree species. Intensive plantation of the forest occurred during the period 1983-90. The later plantations include mainly short-rotational monoculture plantations, mostly with exotic, rapid growing species. The commonest species for short-rotation plantations are moluccana, eucalyptus, acacia, mangium etc. the FD has also planted cane and bamboo. The plantation practices, which include burning and subsequent weeding, proved detrimental to the forest environment and its biodiversity. The forest generates a substantial amount of revenue by clear felling of timber trees and bamboo.

A complete picture on the biological resources of the forest is not available. As revealed from secondary data collection, a total of 6 species of amphibians, 18 species of reptiles, 149 species of birds and 24 species of mammals have been recorded from the forest. The forest is highly degraded in its biodiversity. A number of animal species have already become locally extinct, while many more on the verge of extinction and a large number of them are variously threatened.

Clear felling, FD's plantation strategies, over exploitation of many forest resources are posing threats to the forest environment and its biodiversity.



3. METHODOLOGY

As mentioned in the preceding section a two-step rapid appraisal strategy was taken. RRA was conducted in the initial stage 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 Satchari RF 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 22nd 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 interviews and focus group discussions (FGD). 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 are shown in Table 1.

Table 1. Selected RRA Issues for Satchari RF, 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	HH Int. GD KI FGD Seasonal Calendar	HHs heads/members Teacher, retired officers, old people Public representative Local elite Community people

Sl.	RRA Issues	Specific activities	Tools Used	Participants
		- Seasonal workload of male and female		Forest villagers
4	Gender Issues	<ul style="list-style-type: none"> - General impression on living standard, education and health status etc. - Participation in decision making (household and PA management) - Women mobility in the area - Access to IGA and credit etc 	HH Int. GD FGD KI, Direct observation	HHs heads Women group Community people Local elites 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 - Sources of conflict and conflict resolution 	FGD GD HH int.	Local community FD staff 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 	FGD	FD staff and forest villagers

Sl.	RRA Issues	Specific activities	Tools Used	Participants
		<ul style="list-style-type: none"> - Conflict and negotiation with FD staff - Land encroachment/recovery - Law enforcement mechanisms in the PA - Illegal tree felling and forest cases 	GD KI FGD KI	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 three-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 Satchari RF

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 	Transect walk KI Resource mapping Secondary data, FGD,KI	PRA Team Local elite, FD staff FD staff and village headman, forest villagers.

Sl.	Issues	Specific activities	Tools used	Participants
		-changes in forest cover, thickness, vegetaion, settlements, animals and availability of resources	Trend analysis	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 - Local problem, cause and possible solution 	Venn diagram Ven diagram Venn diagram FGD/GD FGD & GD and Ranking	Community people Community As above As above and local elite
3	Livelihood strategies	Income and expenditure sources, Livestock, Richness and poverty	Wealth ranking HH interview	Women group and local people
4	Gender issue	<ul style="list-style-type: none"> - Family decision making - mobility - workload - Education and access to credit 	Decision making Chart Mobility map Daily and seasonal work chart HHs Int. & FGD	Women group Women group Women group Women and local educated people
5	Fuel wood collection	<ul style="list-style-type: none"> - Information on collector - Purpose and driving force for collection - Dependence on the extraction for their livelihood and its extent - Uses and marketing channel of the resource - Level of extraction and seasonality - Conflict with FD or other people over the extraction - Negotiation for carrying out the activity - Alternate source for the collection of the resources - Needs and expectation of the collector 	FGD & GD, seasonal analysis	Fuel wood collector, community people, local hotel and tea stall owners

Sl.	Issues	Specific activities	Tools used	Participants
		<ul style="list-style-type: none"> - Impact on the forest and future risks for the collector 		
6	Illegal timber felling	<ul style="list-style-type: none"> - Information collector - key people behind the activity and network - Purpose and driving force for collection - uses and marketing channels and dependence - What encourages them to take up the activity - Anybody protect them, if they are in problem - Protection by FD or by any other agencies (e.g. Police etc.) - conflict and negotiation with FD or other people - needs and expectation of the feller - impact on the forest and future risks for the illegal feller - Seasonalities and trend in timber extraction 	<p>FGD, GD and KI</p> <p>Seasonal calendar and trend analysis</p>	Illegal timber feller, FD staff and community people, teacher and local elite
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 	<p>FGD, GD</p> <p>Seasonal calendar and trend analysis</p>	<p>Bamboo and cane collector, community, people and FD staff</p> <p>Bamboo collector and local people</p>

Sl.	Issues	Specific activities	Tools used	Participants
9	Information on Forest villagers & Ethnic Community	<ul style="list-style-type: none"> - Distribution of forest villager's & ethnic communities 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, Ethnic Community and FD staff FDs villagers register
10	Lemon cultivation	<ul style="list-style-type: none"> - distribution of Lemon 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	Lemon cultivator FD staff Local community

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 Reserve Forest area. However, because of the size and geographical location of the RF, 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 Satchari RF area. A list of the selected RRA and PRA spots for Satchari RF 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
13/05/2004	Deorgach	Near Amtoli rail	Outside village almost

		station	5km to the Northeast side of the forest
14/05/2004	Teliapara, Tiprapara	Teliapara is outside village, Tiprapara is inside village	Teliapara is 6km distance from RF. (west side)
15/05/2004	Shahjanpur, Jagadishpur, Chakla punji TE village	Shahjanpur & Jagadishpur outside village Chakla punji TE adjacent to RF	Shahjanpur is 7km distance & Jagadishpur is 9km distance form RF.

Table 4. PRA Schedule, Spots and PRA Activities in Satchari RF.

Date	Beat	Village/ Location	Performed activities	Remarks
05/7/042	Satchari	Goachnagur	GD(1), HH interview(3) Social Mapping	GD with local community & HH inter view with female participants. Social Mapping with KI
		Teliapara	GD (1), HH interview (3) Social Mapping	GD with local community & HH inter view with female participants. Social Mapping with KI
06/7/04		Shahajahanpru	GD (1) HH interview (4) Social Mapping	GD with local community & HH inter view with female participants. Social Mapping with KI
		Deorgach	GD (1), KI (1) HH interview (4) Social Mapping	GD with local community & HH inter view with female participants. KI with local UP member ,Social Mapping with local people
07/7/04		Tiprapara forest village	FGD (1), KI (1), HH interview (4) Social Mapping	FGD with forest villagers, KI with head man of forest village, HH with female group
		Forest visit	FGD(1) Forest resource mapping, Transect work	FGD with forest staff, Forest resource mapping, Transect work with forest villagers and FD Staff
08/07/04		Holholia	GD (1)	GD with Villagers
		Gazipur	GD (1) HH interview (4) Social Mapping	GD with local community & HH inter view with female participants. Social Mapping with KI

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 Satchari RF

Team 1		Team 2	
Name	Duties/Organization	Name	Duties/Organization
Mr. Dhruba 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 Sobahan	NACOM	-	-

Table 6. PRA Team for Satchari RF

PRA Team composition					
Team 1		Team 2		Team 3	
Name	Duties/Organization	Name	Duties/Organization	Name	Duties/Organization
Mr. Dhruba 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
Kate Studd	Technical Person, NACOM				

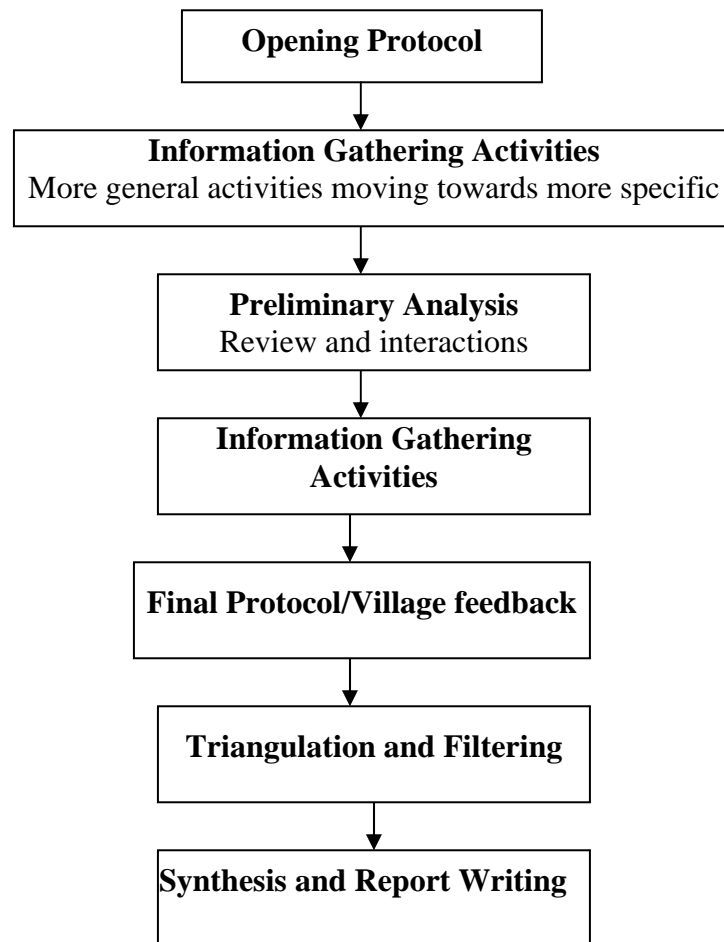
The RRA field exercise was conducted between 16th and 19th May 2004, and the PRA exercise between 29th June and 4th July 2004. The detailed time schedule for the field activities are provided in Tables 3 and 4 respectively.

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, 2 group interviews, 4 key informant interviews, and 2 Focus group discussions (one with forest villagers of Tipra para forest village and another with FD staff) were conducted. The other RRA tools were applied during above mentioned interviews and discussions. Similarly, during PRA a total of HH

22 interviews, 6 Group interviews and 2 focus group discussions, 2 key informant interviews were conducted. This is summarized in Table-7.

Table 7. Summary of Performed Activities in Satchari RF during PRA & RRA at a Glance.

Appraisal	Village/ Settlement covered	FGD	GD	KI Interview	HH Interview	Transect	Resource and Social mapping
PRA	7	2	6	2	22	1	7
RRA	6	2	4	4	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 RF 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.

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 analysed and owned by the participants. Conditions were particularly constraining for the PRA field team in Satchari 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 was particularly noticed in discussions with stakeholders in the tea garden around the RF area, 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 RF. 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 AND FINDINGS

4.1 Status and Trend in the Forest

Out of 1760 ha, only about 200 ha of Satchari Reserved Forest still, though in poor condition, are in natural condition with very thin original timber vegetation. In fact, most parts of the natural forest have 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 regrowth of creepers and naturally occurring trees and undergrowth species.

Secondary data collected on the forest show that there are about 6 species of amphibians, 18 species of reptiles, 149 species of birds, 24 species of mammals in the RF (NACOM 2003). No floral survey information on plants are available. However, the major timber trees are represented by Jarul, Chapalish, Shegun, Lohakath, Kadam, Pitraj, Chandan, Kanthal, Supari, Neem, Champa, Chikrashi, Kadam, Koroir, Dhuna, Garjan, Dewa, Awal, Gamar, Jam, Nageswar, Sundhi, Bohera, Tairol, Suruj tree etc. Among exotic short-rotational trees, Acacia hybrid, Mangium, Malacanna, Eucalyptus, Akashmoni, are common in plantation areas. There are many types of bamboo such as *Jai bansh*, *Muli bansh* and various cane like *Jali bet*, *Golla bet*. Besides, there are many types' climbers and vines, herbs and shrubs.

Fig. 3 shows the vegetation covers of the Satchari RF. The natural vegetation is restricted to a limited area and dominated by indigenous tree species, like awal, jam, chaitan, jam, rata, dumri, menda, bot, chapalish. The natural forest is moderately thick with plenty of underneath vegetation. The rest of the areas are covered by plantations, both long- and short rotation plantations. The long rotation plantations are also limited to small areas (5 small plots) and dominated by teak, jarul, garjan, mahogoni etc. Most parts of the forest is covered with short rotational plantations. Some of the short rotational plantations are of mixed species, the main species are acacia, eucalyptus, mangium etc. There are some mono-species short rotational plantations. These mainly include melocanna, agar, palm etc. Bamboo and cane have been planted in a number of plots. The only cultivation area include lemon garden, established by forest villagers.

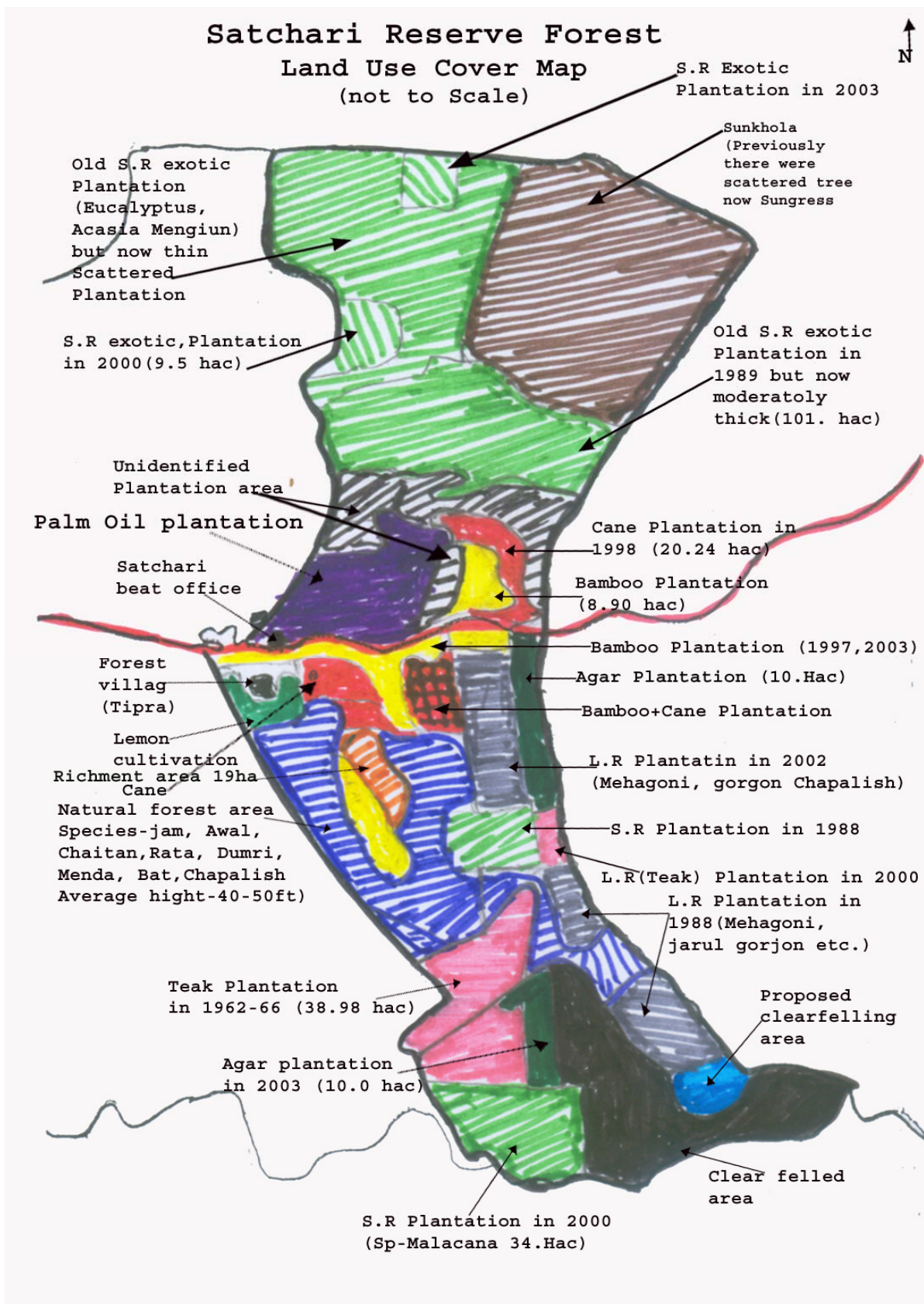


Fig. 3.

