

ipac

**Site level Field Appraisal for Integrated Protected Area
Co-Management**

Pablakhali Wildlife Sanctuary

(Draft)



IPAC Central Team doing Reconnaissance Survey at PWS, Photo: Nikhilesh Chakma

**Chittagong Hill Tracts Cluster
Integrated Protected Area Co-management Project
Rangamati, April – 2009**



Site-Level Field Appraisal for Integrated Protected Area Co-
Management

Pablakhali Wildlife Sanctuary

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Acronyms and abbreviations

ACF	Assistant Conservator of Forest
ADB	Asian Development Bank
BARC	Bangladesh Agriculture Research Council
BFDC	Bangladesh Fisheries Development Corporation
BFIDC	Bangladesh Forest Industries Development Corporation
BFRI	Bangladesh Forest Research Institute
CF	Conservator of Forest
CHT	Chittagong Hill Tracts
CHTDB	Chittagong Hill Tracts Development Board
DC	Deputy Commissioner
DFO	Divisional Forest Officer
DoE	Department of Environment
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization
FD	Forest Department
FDTC	Forestry Development Training Centre
GOB	Government of Bangladesh
HDC	Hill District Councils
IRG	International Resource Group
IPAC	Integrated Protected Area Co-Management
MOEF	Ministry of Environment and Forest
MOU	Memorandum of Understanding
MACH	Management of Aquatic Ecosystems through Community Husbandry
NGO	Non Government Organization
NSP	Nishorgo Support Project
PAP	Project Affected Persons
PF	Protected Forest
RC	Regional Council
RDP	Regional Development Plan
RPA	Reinforce Project Aid
RF	Reserve Forest
RHD	Roads and Highways Department
SF	Social Forestry
TA	Technical Assistance (<i>ABT TA #3328-BAN CHT R DP</i>)
USD	United States Dollar
UC	Union council
UNCED	United Nations Conference on Environmental Development
UNDP	United Nations Development Programme
USF	Unclassified State Forest

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1. Introduction

1.1 Project Background

Out of total land mass in a country, at least 25% forest coverage is essential to ensure better and healthy environment. About 14 percent of the area of the country is under forest cover, 43 % of which belongs to CHT (Abdus et al., 1999). The per capita forest cover of the CHT is 0.81 hectare compared to 0.016 ha for the whole country. The main forest product is timber, bamboo, and fuel wood. Bamboo grows almost every where. About 44 % of the total area of the CHT is under middle dense forest cover. Only 16 % of the CHT is under forest cover. According to BBS source the CHT contains 43 % of the total forest area of Bangladesh. It has 21.72 % of the country's Reserved and Protected Forest, and 99.75 % of Bangladesh's unclassified state forest. All unclassified forest area lies within the CHT area under the control of the Department of Forest and The ministry of Land and private planted forests. There is a total of 1111943.88 hectares of forest area in the CHT within 50.75 % in Rangamati, 29.09 % in Bandarban and 20.17 % in Khagrachari District. It is estimated that less than of this area actually has tree cover.(see table : Classification of forest area (ha), 2002-03)

However, very limited countries over the world have such amount of forest to ensure better and healthy environment. In Bangladesh, around 16% lands are forests; however, forest coverage is only about 9%. Therefore, it can be claimed easily that we are far away to ensure healthy environment for our people. Natural forests in many countries comprise the bulk of its forest areas rather than plantations. Like many other countries throughout the world, our natural forests are under constant pressure and have already been significantly degraded and fragmented. However, tropical natural forests are thought be the major biodiversity reservoir in the world. According to some of the estimates, forest cover in the country has fallen by more than 50% since independence. 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 will lead to the declination of forest productivity and services. This will in turn create irreversible pressure to the livelihood of thousands resource dependent people living in and around the forest areas and in some of the forests, this is quite evident now. Therefore, it is urgent to reduce or reverse the ever-increasing pressure on forest resources and harmful effect on forest biodiversity with the introduction of an effective sustainable resources management system. To reduce the pressure on biodiversity and resources, there must have provisions for the creation of alternative livelihood opportunities and support to the resource dependent people living in and around the forest areas.

Conservation of biological diversity in these days became a global issue rather than national. A developing country like Bangladesh with limited potential to fund particularly for conservation

and management ratified many national, regional and international conventions, treaties, protocols etc. related to biodiversity conservation. That actually proves that, Bangladesh has a strong commitment to conserve its existing biodiversity and this actually led the policy makers to designate and establish 19 protected areas in the country so far including National Parks, Wildlife Sanctuaries and Game Reserves with significant biodiversity resources under the provision of Wildlife Preservation Act, 1973. Nevertheless, there has been a little change in the degrading situation of these PAs with regard to biodiversity and its environmental services. PA has been managed by normal staffs rather than skilled wildlife conservation staffs with frequent transfer. Besides these poor governance, lack of appropriate and pragmatic management regimes for these PAs has been linked to the failure in PA management in the country.

USAID/Bangladesh seeks to continue its support to the environment sector through a new, five-year project, entitled “Integrated Protected Area Co-management (IPAC).” This Task Order is procured under the Prosperity, Livelihoods and Conserving Ecosystems (PLACE) IQC, and is USAID’s main vehicle for achieving results under the IPAC Project. The duration of the task order will be from the award date until June 4, 2013. The Contractor will provide technical advisory and assistance services to a range of stakeholders, including the Government of Bangladesh (GOB) and relevant ministries and technical agencies to promote and institutionalize an integrated protected area (PA) co-management system for sustainable natural resources management and biodiversity conservation that results in responsible, equitable economic growth and good environmental governance. The definition and core of co-management is the full participation of local stakeholders, such as communities and government to sustainably manage natural resources. IPAC will be a continuation of two ongoing USAID co-management activities: the Management of Aquatic Ecosystems through Community Husbandry (MACH) project and the Nishorgo Support Project (NSP, Co-management of Tropical Forest Resources in Bangladesh).

The IPAC Project will embark upon a *strategic goal* of scaling-up natural resource co-management at the policy and operational levels by achieving recognition, acceptance and integration of this approach by the GOB into its management tactics. IPAC will achieve its goals through three major components: (1) development of a coherent integrated protected areas co-management strategy, (2) building stakeholder and institutional capacity, and (3) site-specific implementation.

Table 1: Distribution of forest area in CHT (ha), 2002-03)

Sl	District Classification	Bandarban (ha)	Khagrachari (ha)	Rangamati (ha)	Total in CHT	Total in BD (ha)
1.	Reserved & Protect Forest (RF & PF)	107,739	38,783	2,55,111	401,634	1,848,850
2.	Acquired Forest	0	0	0.61	0.61	8,442
3.	Unclassed Forest	15,639	1701	0	17340	17340
4.	Total Forest Area controlled by FD	123378	40484	255,112	418974	1878,473
5.	Unclassified State Forest (USF)	200,066	183,759	309,136	692,961	694,688
6.	Khas Forest Area	0	0	8.70	8.70	24,083
7.	Planted Forests (Private)	26,184	8,930	22,259	57,273	NA
8.	Total Forest Area under MoL (row 5)	200,066	183,759	309,136	692,961	694,688
9.	Total Forest area under FD & MoL (row 4,8)	323,444	224,243	564,257	1,111,944	2,597,245

*Source: BBS, 2005 * ADB. 2001*

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

Proper planning is essential before going into interventions and simultaneously baseline information on different aspects is very much necessary to plan interventions effectively. In true sense, information is necessary at all the phases of the project e.g. before, during and after the implementation of project activities. Such phases include designing and planning project interventions, setting priorities and implementation strategies, performance monitoring and evaluation, action/applied research, scale up further etc. No doubt, collection of information continues throughout the project life, however, bulk of information collected at the initial stage of the project for better understanding of the situation, effective designing, smooth and hassle free operation of interventions and finally reaping very good project outputs. Therefore, in IPAC, implementers decide to go for collection of basic and baseline information at the initial stage of the project interventions. This is very much logical and effective particularly for Chittagong Hill Tracts (CHT) Cluster, as in the recent past immense lack of interventions in the natural resource management (NRM) arena is quite evident. In the Pabla Kahali Wildlife Sanctuary (WS) efforts from the project were in place to collect relevant information by using appropriate methodologies including ecosystems based integrated, rapid and participatory approaches. Therefore, it was one of the prime responsibilities of the CHT team to carefully scrutinize the information needs and determine its relevance to the project objectives and activities. IPAC project in the WS is particularly concerned with the establishment and demonstration of an effective co-management model of forest

resources without bypassing the potential impacts on the adjoining inland fisheries resources. IPAC will also develop set of prescriptions for technical management of different resources. Therefore, it is necessary to include all the relevant stakeholders in the collection and generation of information and they are likely to be involved with the project and management of local resources.