Satchari Reserve Forest
Spatial Distribution of Major Wildlife
(not to scale)



Fig. 4.

As can be seen from Fig. 4 that the major wildlife species are concentrated in the natural forest areas. The important species are hoolock gibbon, langur, monkeys, barking deer, jungle fowl etc. Some major wildlife species are also available in the long rotation plantations. 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. Status and Trend in Changes of Resources in Satchari RF

Issue	Pre-1971	15 years ago	Present	Cause of changes	Future Risk
Forest Cover	00000	0000	0000	Clear felling in the past and present	High
Forest Thickness	00000	000	00	Clear felling, illegal tree felling, burning and weeding practice for planation in natural and planted forest areas, fuelwood collection etc.	High
Tall trees	00000	000	00	Legal feeling in the past and present, timber poaching, tornedo etc.	High
Herbs and Shrubs	00000	000	00	Burning and weeding, for new plantation in natural and artificial forest area, fuelwood collection,	Medium
Wildlife	00000	000	00	Habitat loss, food scarcity, lack of safety, hunting in the past, disturbances by resource collectors	High
Hunting	00000	00	0	Prohibition, and unavailability of game animals and birds	Less
Illegal tree felling	0	000	00000	Greed of some local FD staffs for extra benefit, illegal timbre business of powerful people, local poverty, unemployment	High
Fuelwood collection	0	000	00000	Traditional practice of local people for Hh consumption, local poverty, unemployment, easy access.	Moderate
Bamboo (natural)	00000	000	00	Natural bamboo stock decreased due to auction and over exploitation	High
Bamboo (planted)		00	00000	Stock increased due to FD,s plantation strategie	
Cane		0	00000	Stock increased due to plantation by FD since 1997	No risk
Fruit bearing trees in the wild	00000	000	00	Natural death, felling, fuelwood collection, absence of fruit trees in new plantations	Medium
Medicinal plants	00000	000	00	Habitat destruction, clear felling, land clearing in the way of plantation, lemon plantation fuelwood collection,	Medium
Livestock	00	000	0000	For alternative income	No Risk
Agricultural activities	000	0000	0000	Cultivation of various agricultural species, new variety cultivation in the locality	Less
Sun grass	00	00000	000	Over exploitation, claiming land sungrass bed, grew as result of clear felling,. For new plantations	Moderate

Vegetable	0000	000	00	Clear felling, plantations of exotic species, ,	Less
Fodder	00000	000	00	As above	Medium
Honey	00000	00	0	Clear felling of trees, decrease in fruit bearing trees, and monoculture with exotic plant species	High

Table 8 shows the changes in forest make up, forest resources and resource related activities with time. Virtually, there has been a little change in forest cover and the cover has decreased by only about 15-20%, compared to pre-liberation period. On the other hand, forest thickness and abundance of tall trees have decreased approx. by 60%. The abundance of herbs and shrubs and sungrass has also decreased by about 50-60% due to clearing and claiming land for plantations. Indigenous bamboo now remains only by 15%. Except birds, the abundance of major wildlife has also decreased by more than 60%. The abundance of medicinal plants has also decreased by 60%.

Since the forest has been degraded in its plant stock and nature, it has become less suitable for the wildlife as their habitat. The decrease in the abundance in wildlife has probably caused by 60-70%. The abundance of fruit bearing trees has decreased by 60%. The NTFPs, like honey and sungrass have also decreased alarmingly.

Many wildlife species have been extinct by now from the forest. Among the extinct animals, tiger, samba (deer), leopard, porcupine, gaur, francolines etc. are notable. Some other wildlife, like small deer (barking deer) bear, fishing cat, gibbon, python, wildfowl, cobra, hornbill, hill myna, vultures and turtles etc, are threatened.

Trend in changes in the resource collection activities is shown in Table 8. Compared to pre-liberation period, activities like illegal timber felling and fuelwood collection have increased by 60-65%. On the other hand, collection of wild bamboo decreased by about 40%, while that of wild bamboo and honey decreased by about 60% owing to unavailability of these resources. Collection of sungrass has however increased during 80's due to large scale felling) and then slightly declined by now, again due to claiming of sungrass beds for plantations. Hunting of wildlife has also decreased by more than 80% mainly due to serious decline in the resource. Widespread 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.

4. 2 Settlements in and Around Satchari RF and its Level of Stakes with the RF

4.2.1 Settlements

A total of 19 villages having varied degree of stakes with the forest have been identified. Fig. 1 shows the location of the identified villages in and around the reserved forest. The villages belong to 4 Unions of Chunarughat Upazila. In Satchari RF, only one village (inhabited by Tipra community –migrant from Tripura) is located inside the forest. The rest are located outside of the forest in the range of 5-8 km as the forest is immediately bordered by tea estates and Telmachara and Rhagunandhanpur RF. Table 9 provides information on the village HH number, its location and level of stakes with the forest.

Of the identified villages, Tiprapara Forest Village has major stakes with the forest, as all of its HHs are dependent on the various resources of the forest. Two villages namely Gazipur and Deorgach have medium to major stakes with the forest. Four villages (Ratanpur, Kalishiri, Ghanoshyampur, Doulatkhabad) have medium stakes with the forest. Six villages have minor-medium stakes (namely Goachnagar, Baghbari, Teliapara, Ektiarpur, Marulla and Nayani Bongaon), while five villages (Shahjanpur, Rasulpur, Promanandapur, Bhagaru, Enatabad and Holholia) have minor stakes. The majority of the fuelwood collector mainly come from Goachnagar, Baghbari and the illegal feller mainly come from Kalishiri, Ghannoshympur, Telia para, Goachnagar and Deorgach, seasonally from Gazipur.

Fig. 5 shows the human pressure on the different areas of the forest that arise from various settlements. Being bordered by other forests and tea estates the people from Deorgach area and Teliapara areas enter the forest through the Dhaka- Sylhet Highways. People from Kalishiri, Ghonoshympur, Enatabad and Bagharu through the Amo and Chaklapunji tea estates along the Indian border. The people from the settlements are mainly involved with illegal timber felling. People from Laskarpur, kapaichara, and

Chandpur infiltrate the forest directly from the north and walk along the trail. They mainly collect fuelwood and building materials. All HHs of the inside settlement (Tiprapara) mostly depend on the forest for their every day HH needs of fuelwood, building materials, vegetables and others. However, they do very little for commercial purposes. Some unemployed and poor people from the adjacent tea estates also infiltrate the forest, mainly for fuelwood and house building materials. Some of them are, however, involved with illegal felling. Illegal felling also takes place during clear felling. It is alleged that the labor for clear felling mix legally felled timber and manage to smuggle it out of the forest.



Table 9. Information on Villages Having Stakes with Satcahari RF

Sl. No.	Name of village	HH Nos.	Location	Union	Level of stake	Type of stakes
1	Tiprapara (Forest village) located nearby the highway	19	Inside	Paikpara	Major	Collect fuelwood, house build. mat., vegetables and other NTFPs, cultivate lemon and others
2	Goach Nagar	318	Outside-west	Sahajanpur	Minor-Medium	Manily collect fuelwood, some involved with illegal tree felling
3	Teliapara	310	Outside-west	Sahajanpur	Minor-Medium	As above
4	Sahajahanpur	300	Outside-west	Sahajanpur	Minor	Few people involved with bamboo collection
5	Baghbari	80	Outside-west	Sahajanpur	Minor to Medium	Mainly involved with fuel wood collection
6	Ratanpur	100	Outside	Sahajanpur	Medium	As above
7	Rasulpur		Outside	Sahajanpur	Minor	As above
8	Ektiarpur	250	Outside	Sahajanpur	Minor to Medium	As above
9	Promanandapur		Outside	Sahajanpur	Minor	As above
10	Bagharu	41	Outside	Deorgach	Minor	Some peoples are involved with illegal tree felling
11	Deorgach	331	Outside-east	Deorgach	Medium to major	Manily collect fuelwood, some involved with illegal tree felling
12	Enatabad	191	Outside-southeast	Deorgach	Minor	Some dwellers are involved with illegal tree felling
13	Nayani Bongaon	55	Outside-northeast	Deorgach	Minor to Medium	Mainly fuelwood collection
14	Kalishiri	-	Outside-southeast	Ahamatabad	Medium	Mainly involved illegal tree felling and also with fuelwood collection
15	Ghannashyampur	-	Outside	Ahamatabad	Medium	Some people involved with illegal tree felling and
16	Gazipur	250	Outside	Paikpara	Medium to major	Involved with both tree felling and fuelwood collection
17	Holholia	250	Outside	Paikpara	Minor	Involved with fuelwood collection
18	Doulatkhabad	125-150	Outside	Paikpara	Medium	Sungrass and fuelwood collector
19	Marulla	100-120	Outside	Paikpara	Minor to Medium	Sungrass and fuelwood collector

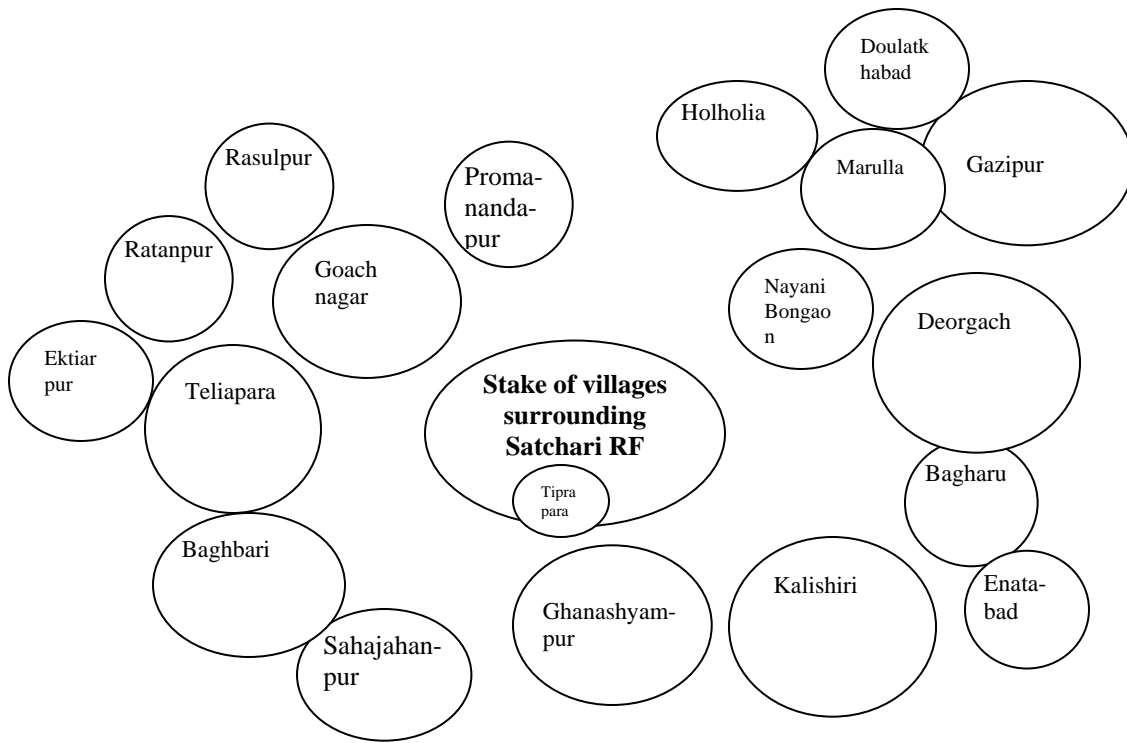


Fig. 6. Relative level of stakes of different villages with Satchari RF

4.2.2 Tea Estates Surrounding RF

There are eight tea estates bordering the Satchari RF, namely Satchari, Teliapara, Surma, Chaklapunji, Nabab Khan, Chadpur, Laskarpur and Kapaichara tea estates (Table 10). Besides, there are some more tea estates in the area, but away from the Satchari RF and thus have negligible stakes and therefore are not mentioned here. Almost all the bordering tea estates have substantial number of unemployed inhabitants who enter into the reserve and thus have stake with the forest. Of the estates, Surma, Satchari, Chaklapunji, Laskarpur, and Kapaichara tea estates have more stakes than the rest. The people from the tea estates mainly collect fuelwood and some inhabitants are involved with illegal tree felling. It is reported that people from Amo and Laskarpur tea estates are involved with tree felling. Sometimes, the illegal fellers use tea estates for the transportation of illegally felled timber.

Table 10. List of tea estates surrounding the Satchari RF and their level of having stakes with RF

Sl	Tea Estate (TE)	Location	Level of stake
1	Satchari TE	West-South, adjacent	Minor
2	Teliapara TE	West, adjacent	Minor
3	Surma TE	West, adjacent	Medium
4	Kapaichora TE	North, adjacent	Medium
5	Laskarpur TE	North-East, adjacent	Medium
6	Chandpur TE	North-East, adjacent	Minor
7	Nababkhan TE	East, adjacent	Minor
8	Chaklapunji TE	East-south, adjacent	Minor

4. 3 Stakeholder Assessment

At least 3 categories of stakeholder could be recognized in Satchari Reserved Forest, such as

- 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 (SH)

Table 11 provides information on stakeholder type & category, stakeholder description, their activities, dependency, relative level of stakes with the forest and their impact on the forest. About 13 different primary stakeholder types, who directly extract different resources from the forest, have been identified. Of them, 3 SH groups (moholder, fuelwood collector, illegal timber feller) have major stakes with the forest having major role in forest degradation, while 3 SH have medium level (Bamboo collector, house building materials collector and Lemon Cultivator) and the rest (7 SHs) have minor stakes with the forest.

Except the moholders, most of the primary stakeholders are poor people from the inside forest village (Tiprapara) and as well as from identified outside villages and labor from tea estates. Old and unemployed adults collect fuelwood from Sachari RF. 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 form the primary stakeholders.

It was revealed from PRA field exercise that moholder are directly involved with extraction of major forest resources, followed by local poor people, forest villagers and tea estate laborers.