In the Pablakahali Wildlife Sanctuary, IPAC's main portfolio is to establish a co-management hallmark with a view to conserve and manage its resources and to trigger encouragement to practice it to many potential areas as well. Therefore, it is necessary to focus on these two terms e.g. co-management and resource management. Resource management includes resources and its status, trend and causes for resource degradation, resource exploitation, threats to local resources and biodiversity. However, co-management involves stakeholders and their activities, socio-economics, behavior, community power structure, their needs and expectat, conflict, challenges etc. Therefore, some common areas are present as well between these two terms

Initial scoping exercise and Nishorgo Support Project (NSP) documents helped to construct the list of specific information needs that will be collected / generated through subsequent appraisals. At the initial stage of the project, it was thought that 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 two most widely used packages of tools/methods to collect qualitative information about local people, their life, environment, their resources, activities and living conditions in a short time. Moreover, this is rather quick and very much effective as well. Such an approach is very much effective to utilize the knowledge of local people living in and outside of the Pablakhali WS in designing and setting implementation strategies and also 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 the bottom-up planning process in many development or resource conservation projects.

RRA was carried out as an initial activity in the field with primary focus on resource status and stakeholder assessment. It 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

Big volume of information collected through RRA/PRA exercises in the field level from January to February 2009, several personal communication and using secondary sources. This report is actually the synthesized form of all the pertinent findings that been collected through mentioned interventions. Moreover, this report also details the ways that information been collected (e.g. methodology and tools used) and highlight the issues in forest management and biodiversity conservation and identify the challenges for the IPAC. Finally necessary suggestions and guidance for the project and the relevant department been provided to step ahead. Moreover, this report also enclosed some recommendations for better management of the Pablakahali Wildlife Sanctuary.

1.4 Outline of the Report

The site level assessment report, at first, provides an executive summary which summarizes the entire ranges of the findings, methods used, issues and challenges until identified during PRA. The report starts with general introduction in **chapter 1** that includes the information on background of the project, information needs of IPAC and logical basis for conducting PRA/RRA, the purpose of the report etc. A brief description of the site is provided with a site map in **chapter 2**. **Chapter 3** sets out the methodology of the study that deals with the approach to implementation of the fieldwork of RRA and PRA, study team and study period, objectives and methodology of the study. The chapter also includes study period, setting RRA and PRA issues and questions, formation of RRA and PRA field teams, selection of RRA and PRA spots, choice of RRA and PRA methods and tools and the limitation of the field work. Outcomes of the RRA and PRA exercises are described in **chapter 4** which contain major findings and analyses. The findings are mainly presented as situational analysis of the forest resources, stakeholder analysis,

resource and resource extraction, trend analysis, socioeconomic 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 IPAC, an extended section based on PRA/RRA outcomes, identifying present issues of concern and challenges for IPAC. 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

Pablakhali wildlife sanctuary is the second largest sanctuary of our country and situated in the Indo-Burma Biodiversity hotspot of South-Eastern part of Kassalong Reserve Forest in the Chittagong Hill Tract, Some 112 km from Rangamati Town. It was declared on 19 September 1983, Area 93,941.20 acres , under the clause (i) of article 23 of Bangladesh Wildlife (Preservation) (Amendment) Act 1973, the Government of Peoples Republic of Bangladesh was declared the Reserve Area of 162.43 square miles (formerly a Game sanctuary) situated within the boundaries to north ridge between Massalong and Shishak valley up to Kassalong river and northern boundary of lower Kassalong Reserve Forest and joining the Rehabilitation area, in south Southern boundary of the Kassalong Reserve Forest. Eastern boundary of the Kassalong Reserve Forest, and Western boundary of the Kassalong Reserve Forest. It has 1 range, 4 blocks, 35 compartments.

Figure 1 : shows the map of the PWS.