Table 11. Information on the stakeholders of Satchari RF (based on resource extraction and direct activities in the forest)

Sl. no.	SH name	SH types	SH description	Role / Description of Activities of SH	Dependency	Level of stake	Remarks
01	Moholder (auctioneer for tree felling)	Direct/ primary	Some rich and influential people from the outside of the forest area.	Legally clear fell forest through winning auction. In addition to timber trees, completely destroy all under storey vegetation. Mix some illegally felled trees.	Not dependent on the activity	Major	Clear felling practice of moholder is detrimental to forest biodiversity Fd gets revenue
02	Illegal tree feller	Direct/ primary	Adult male from some villages, some labourer for clear felling, unemployed people from tea estate. Mostly poor.	Selectively fell the valued timber trees. Usually enter the forest at night. Reduce forest cover, thus destroy habitat They come from some nearby settlements	Many HHs entirely dependent on this activity Many depend partly on it for their livelihood	Major	They are mainly organized gangs. They are influenced by timber trader and moholder
03	Fuelwood collector	Primary	Local poor people, Forest villagers Tea garden labor (mainly men and women)	Collect dead trees, small trees, non-timber trees, tree branches etc. Cut, chop, bundle and carry away as shoulder or head load, sometimes use van, rickshaws	Many HHs dependent for HH use Many HHs sell for livelihood support, entirely or partly	Major	Fuelwood collector sometimes collect vegetable Tribal people collect bamboo shoot Pay taka 5/- for each entry
04	Honey collector	Primary	Local people, mainly poor people	Collect from forest seasonally and occasionally	Mainly for HH consumption, sell surplus, but not dependent	Negligible	Usually it is not an intended activity
05	Bamboo collector	Direct/ Primary,	Individual/ group Local poor, forest villagers	Collect bamboo from forest for domestic and commercial use	Not dependent Forest villagers partly dependent	Medium	Planted bamboo beds are also auctioned and clear felled FD gets revenue

Sl. no.	SH name	SH types	SH description	Role / Description of Activities of SH	Dependency	Level of stake	Remarks
							from auction
06	Sun grass collector	Primary	Forest villagers, local poor people, employed people.	Harvest and bundle and carry as head load or shoulder load.	Meet household needs, some sell for supplementing income during harvesting season.	Minor	Mainly forest villagers, and people from
07	Fruits	Primary	Local poor people	Mainly collect Kanthal.	Not dependent	Negligible	
08	Hunter/trapper	Primary	Elite and rich from the area and outside the area. Forest villagers	Mainly hunt game birds, wild fowl, wild boar, small deer, and others.	For HH consumption Not dependent	Minor	Forest villagers traditionally used to hunt every type of wildlife. Presently their activity is limited
09	Vegetable collector	Direct/primary,	Tipra villagers, poor people, mainly fuelwood collector and occasionally the outside villagers	Collect vegetables, like, kachu, deckishak	Meet HH needs only Not dependent, also met from homestead gardens	Minor	Forest villagers and most people from outside villagers
10	Medicinal plant collector	Primary	Some local people	Some limited species, not on a large scale	Not dependent	Negligible	Sometimes, local kabiraj collect it
11	Lemon cultivator	Primary	Forest villagers	Clear the area by weeding and then plant graft/saplings of lemon plant.	Dependent on this activity for livelihood support	Medium	Restricted to a designated area used by forest villagers, but no agreement
12	Sand collector (balu moholder)	Primary	Outside people, but employ local poor people for extraction of	Dredge the stream beds which have been silted up and collect sand, transport by truck.	It is a commercial operation, but the moholders are not	Minor	Presently, there is a restriction on sand collection. Still,

Sl. no.	SH name	SH types	SH description	Role / Description of Activities of SH	Dependency	Level of stake	Remarks
			sand		dependent on it. Many local HHs are dependent as they are employed.		some activities are going on.
13	House Building material Collector	Primary/ Direct	Forest villagers and surrounding people	Collect various materials as per need for HHs building.	Partially dependent	Medium	
14	Sawmill owner and operator	Indirect/ Secondary,	Individual/ Group	Help in conversion of illegal timber and encourage illegal tree felling and trading	Not dependent	Minor	Presently, honey is seldom available
15	Furniture owner shop	Indirect/ Secondary,	Individual/ Group	Have a good link with illegal feller and encourage illegal tree felling by purchasing illegal timber mainly from saw mills	Not dependable	Minor	
16	Brick field owner	Indirect/ Secondary,	Individual	Use fuel wood and small timber, encourage illegal tree felling having good link with illegal feller	Become established	Minor	Presently no encroachment is taking place now Once recovered and again taken back
17	Transport driver (van, truck)	Indirect/ Secondary,	Individual / Group	Help in illegal tree transportation and trading. Carrying fuel wood and converted timber as furniture to Dhaka, Sylhet etc.	Partly dependent	Negligible	

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 Satchari RF, but are linked either with its processing, trading and utilization. A brief description of these stakeholder groups and their activities are given below.

4.3.2.1 Timber Traders

There are about 15 to 20 timber traders in the area, based at Deorgach, Teliapara, and Chunarughat bazar who are involved with timber trading. Many of them have no valid license for the trading of timber. They usually receive sawed timber from sawmills and trade locally. It is alleged that they sometimes receive illegally felled timber from thieves and get sawed and sell it and thus help in the illegal felling of timber.

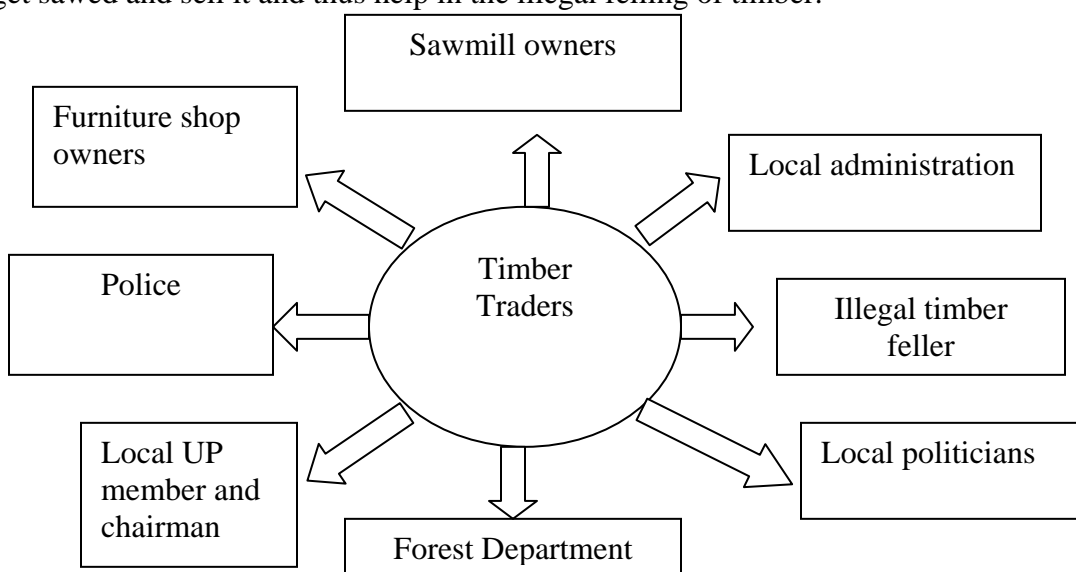


Fig. 7. Link of various stakeholders with Timber traders

4.3.2.2 Sawmill owners

Sawmills owner have a medium indirect stake with the RF. 18 saw mills have been identified. Table 12 shows the distribution of sawmills surrounding the RF.

Table 12. Distribution of Sawmills In the Area

Sl	Location	No. of sawmills
1	Teliapara	1
2	Deorgach	5
3	Chunarughat	12
Total		18

There are 1 sawmill at Teliapara, about 5 sawmills at Deorgach and 12 at Chunarughat which are bit away from the Satchari RF. Some influential people of the locality own these mills. These sawmills usually receive both legal and illegal timbers for sawing into the logs. The sawmill owners buy illegal timbers at a cheaper rate, e.g., 250-300 taka per cft, whereas the actual market price would be of more than 600 taka per cft. It appears that sawmill owners encourage illegal felling of trees from nearby forest, including Satchari RF. Sometimes, they may have internal linkages with timber traders, FD local staff and illegal fellers. It is also reported that they sometimes help the illegal fellers by giving money in advance. It is alleged that they have some sorts of mechanism for preparing legal paper in favor of illegal timber and sometimes they put fake marks on illegal timber.

Inspection of sawmills by FD is very limited and probably that has little impact, as the owners are powerful. However, in a recent effort BDR seized some timber (especially teak) from sawmills of Chunarughat, 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 20 furniture shops nearby bazaars of the RF, mostly located in Chunarughat. Furniture from the area goes to different parts of the country, including Dhaka in huge quantity. Sometimes, this furniture is checked by the FD check post but probably have little impact. Furniture shop owners have good linkages 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 the sawmills. Majority of the traders are from outside of the project area.

4.3.2.4. Fuelwood Trader

A number of fuel wood traders have been identified that have indirect stakes with the RF, collected fuelwood from the local direct collectors. There are about 4-5 fuelwood traders at Teliapara bazaar, about 8-10 at Deorgach and Chunarughat bazaar. Several trucks of fuelwood is transported everyday from this area and majority of which come from clear felling and substantial fuelwood also sold locally by the traders. The traders procure fuelwood from the individual collectors, stack them and also sell it to the local consumers, while the others transport it by trucks, train etc. to Hobighonj, Brahmanbaria, Comilla etc. 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 while buying and at Tk. 65-75 taka/maund while selling (1 maund = approx 37.5 kgs).

4.3.2.5 Brickfield owners

There are three brickfields near the RF that consumes substantial amount of fuelwood, maximum of it come from the RF. It was noticed that the local brickfields burn both fuelwood and coal for its operation. However, they need fuelwood for initiating fires in kiln. and also it is estimated that they use about 45-50% fuelwood of its total fuelwood requirements. These three brickfields are located in Deorgach Union.

4.3.3. Institution/ Organizational Stakeholders

Besides the primary and secondary stakeholders, there are a number of institutions and organizations that are involved and have stakes with the RF. Among them the major institutions are described below.

4.3.3.1 Forest Department

Forest Department (FD) is directly involved with overall management of the forest at the local level. FD has the overall responsibility for management, conservation and development of the RF through planting, harvesting, patrolling and guarding the forest resource. The number of forest staff is inadequate for its management. There is a forest check post on the Dhaka -Shylhet highway at Satchari. Overall, FD plays a positive role in the protection of the RF, a few FD local staff and officials are alleged to be involved indirectly with illegal felling activities. However, this was not noticed by the PRA team. According to local people, FD staff takes money (e.g. 10 taka for each entry) from fuelwood and bamboo collectors to allow them to enter into the RF.

4.3.3.2 NGOs and credit provider Banks

Among the other institutions, NGOs and banks have direct stakes with the people living around the RF. The major NGOs & bank that operate in the locality are: BRAC, ASA, BASA, PASA, HEED-Bangladesh, Grameen Bank. 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. Several NGOs and banks provide micro-credit to local people (Table 13) to improve their livelihood conditions. These institutions provide micro-credits for agricultural activities, small business and IGA. The IGA programs concentrate on small business, poultry, livestock etc. NGO's credit is mainly focused on the women.

Table 13. List of Ngos / Banks Operating Around the Satchari RF and Their Area of Activities

Name of NGO/ Banks	Location	Activities
BRAC	Chunarughat	Micro credit programmes, education, health, awareness, poultry and livestock development
ASA	Chunarughat	Micro credit for agriculture, small business, poultry and livestock
BRDB	Chunarughat	Credit programmes, training on agriculture and other IGA
Krishi Bank	Teliapara	Loan for agriculture

Grameen bank	Chunarghat	Credit programmes
HEED Bangladesh	Teliapara	Health, credit programmes
BASA	Teliapara	Credit programmes
PASA	Chunarughat	Credit programmes

Overall, NGO activities are inadequate to support the livelihoods of the surrounding village people surrounding the RF. Recovery of credit is poor. There is also a lack of coordination and motivation by the NGOs working in the locality. More IGA support is required to bring changes in the livelihood of the poor people. Skill development activities by the NGOs are limited. Fig. 8 shows the NGO's relative activities in the area.

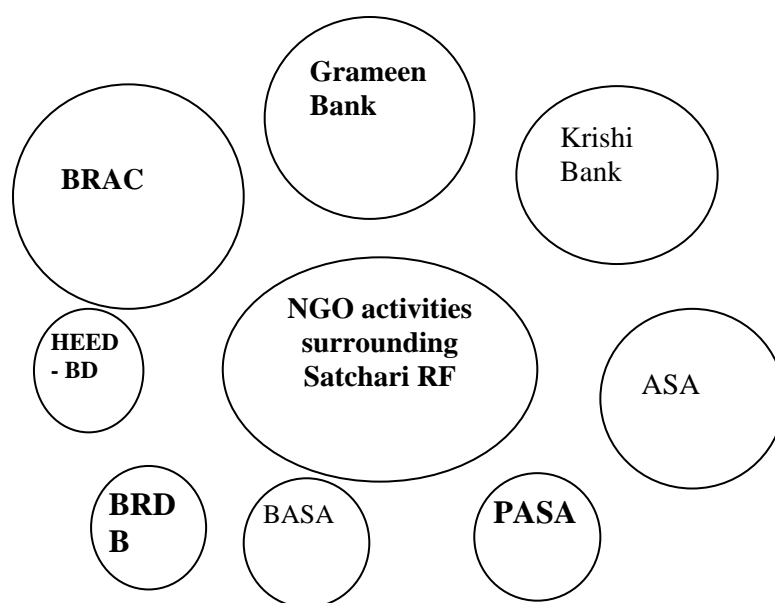


Fig. 8. Scale of activities of various NGOs in Satchari RF locality

4.3.3.3 Local community organization (CBOs)

Two CBOs that have stake with the community people, namely Youth Development Club, Deorgach and Youth Development Club, Gazipur, could be identified in the area. The club at Deorgach seems to be active; on the other hand, the other CBO appears to be inactive. These local organizations deal mainly with local problems and welfare, and cultural activities, not any environmental issues.

4.3.3.4 Police and BDR

Police and BDR are two main law enforcing institutions who have substantial stake with the forest. They patrol in the area and on the highway to enforce the overall law and order including forest protection laws. It was reported by local people as well as by the FD staff that sometimes Police develop a process of negotiation with the illegal tree fellers and other resource users. Forest cases are initially lodged with the local police stations.

Since Satchari RF is located along the 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. Sometimes, BDR help the local administration in sudden raiding the local markets and bazaars searching for illegal timber. For example, on 12 July 2004, BDR raided one sawmills and ceased a considerable quantity of illegally felled teak timber that was brought to sawmill for sawing. Sometimes, BDR participate in joint patrolling and in setting mobile courts along with local administration.

4.4 Dependency of the Stakeholders on the Forest Resources

Traditionally, the local people are used to collect various resources from the Satchari RF and other adjacent state forests. The entire ranges of the stakeholders could be broadly categorized into four groups.

Local sawmills and furniture shops depend to some extent on the legal and illegal timber from the nearby forests. However, their livelihood is not dependent on the supply of timber from the Satchari RF. Similarly, the moholders, who are involved with clear felling, are not also dependent on the timber from Satchari RF. However, the local people who are employed by the moholders and involved with illegal felling are entirely or partially dependent on the forest extraction activity for supporting their livelihood.

Forest villagers are entirely dependent for fuelwood and building materials for meeting HH needs on the forest. It seems that there is no alternate source for its supplies. They also collect vegetables, fruits and hunt some wildlife. But they are not dependent on these

resources for their livelihood. The forest villagers are mainly dependent on the lemon cultivation in the forest areas for their livelihood support.

Table 14. Resource Wise Dependence of Different Resource Users

Sl	Name of Resources	Users	Causes	Extent	Dependency of localities	Risk
01	Timber	Moholder, illegal timber feller, Saw mill owner, Furniture Shops, Timber trader	, household use, building materials	High	10%	High
02	Fuel wood	Local people, a few outside users (restaurant, brickfield)	Mainly commercial use (selling for livelihood) and HHs consumption (small amount)	Medium	10%	Moderate risks
03	Bamboo	Local people, outside users (as building materials)	As poles, fencing, basket and others, fuel	Medium	30%	Moderate risks
04	Cane	Local users	Basket binder	Less	5%	Less
05	Medicinal Plants	Local people, a few Kabiraj	As medicine	Less	2%	Less
06	Honey	Forest villager, Local People	Food, medicine	very less	1%	Less
07	Herbs	Local People	As vegetables	Very less	2%	Less
08	Bird	Forest villager, Local People	For meat (wild fowl, Ghughu)	Very less	.5%	High
09	Wild Boar	Forest villager (indigenous people)	Meat as food	Very less	.5%	Medium
10	Sun grass	Local people	Cattle feeding, house roofing	Less	3%	
11	Fruit	Local People	Food	Very Less	2%	Less
12	Vegetables	Local People	Food	Less	5%	Less
13	Grass	Local People	For Cattle feeding	Less	10%	Less

A large number of HHs of the identified villages depends on the extraction of fuelwood and building materials from the forest. It is the poor who collect these resources, mainly for their HHs consumption and also for selling. The poor people from the neighboring tea estates collect fuelwood and other NTFPs from the forest. Some HHs sells these for

added income. Some of them involved with illegal felling of timber and thus are dependent on their forest extraction activity.

Table 14 shows the dependence of different stakeholder groups on different resources for their HHs needs and supporting their livelihood. Almost, all HHs of forest villages are dependent on the fuelwood and house building materials, vegetables from the forest for their HH needs. But, they do not collect these for commercial purpose. Many poor people completely dependent on selling of fuelwood and many of them sell it for added income. It was revealed from FGD with local people that about 3-5% people from the nearby villages completely or partly depend on selling of fuelwood. Almost all-illegal tree feller sells timber and many of them are completely dependent on it, while others do it for added income.

Fig. 9 shows the relative level of dependence of different groups of people on 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 who causing most harm to the forest. However, the activity of the forest villagers are mostly confined to the area allocated to them for lemon cultivation.

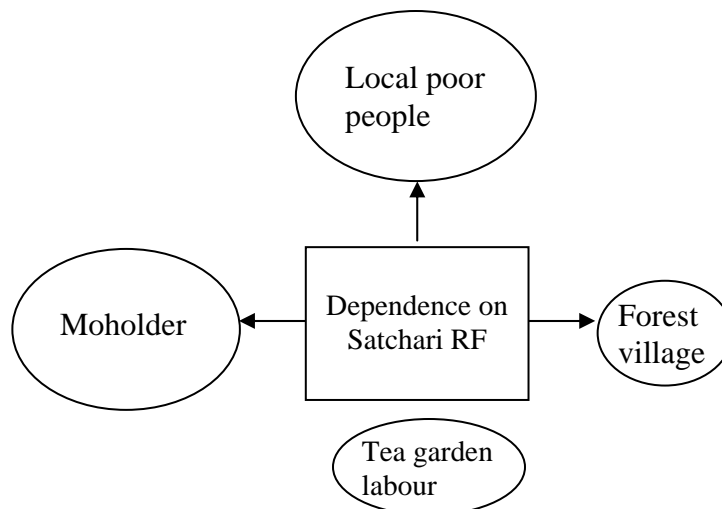


Fig. 9. Relative level of dependence of major stakeholder groups on the RF

4.5 Causes for the Decline in Forest Resources

4.5.1 General cause

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. 10. The major causes for the decline in forest in order of magnitude are as follows: clear felling and illegal timber felling, FD's plantation strategies, fuelwood collection, collection of house building materials, hunting, bamboo and cane collection, etc.

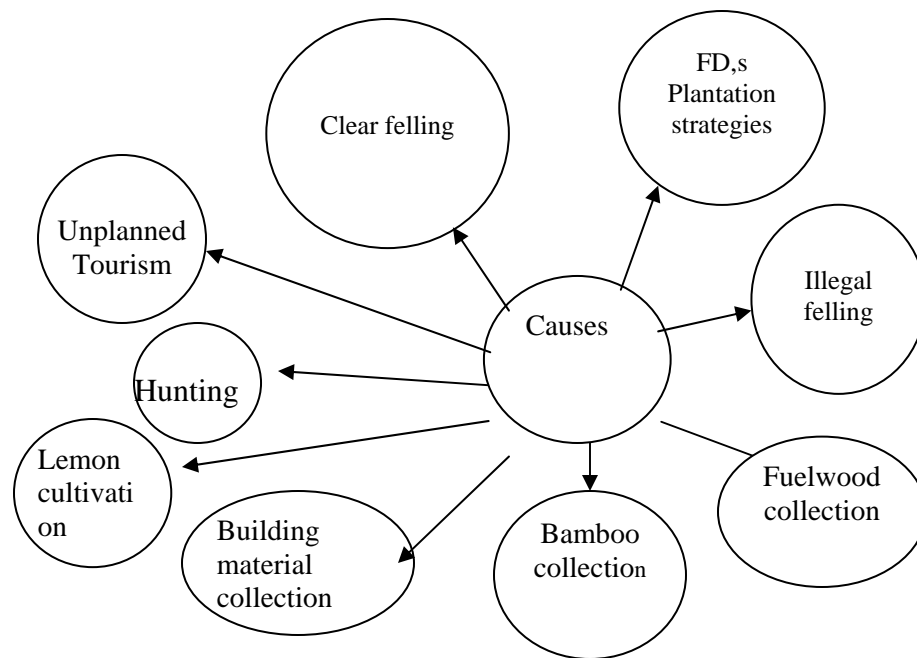


Fig. 10. Major direct causes for the degradation of Satchari

Pair-wise ranking (Table 15) exercises showed that presently clear felling practice is the major cause for the decline in forest biodiversity, followed by illegal timber felling, fuelwood collection and bamboo collection. Presently, hunting contributes negligibly as the activity is very limited. The role of FD's plantation strategies for the forest degradation has not been explored. .

Table 15. Pair Wise Ranking for Identifying Main Causes For Forest Destruction

	Clear felling	Illegal felling	Fuelwood collection	Bamboo collection	Hunting
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Clear Felling	----	Clear felling	Clear felling	Clear felling	Clear felling
Illegal felling	Clear felling	-----	Illegal felling	Illegal felling	Illegal felling
Fuelwood collec.	Clear felling	Illegal felling	----	Fuelwood collec	Fuelwood collec.
Bamboo collection	Clear felling	Illegal felling	Fuelwood collection.	-----	.Bamboo collec
Hunting	Clear felling	Illegal felling	.Fuelwood collection	.Bamboo collection	-----
Rank	08	06	04	02	00

In order to investigate the underlying factors responsible for undertaking of these forest degradation activities by the local people cause and effect ranking was done and the outcomes are shown in Table 16 and Table 17. The exercises 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 and lack of some local resources are also driving the people for increased timber felling and including building materials (Table 16).

Table 16. Cause and Effect –Ranking (Understanding Underlying Facts for Forest Degradation)

Name of resource Identified problems	Timber to sell	Fuelwood collection	Bamboo & cane sell	Hunting
Poverty	0000	0000	0	
Unemployment	000	000	0	
Additional income needed	00	00	00	
Lack of house building mat.			00	
Forest cases (in Satchari)	00			
Income opportunities squeezed	00	0	0	

FD's poor forest patrol, easy negotiation with local FD staff, poor strength of local FD and emergence of increased local influential people are all contributing to illegal timber felling. Fuelwood collection has been linked to development of transportation system and marketing opportunities and drop in solvency level (Table 17).

Table 17. Cause and Effect (Investigating FD's Management Practice and Local Situation)

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

4.6 Exploitation of Forest Resources

A summary of information collected on resource exploitation from Satchari Reserved Forest are provided in Table 18. A total of 12 different types of resource are extracted from the forest. Of them, timber (includes both legal and illegal extraction) and fuelwood are extracted on a large scale, bamboo and building materials on a medium scale, wildlife, fruits, vegetables, sun grass etc. on a minor scale, while honey, cane, medicinal plants on a negligible scale. Fig 11 shows the major resource extracting zones of the reserved forest.

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 are posing threats to the forest and its biodiversity through bringing qualitative and quantitative changes in the habitat and the wildlife they support.

Moholder, local poor people, forest villagers and unemployed tea garden laboersr are the major categories of resource user.

Satchari Reserve Forest

Resource exploited Zome

(not to be scale)

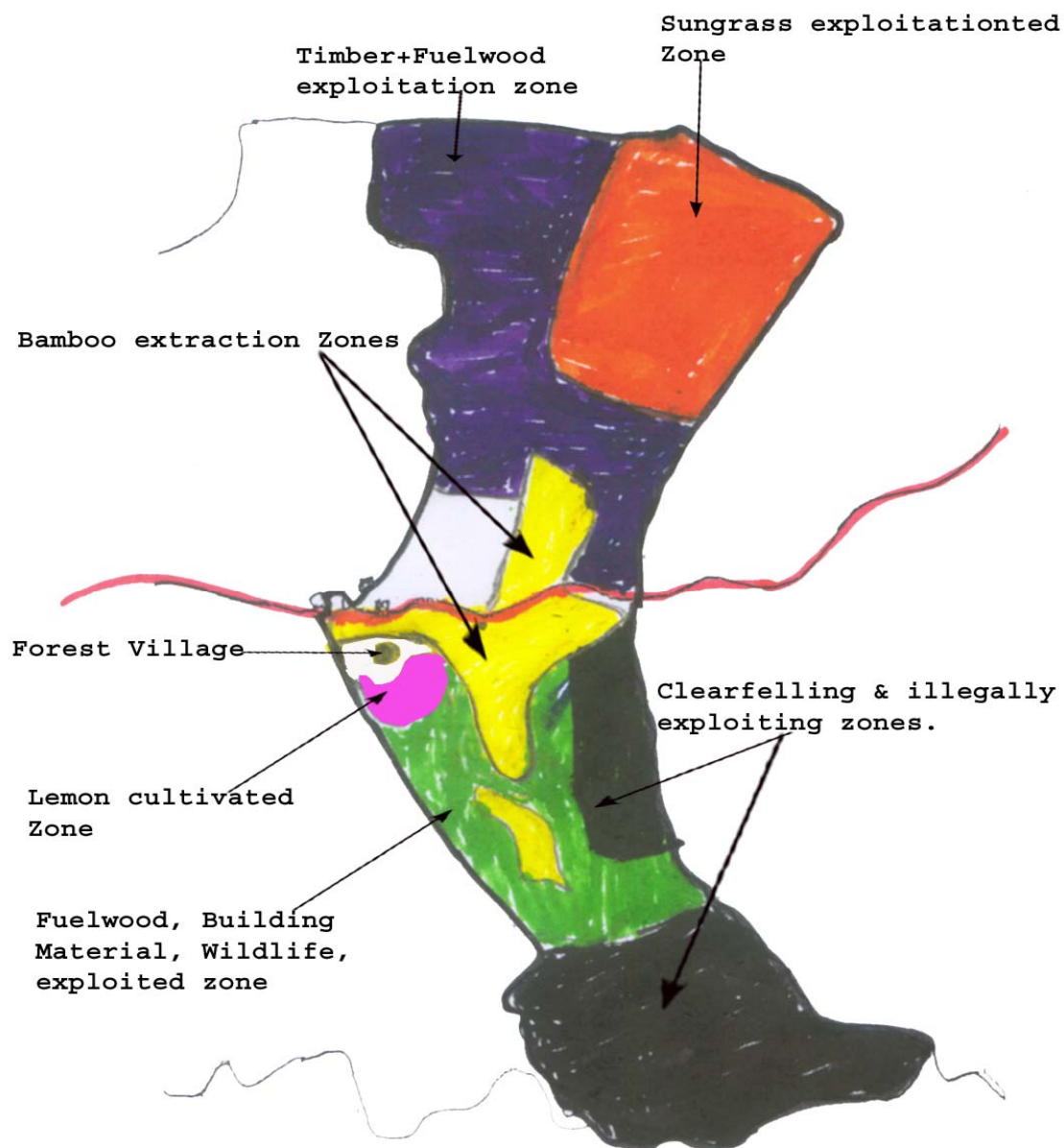


Fig. 11.

Table 18. Information on Resource Extraction from Satchari Reserved Forest

Sl. No	Name of resources	Resource collector	Purpose	Extent	Impact	Future Risk	Destination
1	Timber	Moholder, local poor people from adjacent villages, unemployed people from tea estates	For selling	Large	Reduce selectively large tree and forest thickness, loss of habitat and biodiversity	High	Local timber trader, sawmill, furniture shop, urban areas
2	Fuelwood	Local poor people, forest villagers, people from tea estates	For HH consumption Selling and HH comp. selling	Large	Loss of habitat, loss of forest biodiversity,	High	Local HHs, local markets, brickfired, transported to urban areas
3	Bamboo	Forest villagers, some local poor people from neighboring 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 Occasionally outsider	For consumption As hobby	Little	Stock heavily depleted	High	Local HHs
5	Building materials	Forest villagers Local poor people	Meet HH needs Selling for added income	Medium	Reduce 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	Mainly forest villagers and local poor people	Collect number of species of vegetables	Minor	No apparent impact	Negligible	
10	Sungrass	Local people, forest villagers	Collect as house building mat.	Presently little	Reduce forest biodiversity	Negligible	Removed in the process of plantations
11	Sand	Outside business people	Dredge and collect	Negligible	Destruction to habitat	minor	Presently restriction has been imposed
12	Medicinal plants	Few local people, forest villagers	Occasionally collect some selective species	Little	Negligible	Negligible	

4.6.1 Seasonal changes in resource extraction

Table 19 shows the trend in forest resource exploitation by month. The exploitation of resources from the forest is season dependent. Most of the timbers are illegally felled during the rainy season as forest patrol is poor during that period. However, legal clear felling takes during the dry season. Fuelwood is mainly collected during dry season due to easy accessibility and mobility inside the forest during that time. Bamboos 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 19. Seasonal Calendar of Resources Exploitation in Satchari RF

Name of Resources	Bais-hak	Jaista	Ashar	Shra-bon	Vadra	Ashin	Katrik	Agrah-ayan	Poush	Magh	Fal-gun	Chait-tra
Timber	000	000	000	00	000	000	000	00000	00000	00000	00000	00000
Fuel Wood	00	00	00	00	000	000	0000	00000	00000	00000	00000	00000
Vegetables	00	0000	0000	0000	000	00	0	0	0	0	0	0
Bamboo, building materials	0	0	0	0	0	000	000	0000	00000	000000	00000	00000
Medicinal Plants	0	0	00	00	00	0	0	0	00	00	00	00
Fish	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife	00	0	0	0	0	0	0	00	00	00	00	00
Honey	00	0	-	-	-	-	-	-	-	-	-	0

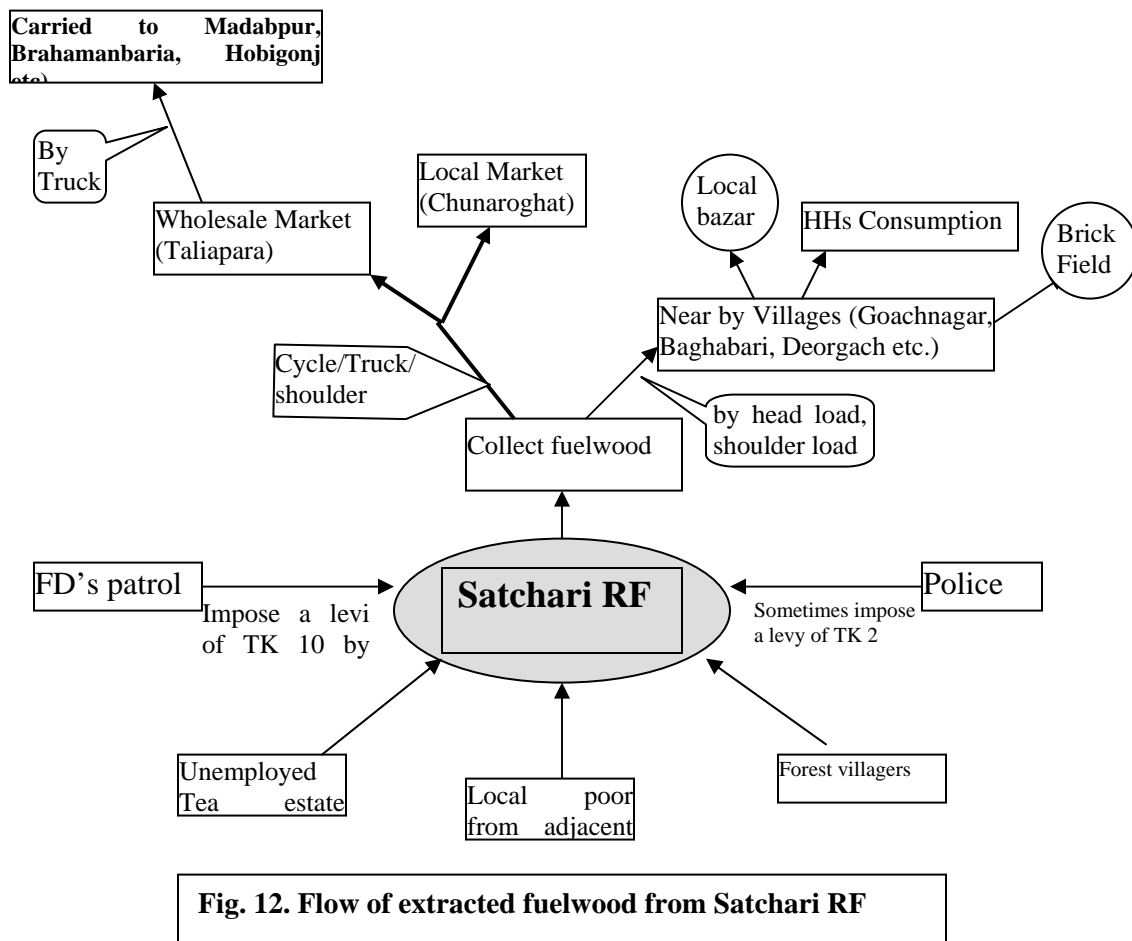
4.6.2 Important Resource Exploitation

4.6.2.1 Fuelwood collection

Extensive fuelwood collection is another practice in the reserve area that poses a threat to the forest biodiversity. This is a major and very visible activity in the RF. It is a year round activity, but major extraction occurs during the dry seasons. Fuelwood is collected both for household consumption and for commercial purposes.