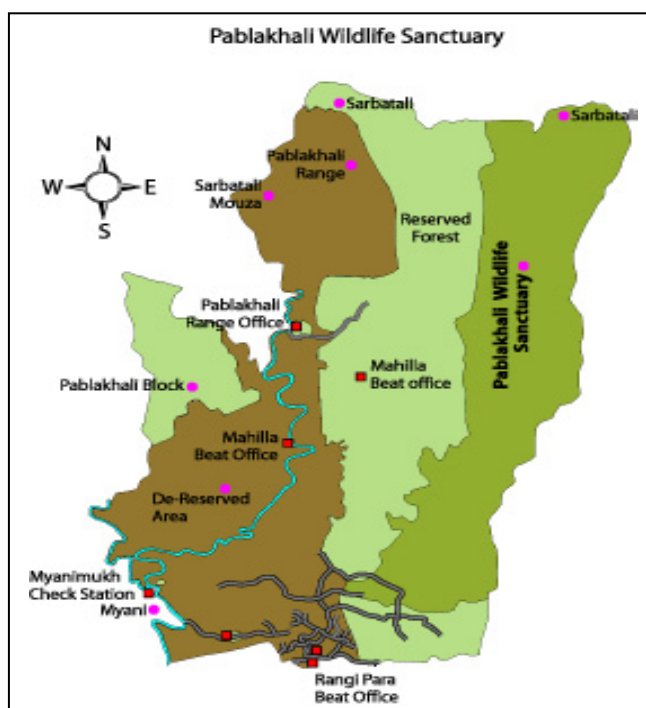
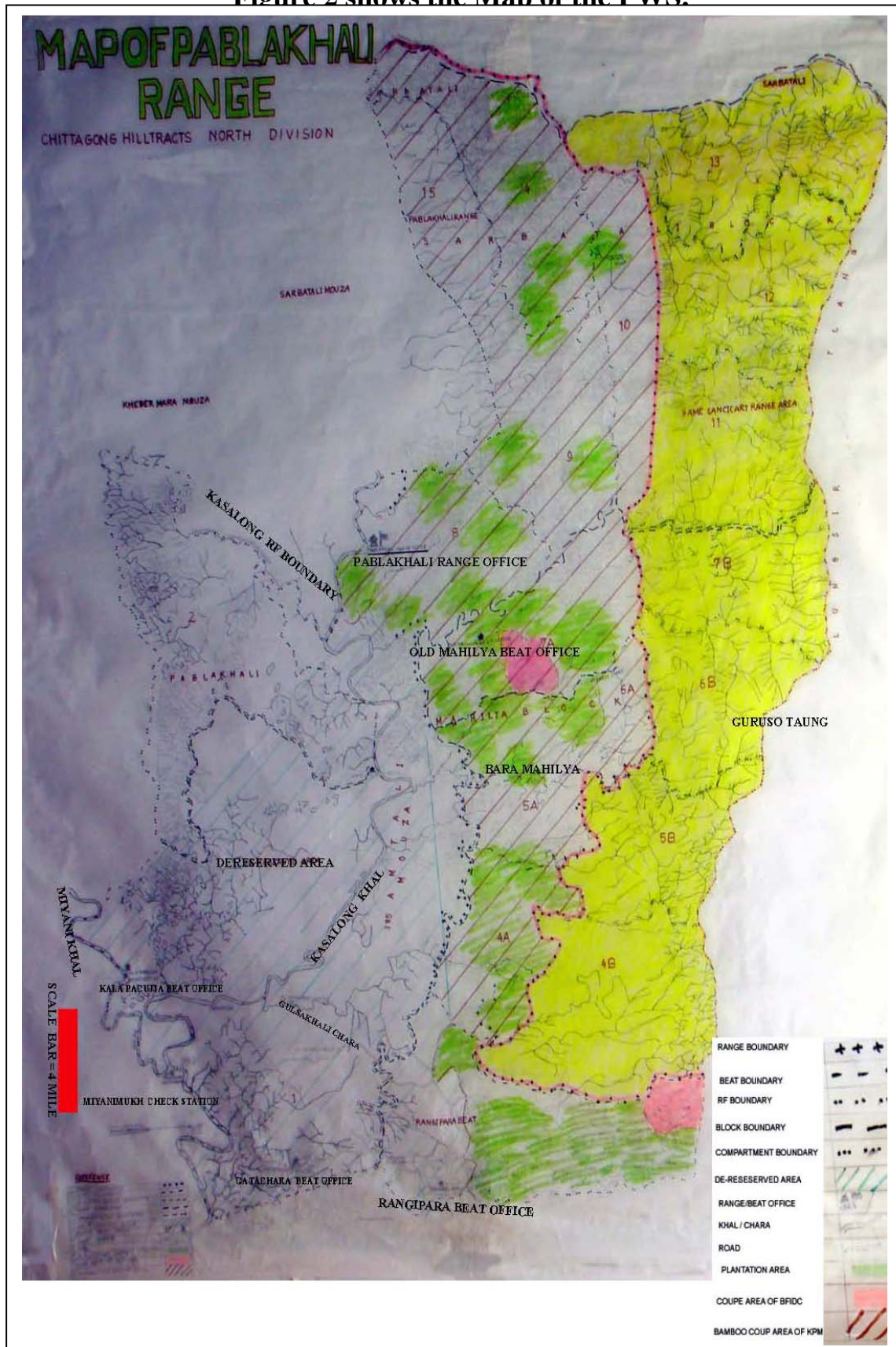


Figure 2 shows the Man of the PWS.