Most of the collectors are adolescent boys and adults; both male and female. Most collectors are poor and supplement their income by selling fuelwood. According to local

people that about 100-150 maunds (1 maund = approx. 37.5 kgs) of fuelwood is extracted for commercial purpose and another 50-60 maunds for household consumption every day. Some fuelwood collectors have substantial linkage with illicit feller and act as informative persons. Each male can carry or collect 2 Bhar (one shoulder load mean 1 *Bhar* equal to 2 *boza* or bundle that contains about 1 mounds of fuel wood), on the other hand female can collect 1 bhar per day.



As per local people estimate, about 100-150 people from the surrounding tea estate and nearby villages enter into the RF for fuelwood collection for commercial purposes and another 50-100 people enter into the forest to collect fuelwood for their HHs consumption, each day. As shown in Table 20. that the collectors are predominantly from few villages such as Deorgach, Goachnagar, Baghabari, Teliapara and neighboring

tea estates, namely Laskarpur, Satchari tea garden, kapaichara tea estate and Surma tea garden.

It is estimated that about 3-5% villagers are entirely dependant on this for their livelihood, and a much larger number of families undertake it to supplement their household income.

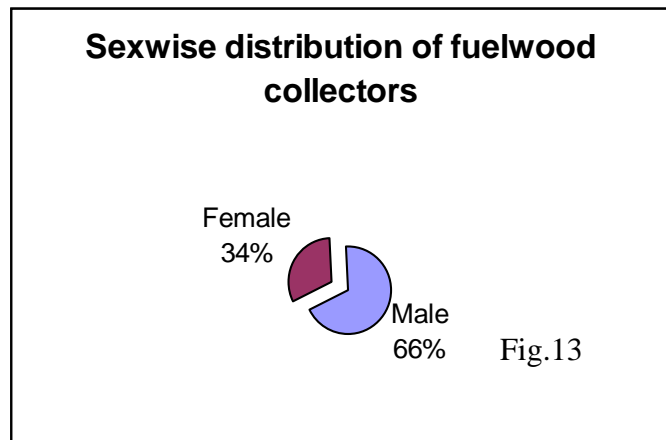
Table 20. Village Wise (Having) Distribution of Commercial Fuelwood Collectors in Satchari RF

Sl no.	Name of villages	Fuel wood collector No.				Purpose of Use by the collector	
		Total	Male	Female	Children	Domestic use	Selling
1	Goach Nagar	30	20	10	-	-	100%
2	Telia para	20	13	7	-	20%	80%
3	Ratanpur	40	20	20	-	-	100%
4	Baghbari	40	20	20	-	-	100%
5	Rashulpur	25	10	15	-	20%	80%
6	Promanandapur	25	10	15	-	20%	80%
7	Ektiarpur	20	12	8	-	25%	75%
8	Bagharu	25	25	-	-	20%	80%
9	Deorgach	30	25	5	-	30%	70%
10	Nayani Bongaon	25	13	12	-	20%	80%
11	Enatabad	20	15	5	-	20%	80%
12	Kalishiri	15	10	5	-	20%	80%
13	Ghonoshyampur	20	20	-	-	20%	80%
14	Gazipur	70	55	15	-	20%	80%
15	Doulatkhabad	25	18	7	-	25%	75%
16	Holholia	25	15	10	-	20%	80%
17	Marulla	30	20	10	-	20%	80%
18	Triprapara (Forest village)	10	7	3	-	30%	70%

Usually the fuelwood collectors enter into forest individually but occasionally they also enter by groups' consisting around 30 to 40 persons. After collecting a bundle of fuelwood, they carry it on their shoulder or head to the nearby convenient place from where they can transport or carry it easily to their selling places. Their main route of access to the forest is through the tea estates, roads and forest trails (Fig.12). In a FGD, the participants alleged that they pay between Tk. 5-10 as a levy to the FD for entering the forest to collect fuelwood and some times the police take 2 taka from each collector. Access to the forest for collecting fuelwood is not restricted, if the levy is paid.

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

As shown in Fig.13 that a large number of women are engaged in fuelwood collection and as many as one third of them are female. The females who are



engaged in fuelwood collection are used to sell almost one-third of their collected fuelwood for income whereas two-thirds is used for their household consumption.

Besides the local household use, local tea stalls/ restaurants use fuelwood for burning in their kitchen that come from the RF. Some local brickfields also use fuelwood for initiating fire in their kiln. Other local people buy fuelwood from the local market sold by collectors. Fuelwood collected for commercial purposes mainly transported by cycle or as head or shoulder load to local markets where it is sold to fuelwood traders or to the local consumers; one wholesale market called Taliapara from where fuelwood is transported to Madabpur, Brahmanbaria, Hobigonj etc by truck or to another wholesale market, Chunarughat.

4.6.2.2 Timber extraction

Although timber is extracted in both illegal and legal way, timber extraction is regarded as the major cause for the destruction of Satchari RF. Many people from the surrounding villages and tea estates of RF are directly involved with the illegal extraction of timber from the forest. The villages such as Goachnagar, Bagharu, Kalishiri, Gonosampur, are mainly involved in this activity. The medium to less involved villages are Enatabad, Deorgach, Taliapara and Gazipur, located near to the RF. In other villages, the number of timber poachers is few. Most of them poachers are poor.

Source: RRA/PRA field exercise

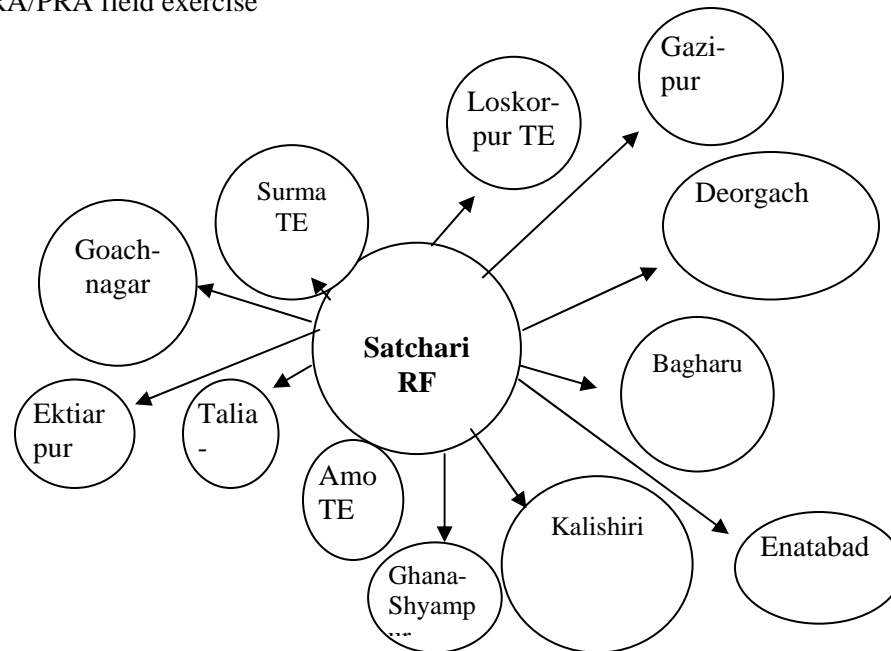


Fig .14. Relative stakes of different villages with illegal felling

Besides, some unemployed labourers from some adjoining tea estates are also involved with illegal felling such as Surma tea estates, Laskarpur tea estate, Amo tea estate. They carry out this activity for supporting their livelihoods. As per local people, this activity provides cash income of taka 200-300 per day. Timber is extracted from the RF by two ways. One is legal way by clear felling, through auctioning by FD. FD auctions out different forest coupe/block for clear felling to auctioneers, locally called *Mohalder*. Another is by illegal felling. It is claimed by the local people that illegally felled trees are smuggled out along with clear felled trees by the *Mohalder*s. Besides various groups of people are involved with illegal felling. Fig.15 shows that the illegal fellers have linkage with different parties, including police, administration, local political leaders, FD etc. Both legal and illegal timbers are sold in the local market such as Teliapara, Chunarughat, Deorgach to the timber traders. Then it is transported to the various places of the country such as Brahmanbaria, Asugonj, Comilla, Dhaka etc by truck, bus and train.

Different law enforcing agencies, such as police, BDR and FD check illegally felled trees at different posts. As per local people that the traders manage to pass through the check

posts. It appears that local Police play a negative role in this aspect, whereas BDR's role is positive for forest protection.

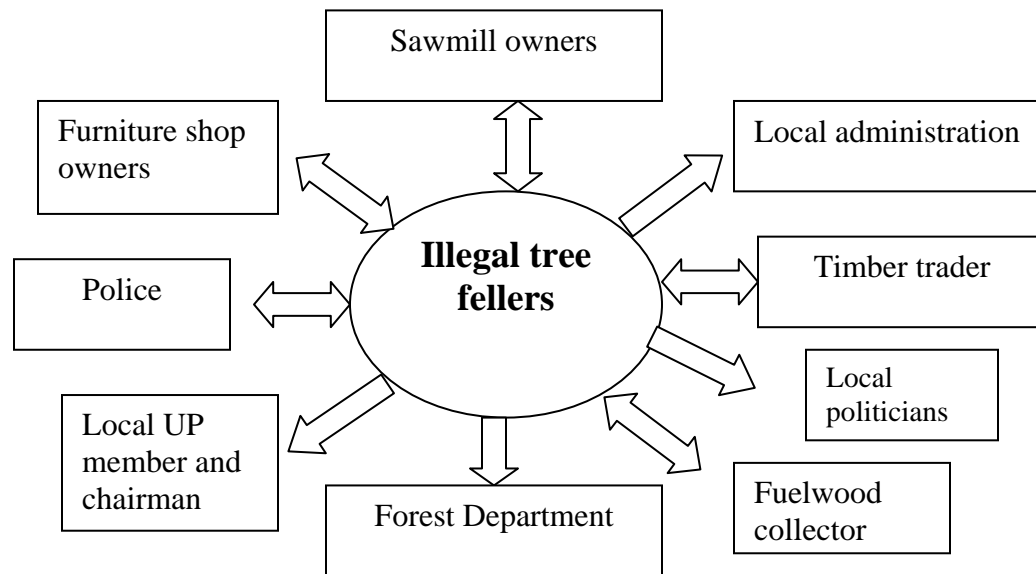


Fig. 15. Linkages of various stakeholders with illegal fellers

Source: RRA/PRA field exercise

Trees felled mainly include the medium sized valued timber trees, like teak, chapalish, garjan, mehagoni etc. The activity is carried out at night and intensively during the rainy season when access to the forest is very difficult and forest patrol is restricted. But the mohalders fell trees at dry seasons, mainly at daytime. However, the illegal fellers select the suitable trees during the daytime. Sometimes, they come across the forest patrol. If the activity is not negotiated earlier with the local FD (as reported by local people), they will come under fire. Sometimes there could be exchanges of fire between the forest patrol party and armed gangs of feller. Illegal tree felling can become a vicious cycle of activity once forest cases are filed against fellers. Because of the high income gained through tree felling, people often return to the forests to raise the necessary money to fight their forest cases. Thus, forest cases may lead to further destruction of the forest.

4.6.2.3 Bamboo extraction

The process of the extraction of bamboo is more or less similar to timber extraction from the RF. The FD auctions out different forest coupe/block of bamboo called Bash (bamboo) Mahalders (auctioneers) at every two to three years. On the other hand, the

forest villagers, local people collect bamboo illegally. However, there are groups of people who are habituated with collection of bamboo either legally or illegally. Once there was a great abundance of natural Mooli and Tangra bamboo in this forest. Due to the over exploitation and auctions as well as replaced by Zai bamboo plantation, the stocks of Mooli and Tangra are highly depleted. Mooli bamboo is extensively collected both for household consumption and for sale. People from distant villages also come for collection of bamboo for household consumption. About 5% of the adjacent tea garden HHs is completely dependent of bamboo collection for their livelihood, while many HHs are also partially dependent on bamboo collection. In an FGD, the local participants claimed that for collecting bamboo illegally, they pay Tk.10 as a levy to the FD for each entry. Access to the forest for collecting bamboo is not restricted, if the levy is paid.

Bamboo is also harvested through government auctioning from the reserve; however, in the current year there was no auction. Usually the illegally collected bamboo is sent to Teliapara bazar, Chunarughat, Amroot and other local markets. The villagers use vans or carts to carry bamboos to the market, occasionally they carry as shoulder load. The local bamboo traders transport bamboo to various places such as Hobigonj, Comilla, Ashugonj, Brahmanbaria by truck.

4.6.2.4 House building materials collection

House building materials are collected at a small scale from this forest, though this forest is situated far away from the settlements. The forest villagers collect their entire house-building materials from the forest, predominantly from their lemon cultivation areas as they claim. The Reserve area is also widely used by the surrounding rural population, mainly of neighboring tea estates, and people from the identified villages for collection of building materials. However, collection of building materials by them is not much. The building materials collected is mainly small trees, sometimes young trees of valued timber trees. Bamboo is also used as building materials for their houses.

4.6.3. Other Resource Collection

Different resource users also collect various other resources from the RF. Cane also collected at a negligible quantity from the forest. According to the FD, there was no natural cane in this forest but they introduced it by their plantation program since 1997. There are people in the adjacent villages of RF who collect vegetables and fruits from the forest. The vegetables collected include bamboo shoots (manthana), bonkachu (bandhugi), ramkala, thankuni, aorai kalai, karam, gantha, muia, palong shak kachu, kachur lati, etc., mainly during rainy season. Very few villagers are involved with this activity. In addition, few people collect seasonal fruit from the forest. The main forest fruits that are collected by people are *Chapalish*, *Kau*, *Kanthal*, cane fruits and banana. The fruit collectors mainly collect these fruits for their own consumption. A few of them probably sell them to their neighbors or to markets for additional income. In addition, there is irregular hunting of jungle fowl and wild boar by the tipra (indigenous) people for HH consumption. Sometimes few tea garden labour collected fodder from the RF. Once, Satchari was subjected to intensive commercial harvesting of sand during dry season. But now days this activity has reduced due to not providing permission by the Govt. or FD. Sungrass is also collected from the forest.

4.7 Other causes for forest degradation

4.7.1 *Lemon cultivation*

Lemon cultivation is done by the Tipra tribe (Forest villagers) in some areas, allocated by the FD the purpose. This is their traditional activity and is the major source of income. The cultivation practices include clearing of the area and subsequent weeding. Thus the activity contributes to habitat loss and pose a threat to the local biodiversity. The lemon farming covers an area of about 4-5 ha and thus has a limited impact on the forest.

4.8 Local Community and Power Structure and Local Governance

4.8.1 *Local decision makers and influential people*

A total of 24 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 21 provides the name and address of the influential persons, while Fig. 16 shows their domain and locations relative to the forest. The most influential person seems to be the local MP of Mhadabpur-Chunarughat constituency, Mostafa Shahid, who has direct links with some of the elite villagers adjacent to the RF, including Chairman of Shajahanpur union. Earlier, local MP was involved with timber trading, particularly with Satchari Forest. There is another outsider influential person, Mr. Selim, who claims to be a relative of a powerful minister and has influence in the locality. Mr. Samir Hossain, another outsider from Chunarughat Bazar, is a moholder and has good relations with FD personnel and the local MP.

Table 21. List of Most Influential Persons of Different Villages in and Around Satchari RF

Sl no.	Name of most influential people	Designation	Name of Village	Union/Location
1.	Masuk Mia	Present Chairman	Teliapara	Sahajahanpur
2.	Shafiqul Hossain	Ex-Chairman	Surma	do
3.	Parvej Chowdhury	Political person	Surma	do
4.	Ripon Chandra Paul	Moholder	Sahajanpur	do
5.	Chottu Mia	Moholder	Sahajanpur	do
6.	Shahed Mia	Local elite	Teliapara	do
7.	Mannu Mia	Local elite	Teliapara	do
8.	Abu Taher	Chairman	Deorgach	Deorgacha
9.	Md. Hazi Tofail Ahmed	Local elite	do	do
10.	Rajab Ali	UP Member	do	do
11.	Rahmat Mia	Ex-UP member	do	do
12.	Matur Rahman	Moholder	do	do
13.	Sabul Malder	Moholder	do	do
14.	Abdur kayum	Moholder	do	do
15.	Azizur Rahman(suruk Ali)	Ex chairman	Enatabad	do
16.	Abdur Rashid Master	Ex chairman	do	do
17.	Md. Abdul Latif Master	Local elite	do	do
18.	Abdur kader	Political person (Mahalder)	Chunarughat Bazar	Chunarughat
19.	Samir Hossain	Political person (Mahalder)	Chunarughat Bazar	Chunarugha
20.	Abdul Kaptan	Moholder	Chunarughat Bazar	Chunarugha
21.	Akamal Mia	Bazar Secretary	Chunarughat Bazar	Chunarugha
22.	Md Salim	Moholder	Srimongal Sadar	Srimongal Sadar
23.	*Jogesh Tripura	UP Member	Satchari FV	
24.	Golam Mostafa Shahid	local	Local MP	

*Mr. Jogesh of Tiprapara forest village is very influential and he is also a moholder.

Source: RRA/PRA field exercise

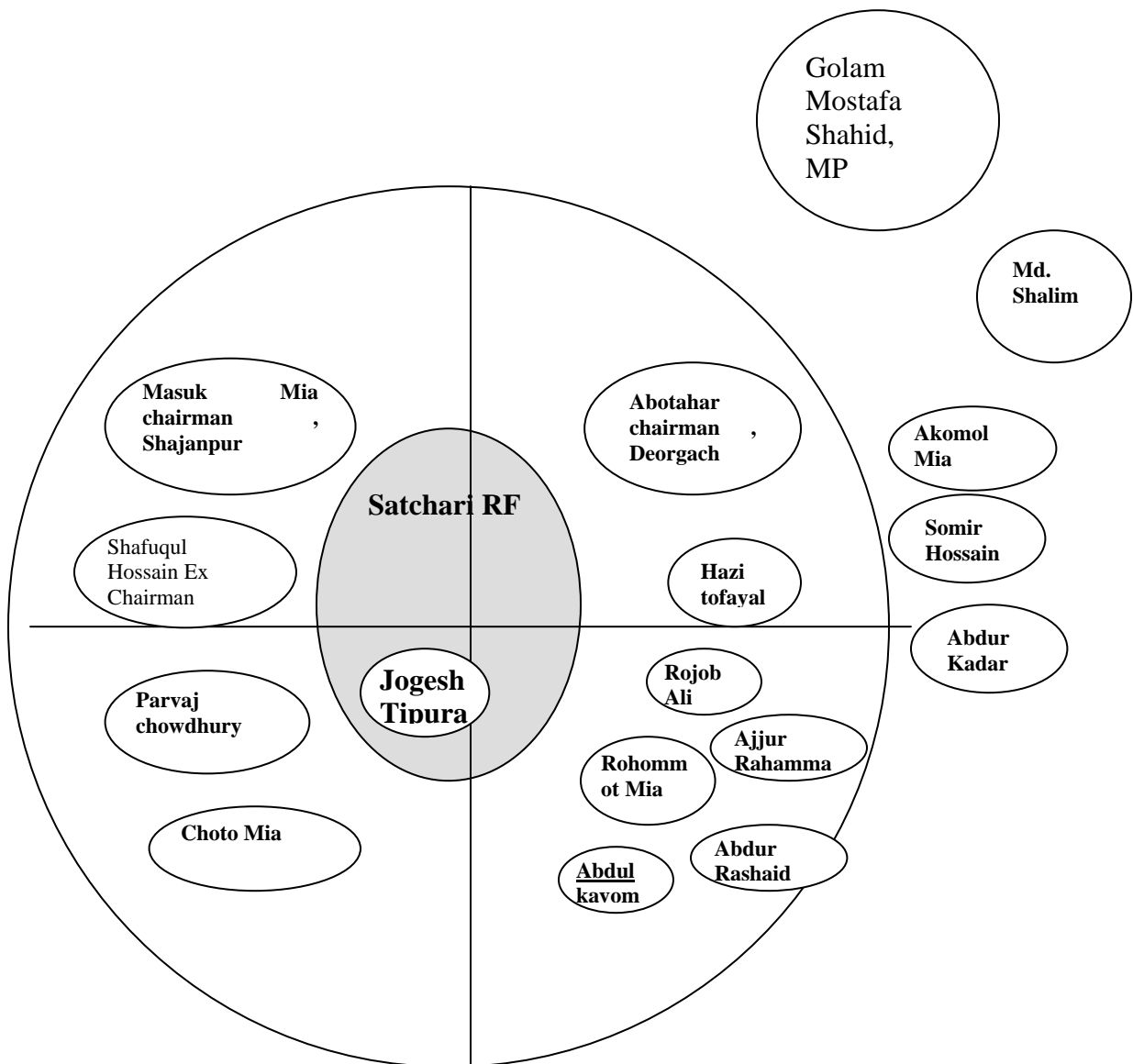


Fig. 16. Venn diagram of power structure: important local influential persons

Source: RRA/PRA field exercise

4.8.2 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.

Police administration at Upazila level is the local law enforcing agency and are 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.

The Tipra 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 Satchari RF in the forest village, there is a community leader, called Headman, as recognized by the FD. Fig.17 shows the relative involvement of different Government and Non-Government organizations in the locality for local welfare, development and administration

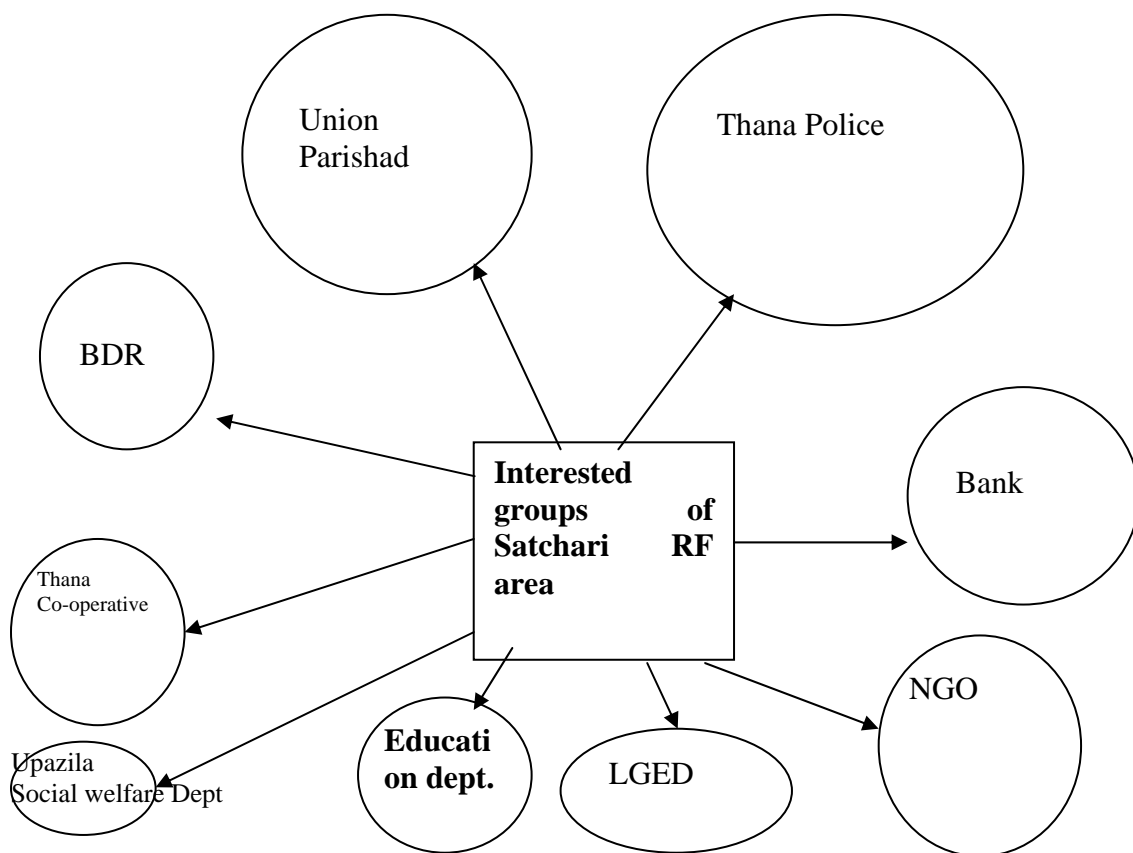


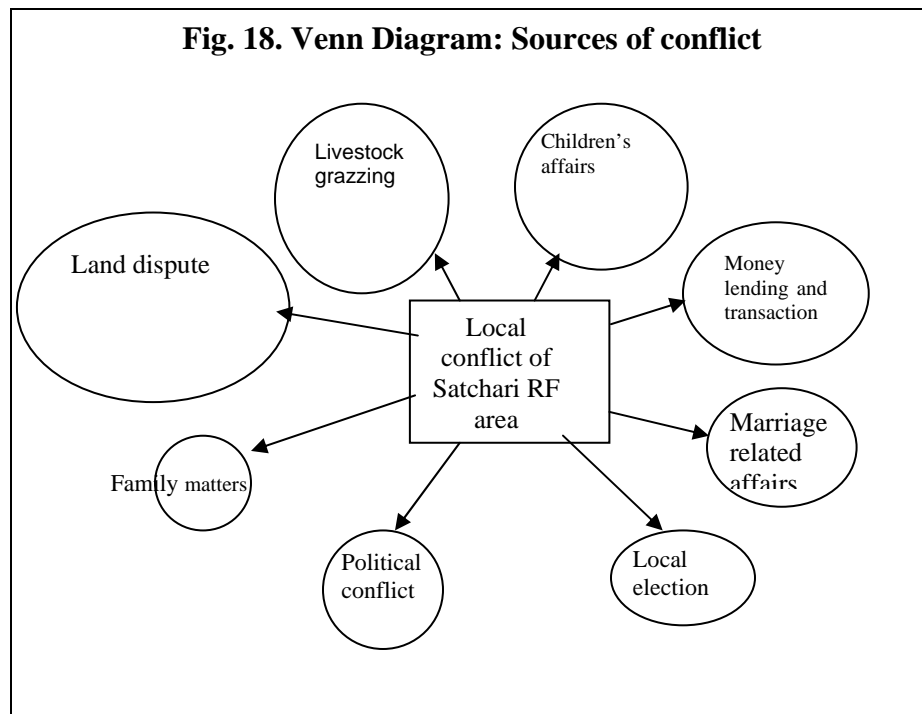
Fig.17. The relative level of stake of different institutions

Source: RRA/PRA field exercise

4.8.3 Local conflict, conflict resolution, social adhesion and cohesion

4.8.3.1 Sources of conflict

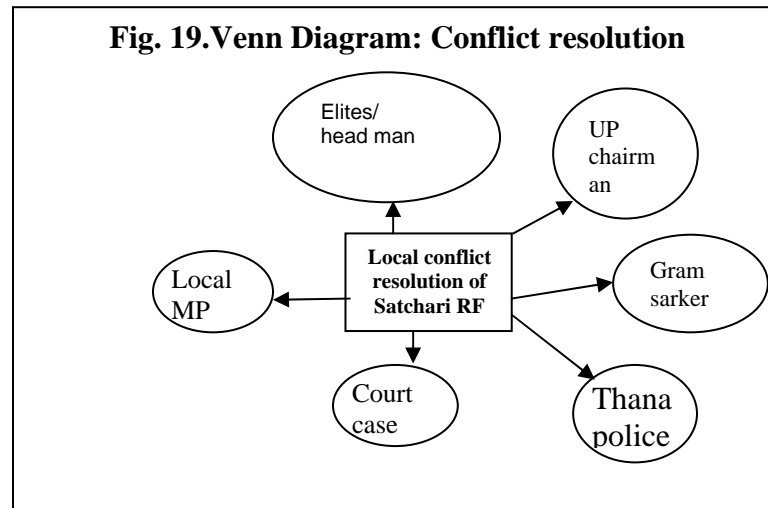
The main sources of conflict among local people are, land dispute, children affairs, livestock grazing, marriage related affairs, family affairs, money lending, local politics, local elections etc. Fig. 18 shows the major causes for local conflicts and their level of influence.



Source: RRA/PRA field exercise

4.8.3.2 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 and ending up in courts.



Source: RRA/PRA field exercise

4.8.3.3 Conflict with FD

There is a huge conflict between with FD local staff and local people, particularly with tree feller from various villages. Sometimes there are direct conflicts with tree feller during patrolling, sometimes lead into exchanges of fire and even murder.

4.8.4. 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.

4.9 Local Socio-economic Context

4.9.1 Demographic Profile

4.9.1.1 HHs

In total, there are approximately 2190 (Table 9) in the identified villages having major and medium level stakes. Information regarding households for some villages was not collected. Of them, only 19 HHs belong to Tripura forest village.

4.9.1.2 Education

Table 22 presents information on the educational status of the area. It may be mentioned that extrapolation of data was made based on limited data collected through RRA exercises.

Among the tribal community, now-a-days 30-40% children go to primary school, only 10% go to High School and only 1% study in the colleges. Among the adult, about 80% are illiterate (above 30 years of age).

Among the Bengalee, approximately about 35-40% adult are literate, about 80-85% children go to primary school, about 60% goes to high school and about 25-30% goes to colleges.

Table 22. Educational Status of the People in Different Villages Around The Satchari Reserve Forest

Sl no.	Villages	Literacy (above 30)	Primary	Secondary	college
01	Deorgach	32%	90%	70%	30%
02	Chaklapunji TE	20%	45%	5%	-
03	Tipra para (forest village)	20%	30%	10%	1%
04	Teliapara	50%	90%	75%	35%
05	Sahajahanpur	70%	100%	80%	25%
	Average	38.40%	71%	48%	18.20%

Source: RRA/PRA field exercise

4.10 Livelihood analysis

4.10.1 Occupation

The major occupations of the Tipra tribes are day labourer followed by fuelwood collection and lemon cultivation. Almost all HHs of tribe are engaged with some sort of lemon cultivation.

On the other hand, the major primary occupation of Bangalees are agriculture (approx. 65-70%), principally paddy cultivation, followed by day labour including (20-25%),

fuelwood collection and timber poaching (3-5%), small business (2-3%), service (3%) and overseas employment (2%). The major secondary occupation is fuel wood and bamboo collection (5-8%), day labour (5-10%).

However, there has been shift in the occupation of the local people over time. Presently, the number of day laborers has increased with a decrease trend in involvement in agriculture (Table 23). Illegal logging has greatly increased over the past 15 years as a local occupation. . Occupation of some HHs from farming have changed to day labour, fuel wood collection, timber poaching and small business. Local people also adopted the other occupations like timber trading, furniture shops, and carpentry.

Table 23. Trend in Changes in Occupation of People around Satchari Reserve Forest

Sl	Occupation	Before 1971	Before 15 Years	Present
01	Agriculture	00000	0000	000
02	Day Labourer	000	0000	00000
03	Business	00	000	0000
04	Fuel wood Collector	00	000	00000
05	Illegal Poacher/tree feller	00	000	00000
06	Service	0	00	000
07	Timber Trader	0	00	00000
08	Carpenter	0	00	00000
09	Sawmill operation	0	00	0000

Source: RRA/PRA field exercise

4.10.2 Richness-poverty level

Table 24 shows that about 4-5% people of the area are rich, 22-25% are middle class and 55-60% is poor and 17-20% is very poor. However, among the tripra community, poverty level is very high. About 85% are poor, 12% are very poor, 2% belong to middle class and only 1% is rich.

Table. 24. Livelihood Status of The Adjacent Villagers of Satchari Reserve Forest

Sl. No	Villages	Rich	Mid. Class	Poor	Extreme Poor
1	Deorgach	5%	30%	45%	20%
2	Chaklapunji TE	1%	5%	78%	16%
3	Tipra para(forest village)	1%	2%	85%	12%
4	Teliapara	7%	30%	43%	20%
5	Sahajahanpur	5%	45%	30%	20%
	Average	3.80%	22.4%	56.20%	17.6%

Source: RRA/PRA field exercise

4.10.3 Unemployment

Unemployment is another severe problem that puts pressure on over exploitation of forest resources. In tea estates, on an average, about 20-25% people are unemployed. Among the villagers, about 5-7% people are unemployed. In average, about 15% local surrounding people are unemployed. However, there is a strong seasonal trend in unemployment level in the area. Unemployment is a major concern/problem in the area. According to the local people, the number of unemployed people increase during the dry season in Deorgach, Chaklapunji tea garden, Teliapara and Tiprapara.

4.10.4 Credit

Several NGOs and 2 banks provide micro-credit to local people. Bank loans are mainly given for poverty reduction and integrated rural development through creating opportunity of IGA and also as seed money for agriculture and handicraft. 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. It was seen that local people also take credit locally from neighbors, relatives etc.

4.10.5 Income and expenditure profile

Site-Level Field Appraisal: Satchari Reserve Forest

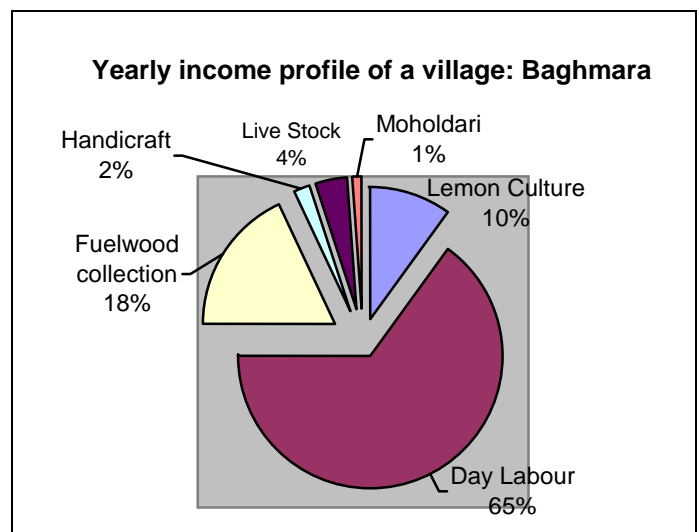
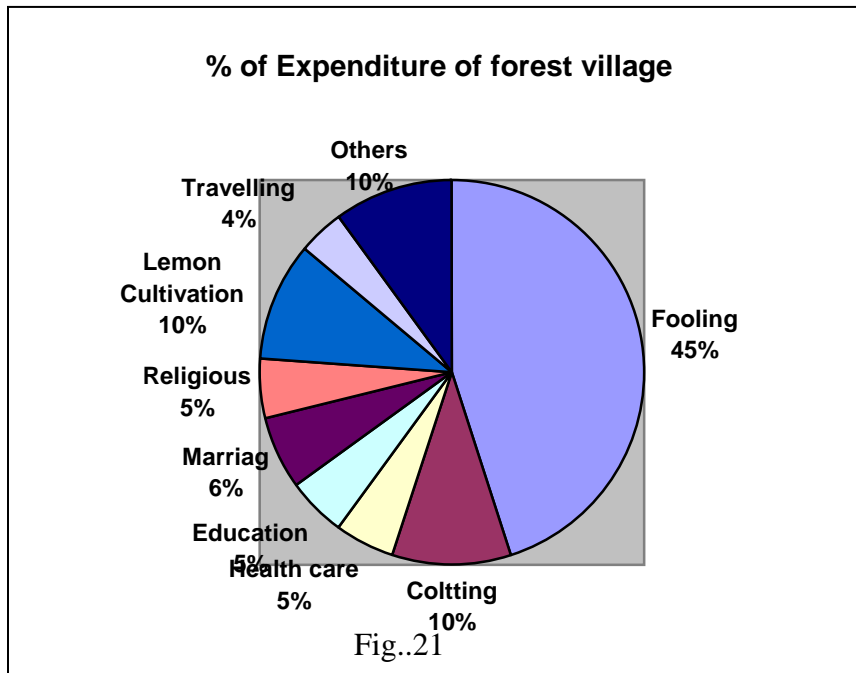


Fig. 20

The Fig.20 and Fig. 21 present data on the income and expenditure profiles of a village, called Tiprapara forest village, respectively, as an example. FGD revealed that the major sources of income in order of magnitudes are labourer, 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 purpose, less for educational purpose.

4.10.6 Skill & skill development opportunities

Overall in the area, the number of skilled person seems to be very inadequate to undertake alternate generation activities. Skill development training provided by the NGOs are very limited and confined to some traditional areas of income generation. Local people, particularly the tribal, have got some skills, like bamboo basket and mat making, weaving (Tipra). There are areas such as bamboo and cane handicrafts preparation, food processing and marketing, medicinal plants production and its marketing, cattle fattening, poultry, dairy, lemon cultivation etc. Potential training and credit support in these areas could play a vital role in income generation of some of the local people and lessen their dependency on forest and at the same time very soft loan would help in undertaking these activities.

4.11 Social dynamics (Trend in changes in socio-economics)

4.11.1 General Dynamics

Table 25 shows the changes in some key socio-economic factors and local activities. Compared to 1970, there has been an increase in population; the expenditure of local people has increased with corresponding decline in solvency. Income of local people in terms of taka has increased, but at the same time livelihood expenditures have increased. Although, literacy rate has increased, unemployment rates have also increased. During this time, use of the forest for both as HH needs and income has increased. However, local food scarcity has reduced while opportunities for alternate income have increased.

Table 25. Trend in Changes in Some Socio-Economic Matrices of the Local People

Issue	Pre-1971	15 years ago	Present	Causes for change
Settlement/population	00	000	00000	Population growth,
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	Awareness raising, increased educational opportunity
Unemployment	0	00	00000	Less cultivated land than pre-1971, case in forest village, population growth, resource depletion
Use of forest for income	00	000	00000	Poverty, unemployment
Use of forest for HH needs	00	000	00000	Poverty, Population growth, easy access and no alternate source
Transportation and mobility	00	000	00000	Development of road communication and transport
Homestead plantation	0	00	0000	For income generation, HHs consumption, awareness
Food scarcity	00000	000	00	Increased employment opportunity and agricultural development
Credit and IGA	-	-	00	Increased GO, NGOs credit and IGA programs
Occupation	0	00	00000	Increment of IGA and small business, day labour in forest

Note: 5 circles to indicate highest abundance/intensities/

4.11.2 Seasonal changes in socio-economics of the local people

Table 26 provides information on monthly changes 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. While there appears to be no direct link between seasonal unemployment and dependence on the forest resources, this is thought to be a causal factor in dependence.

Table-26. Seasonal Changes in Some Socio-Economic Matrices

	Baishak	Jaisthya	Ashar	Shraban	Vadra	Ashyin	Kartik	Agrah-ayan	Poush	Magh	Fal-gun	Chai-tra
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/saw mill 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

4.12 Local Problems

Problem ranking exercise (Table 27) was performed to identify and understand the local level problems and its causal factors. The major problems, according to the magnitude, are poverty, unemployment, road communication, electricity, drinking water, forest cases, etc.

Table 27. Local Problem and Their Causes and Possible Solutions

Name of Problems	Reason	Solutions
Poverty	Over population, unemployment, lack of capital to initiate IGA, 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 sufficient work, population pressure, Lack of education,	----- do-----
Education	There is no sufficient educational institution	Establishment of new technical & NFE schools, awareness, and financial support
Road communication	Road communication is not well in some area, most of the case, become difficult during rainy season	Local government and other concern agencies should give proper attention
Drinking water	Lack of deep tube well and fresh water	Need Government and NGO efforts to provide tub well and technology for safe water.
Electricity	Limited & interrupted electricity supply that hampers public life.	Electricity should be supplied through REB or PDB or introduce solar energy system
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 any case based on falsehood.

A collation of problem rankings carried out during the PRA showed that poverty is cause for the use of forest (Table 28).

Table 28. Pair wise Ranking of Some Local Problems

Identified problems	Poverty	Unemployment	Food security	Income needs	Fuelwood scarcity	Scarcity of house build. mat
Poverty	-----	Poverty	Poverty	Poverty	Poverty	Poverty
Unemployment	Poverty	---	unemployment	Income needs	unemployment	unemployment
Food security	poverty	unemployment	-----	Income need	Food security	Food security
Income needs	poverty	Income needs	Income needs	-----	Income needs	Income needs
Fuelwood scarcity	poverty	unemployment	Fuelwood scarcity	Income needs	-----	House build. mat
Scarcity of. H. build mat.	poverty	unemployment	House build. mat	Income needs	House build. mat	-----
Total	10	06	02	08	01	03
Rank	1	3	5	2	6	4

4.13 Gender Issue

4.13.1 HH decision making

Table 29 shows the role of different family members in taking HH decisions and Fig. 22 shows the relative level of influence of different members of the family in decision making. In Satchari area, the 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 29. Information on Family Decision-Making (Deorgacha)

Name of decision	Husband*	Wife	Father	Mother	Elder Brother	Younger Brother	Son	Daughter
Marriage	00000	00					00	0
Sowing crops	00000	00					00	
Land purchase	00000	00						
Land selling	00000	00						
Treatment	00000	00						
Education	00000	000					00	0
Tree selling	00000	0						
House making	00000	000						
Cattle Purchase	00000	00						
Loan	00000	0000						
Savings	00000	0000						
General expend.	00000	0000						

** Husband is the head of the family, N.B. 5 circles have used to indicate highest intensities

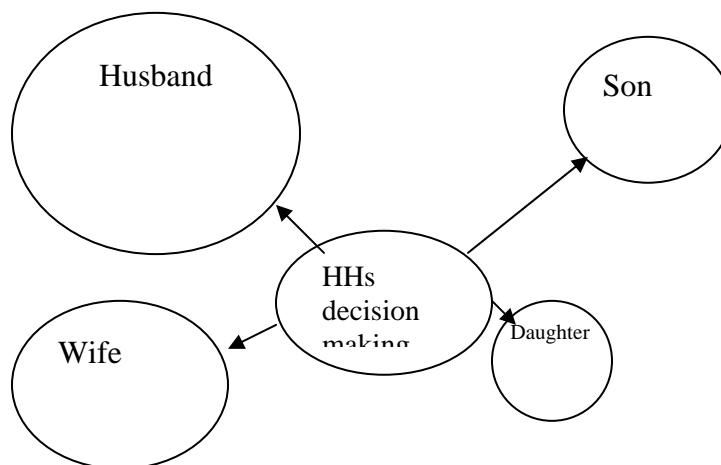


Fig. 22. Ven diagram of Family decision-making

4.13.2 Outdoor mobility and access to credit and IGA

Table 30 shows that the women of the area have moderate mobility. Participation to social events by women is comparatively less than males. But in the cases of IGA & credit, the women have much higher access than the man. The cause behind this is that the credit providing organizations or NGOs prefers female than to male for providing credit. Women are moderately discriminated in case of employment in jobs, business etc. But in the ethnic community, this picture is quite different, women are more involved in earning.

Table 30. Mobility and Participation in Social Events and Access to Credit and IGA by Male and Female in Satchari RF Area.

	Outdoor mobility	Participation in social events	Access to credit	Access to IGA	Education	Employment
Male	00000	0000	0	0	000	00
Female	00	00	00	00	00	0

4.13.3 Workload of Local Male & Female

Generally, the in the Bangalee community, men have more work during Jaistha to Bhadra and again during the winter months. The females have more work during the dry months and the periods that correspond to the local agricultural activities. However, in the tribal community (Table 31), the women have more work than men except the month of agraphayan. In general, women in the locality have a lower workload than the men.

Table 31. Seasonal Workload of Male and Female for Tipra Villages

Months Sex	Baishakh	Jaistha	Ashar	Shrabon	Bhadra	Ashwin	Kartik	Agraphayan	Poush	Magh	Falgun	Chaitra
Male	00 00	000	000	000	000	000	000	0000	00	00	00	00

Female	000 00	0000	0000	0000 0	0000	0000	0000	000	000	000	000	000
--------	-----------	------	------	-----------	------	------	------	-----	-----	-----	-----	-----

4.13.4 Daily work load

Fig. 23 and Fig. 24 show the daily work chart of male and female, respectively, in a Tipra family in Satchari forest village. The females are typically involved with the household work and also help in the weaving and outdoor work. The males mainly do the outdoor works related to income generation.

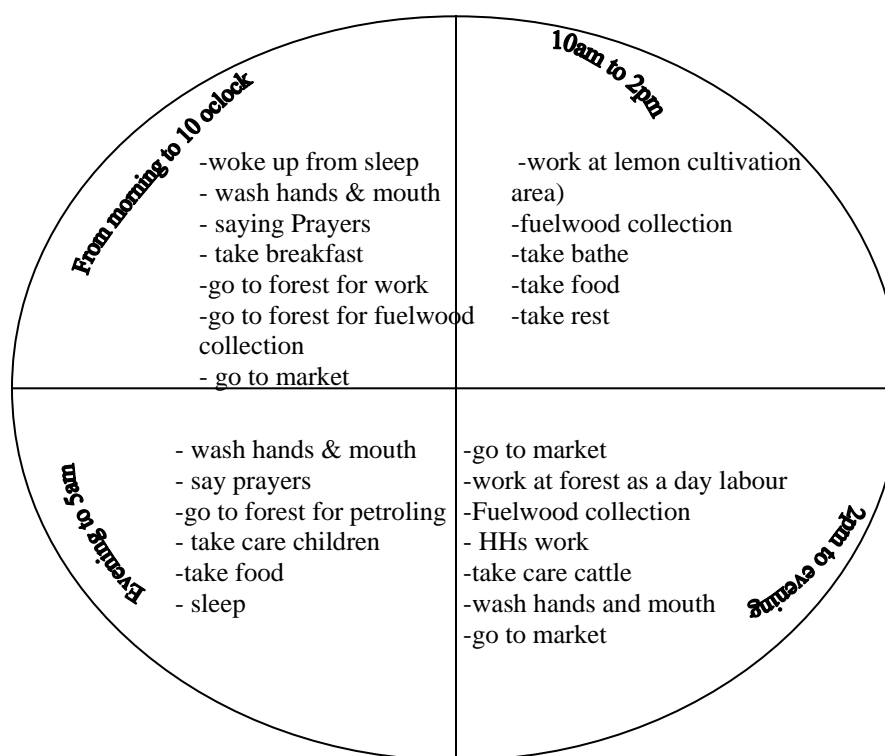


Fig. 23. Daily Work Chart of Men of Satchari Forest Village

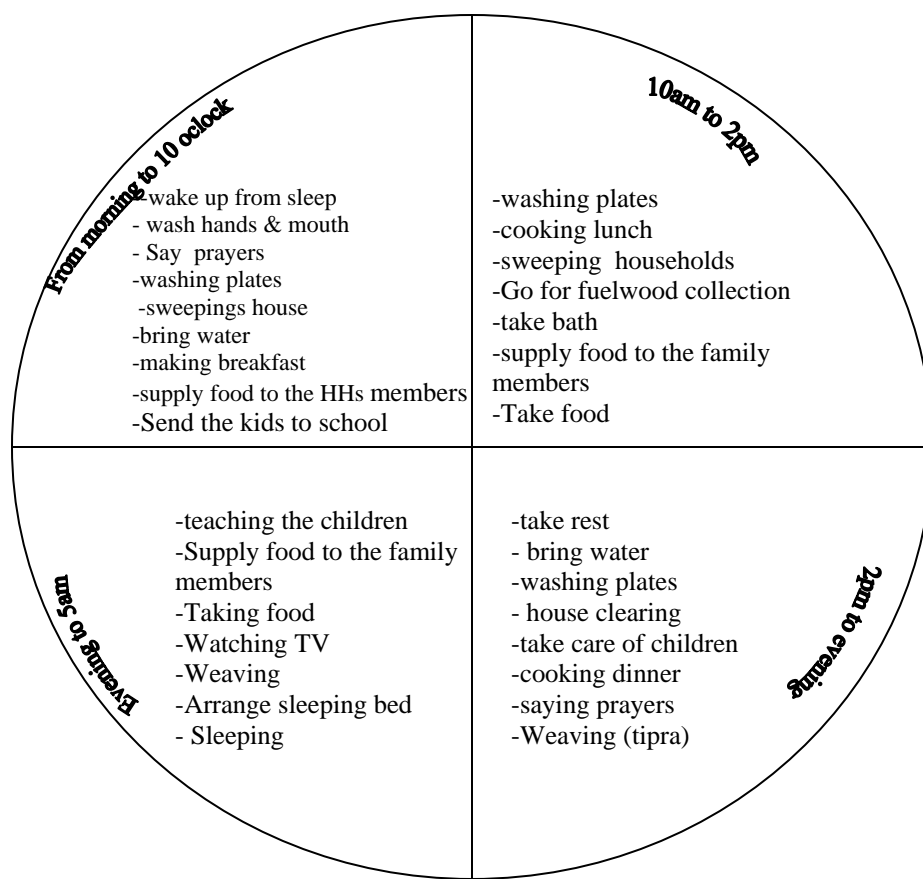


Fig. 24. Daily Work Chart of Women of Satchari Forest Village

4.13.5. Education

The overall literacy rates of male and females are close. In recent years, the number of school going girls is higher than the boys. However, in case of higher studies girls are behind the boys (Table 32). Overall, females are less educated than the males. Overall, higher education is very less in the area, and the females are far behind in this respect.

Table 32. Comparison of Educational Status of Male and Female in Satchari RF

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

4.14 Local Level Awareness and Behaviour

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

In Satchari, people are aware about the degradation to forest and forest resources and its adverse impacts. They have a positive attitude towards conservation. However, local people know little about rules, regulations for the use of the reserved forest. Initial response of local people and FD staff towards the project was positive. As per local people, alternate income generation provision for the local poor people would be helpful for the successful implementation of the project. The ethnic community is well behaved and cooperative.

Most of the local Bangalees are also good people. However, some of them are 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.

4.15 Resource Regeneration & Plantation Practices

4.15.1 FDs Plantation /Product forestry by FD

The plantation policy for the Satchari forest appears to be concentrated on the production of timber, cane, bamboo and some other forest products, with planning, establishment, management and harvest under the centralized control of the Forest Department. FD records show that plantation in Satchari Reserved Forest started in 1948 and up to the period 1996 about 1150 ha area have been planted (FD 1996).. Initial plantations included only long-rotation plantation, primarily with teak and conspicuous tree species. FD records shows that about 28 species of trees were used in planting the forest. Intensive plantation of the forest occurred during the period 1983-1990. The later plantations include mainly short-rotation monoculture plantations mostly with exotic,

rapid growing species. The commonest species for the short-rotation plantation are Moluccana and Eucalyptus. The FD has also planted cane and bamboo in a substantial area.

Plantation practice: Plantation of the forest included clear felling of the original forest, burning of underneath vegetation. Although illegal logging has been stopped in the natural forest, FD continues to clear cut the mature plantations both inside and in bordering of the reserves.

It was expressed from an FGD that the FD's plantation strategy for Satchari is still guided by the production forestry. Along with the traditional plantation practice with valuable long rotational timber trees, present plantations in RF include Jarul, Chapalish, Agar, Garjan, teak, as well as short rotation exotic trees (i.e Acacia hybrid, Mangium, Moluccana, Eucalyptus, Pine, Akashmoni) with mono species. Beside this bamboo and cane have been and being planted in many blocks. Cane is planted as undergrowth which has started from 1997. The FD also continues to cut under story vegetation in the natural forest in order to plant palm and bamboo. Although not quantified, this practice has a significant negative impact on regeneration and forest succession. These practices resulted in the earning of huge amount of government revenue. Changing these practices may be difficult given the amount revenue generated.

4.16 Law Enforcing Mechanisms

In Satchari, forest patrol is inadequate and FD staffs are not capable of facing the armed gangs of illegal timber extractor. As revealed from FGD, forest check post at Satchari does not serve the purpose of checking illegal timber adequately. 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. Local people claim in FGD that police patrols around the forest but not for forest conservation purpose, for their own interest for getting money. Often police impose levy of Tk. 2 for each fuelwood collector and a big amount of money for each trucks with illegal timber. But BDR has a positive role in forest conservation. Though the RF has boundary with the neighboring

country India, BDR patrol in the border side. BDR has a camp near to the Indian border and also to the RF. BDR usually patrol and cease illegally transported timber or sometimes visit the local sawmills to recover the illegal timber. According to the FD and local community they are helpful and cooperative in this aspect.

4.17 Status and Role of Forest villagers and ethnic community

There is only one forest village located inside the RF inhabited by an ethnic community called Tipra, they were allowed to settle down within the RF, but have no formal agreement. The FD mainly maintain cooperative relation for strengthen their forest patrolling with the help of the forest villagers. They have only their homestead land. Earlier, they were used to clear parts of the forest for Jum cultivation, which has stopped since 1989. They cultivate lemon in an area around their village, informally allocated to them for the purpose. They are totally dependent on forest. They collect vegetables; house building materials and fuelwood from the RF. At present 65% of the Tipra are day labourers. They usually join with the patrolling team of FD each day by rotation from each HH in turn. On the other hand, though they are fully dependent on forest resources for their livelihood but due to a small number of populations, this has overall little impact on the RF. There have no innate tendency of encroaching land or establishing new settlements inside the RF. But they expect to get some more few new lands for establishing new HHs for their expanding family members, also they have some expectation from the project that NSP should provide some support to improve their livelihood development strategies.

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

5.1 Threats to the Park and its Biodiversity

5.1.1. Clear felling and illegal timber felling

Matured plantations are cleared felled through a process of auction. The auctioneers are usually the local influential and very powerful. They cut everything within their auctioned area. They remove the herbs as well to facilitate carrying and transportation of logs. It is alleged that some timber illegally felled are also smuggled out along with the clear felled timber. 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 RF and selectively large trees are removed. The entire process poses most threat to the RF

5.1.2 Collection of fuelwood, bamboo and other house building materials

Collection of fuelwood, bamboo and house building materials are widespread within the RF and remain as important threat to the biodiversity of the RF. The collection of these forest resources removes the indigenous, non-traditional timber trees and small trees and shrubs. 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. They also plant bamboo and also cane as undergrowth. 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.

5.1.4 Hunting

Widespread hunting in the past contributed greatly to the reduction in wildlife diversity in the RF. Hunting in RF is now less, mainly because of unavailability of wildlife. However, some level of hunting is still done. The local ethnic community hunts /traps some wildlife, the important species sought are wild boar, jungle fowl and some species of birds. It is reported that sometimes people from distant places come to the forest for bird hunting. Therefore this poses a threat to the wildlife of the RF as their population is now highly reduced

5.1.5 Unplanned tourism

A good number of visitors come to the RF during the winter, mainly for picnic purposes as well for nature observation. They enter the forest and walk through. They cause disturbances to wildlife.

5.2 Issues of Concern

The following are the major problems that need to be addressed in order to sustainable management of the Satchari RF:

- 5.2.1 **Reduced forest regeneration:** Mainly caused due to fuelwood collection, clear felling etc. Regeneration is required for bringing back wilderness in RF and it should be major option for the management of the RF.
- 5.2.2 **Over- and unsustainable resource exploitation:** Mainly include collection of fuelwood, bamboo, building materials, some species of wildlife etc. and causing depletion in biodiversity. Project needs to address this issue.
- 5.2.3 **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. Use of forest by local people causing harm to biodiversity. Thus this emerges as an issue of concern for the project.

5.2.4 Poor forest management by the FD and lack of specific 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 PA 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 Satchari RF and therefore these are important issues for consideration.

5.2.5 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.

5.2.6 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.

5.2.7 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.

5.2.8 Changes in the landscape: Except for 200 ha area, the remainder of the RF have been converted to plantation and thus brought a change in the original landscapes and its associated elements.

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.

5.4 Opportunities

- **Positive responsiveness of the local people:** The general people showd interest in the project. This aptitude of local people could utilized to ensure

their participation in the project and thus will help in establishing co-management.

- **Ecotourism development:** A large number of people visit the RF. If infrastructures are developed this will attract more visitors and ecotourism could be planned accordingly.
- **Buffer zone plantations:** There are huge denuded forest areas within and surrounding the RF. 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 RF 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 RF, created due to clear felling and these areas could be brought under plantations with indigenous and eco-friendly plant species.

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 RF 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 RF

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

- a long-term biodiversity monitoring planned aiming at changes in the biodiversity in the RF, not only targeting the measuring the changes caused due to project implementation

Some specific suggestions:

- i. Clear felling and sand extraction from the streams located inside the RF should be stopped for conserving the biodiversity.
- ii. 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.
- iii. 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.
- iv. A rehabilitation scheme should separately be considered for the non-human primates, the most important component of the Satchari RF ecosystem. To this end the following could be considered:
 - re-establishment of habitat continuity between the fragmented habitats of the primates
 - plantation scheme with food trees suitable for non-human primates
- v. 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.
- vi. 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 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 and pineapple cultivation, weaving, dairy and fish culture, poultry etc.

6.4 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 and members of union parisad and MP, and involve them, at least in advisory role. The project should also work with existing local community organizations identified under the appraisals.

6.5 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

6.6 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.

- 6.7 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.
- 6.8 Planned eco-tourism may be promoted in and around the Satchari RF with provision for generating local funds for forest management and welfare of the local people.
- 6.9 The project should make an effort to negotiate with local development partners/agencies to extend their social welfare services to the area.
- 6.10 As an initial step, the project should concentrate its activity in Goachnagar, Teliapara, Baghbari, Deorgach, kalishiri, Ghonoshampur etc. villages and later with the other identified villages having minor/negligible stakes.
- 6.11 The project should initiate dialogues with Moholdar, sawmill owners, fuelwood traders and furniture shop owners of Teliapara, Deorgach and Chunarughat on a priority basis and later with the same of other local bazaar.
- 6.12 The project should also initiate dialogue with the surrounding tea estates, like Surma TE, Satchari TE, Kapaichara TE, Chanpur TE and Laskarpur tea estates etc. The discussion should at least concentrate on the possibility of habitat continuity between RF and the tea estate's forest/plantations for wildlife and the common interest for biodiversity conservation.
- 6.13 The project should also make provisions for generating a scientific and social knowledgebase about the RF. On an immediate basis a comprehensive faunal and floral inventory should be made. Investigations into the threatened categories of plants should be made on a priority basis and a management scheme for their protection and rehabilitation should be developed.

Annexure-1: Summary Activities (pictorial description)



PRA team member are conducting FGD with forest villagers (Tiprapara)



Bamboo extracted from Satchari RF is on sale at Amtoli station, Satchari



Carrying of fuelwood from the forest – a usual scene in the Satchari RF area



Shoulder load of fuelwood destined for local market



Natural Mooli is endangered due to this kinds of harvesting by local people



Transportation of illegal logs to the sawmill from RF



A huge stack of fuelwood for sell in Teliapara Bazar –obviously from the nearby forests



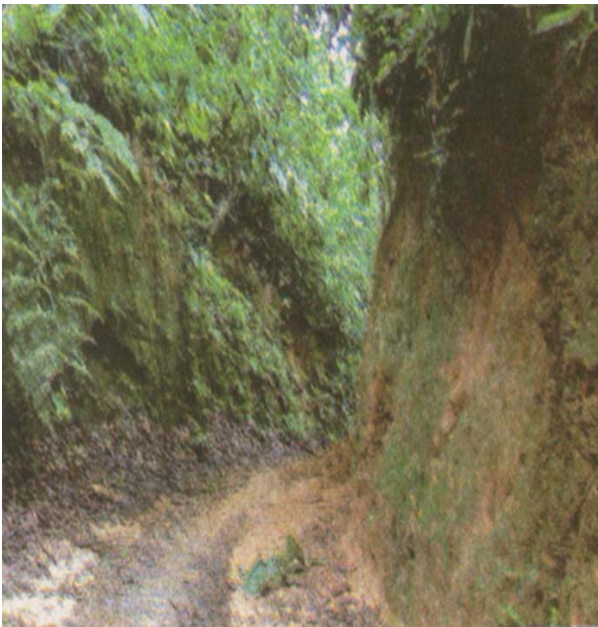
A partial view of a natural vegetation that still exists within Satchari RF.



The Tourists walking through the forest trails



A honuman is on action -jumping from one to another tree in the RF



A forest trail used as a poaching route by the resource collector



Visitors walking across the forest – probably not planned

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 thing men and women do concerning the forest and forest products?
 - a. Does 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 opportunity 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 manything 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 thre use 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 (from 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