The Special attraction of Pablakhali Wildlife Sanctuary are Asiatic Elephant, Sambar, Jungle cat, wild dog, Hoolock gibbon, Cap Languor, wild Cat, Rhesus Monkey, various types of birds still found in the sanctuary area. The hills are north south direction with high altitude and criss-cross of sub hills with east west direction.

Lofty trees of dense evergreen forest characterized by large number of species occur in the sanctuary. The most important species are Civit, Garjan, Uriam, Kanak, Goda, Black Siris, White Siris, Chapalish, Champa, Chatian, Jarul, Dhakijam, Dharmara, Shimul, Pitraj, Shonalu, Bhadi, Banderhola, Tali, Bohera, Amloki, Horitoki, Toon etc. Cane brakes and secondary bamboo brakes are also prominent in wildlife sanctuary. The main bamboo spp. are Muli bans (*Melocanna baccifera*), Mitinga(*Bambusa. tulda*), DuluBans (*Neohoaazeua dulloa*).

Table 2: Wildlife's still assumed to occur in PWS of CHT

Scientific name	Common name	Status
<i>Nycticebus coucang</i>	Slow loris	P 2
<i>Hylobates hoolock</i>	Hoolock gibbon	P** 3
<i>Presbytis entellus</i>	Hanuman langur	P *
<i>Selenarctos thibetanus</i>	Asiatic black bear	P
<i>Hlactosmalaynus</i>	Sun bear	P
<i>Lutra lutra</i>	Otter	P
<i>Cuon alpinus</i>	Dhole, wild dog	P *
<i>Neofelis nebulosa</i>	Clouded leopard	P **
<i>panthera tigris</i>	Tiger	P ***
<i>Panthera pardus</i>	Leopard	p *
<i>Felis bengalensis</i>	Jungle cat	P
<i>Elephas maximus</i>	Asiatic elephant	P
<i>Cervus unicolor</i>	Sambar	P
<i>Ardeola grayii</i>	Pond Heron	common
<i>Sturnus malabaricus</i>	Grey Headed Myna	frquent
<i>Streptopelia tranque barica</i>	Red Turtle Dove	common
<i>Eudynamus scolopacea</i>	Koel	frequent
<i>Ploceous philippinus</i>	Baya	common
<i>Arcidotheres Fuscus</i>	Jungle Myna	Common
	Yellow Bird	common
<i>Pavo cristatus</i>	Common Pea Fowl	p **
<i>Bos frontalis</i>	Bison	p**
<i>Muntiacus muntjak</i>	Barking Deer	common

<i>Macaca mulatta mulatto</i>	Rhesus Maacaque	common
<i>Presbytis entellus</i>	Langur	common
	Wild Bour	common
<i>Poython moulurus</i>	Rock Python	Common
<i>Varanus bengalensis</i>	Grey Lizard	common
<i>Manis crassicaudata</i>	Indian Pangolia	frequent
<i>Calloscriurus pygenrythrus</i>	Hymalayan Squirrel	common
	Hill Myna	p**
<i>Psittacula krameri</i>	Roseringed Parakeet	
<i>Galus gallus</i>	Red jungle fowl	
<i>Dicrurus paradiseus</i>	Greate Racket Tailed Drongo	
<i>Haleyon smyrnesis</i>	White Brested King Fisher	common
<i>Atherrurus macrourus</i>	Brasstailed Porcupine	common

p 2= fully protected, p** 3= likely threatened, p ** = likely endangered,

p *** = likely extinct

The soils in the valley bottoms on level ground are clays or clayey to sandy loams and are very fertile. The soil on the hills is sand or sandy loam. The soils are impregnated with iron and have a reddish or yellowish tinge. Humus is noticed throughout the forest. However, its degree of accumulation varies from place to place depending on the topography. Usually there are more deposits on the flat lands and less on the undulating hills.

The climate is typically sub-tropical with a long dry season extending from November to May, punctuated by largely PWS predictable periods of rainstorm from June to September. The southwestern monsoons provide the majority of the average annual rainfall of about 2540 cm. Average temperature vary from 75⁰F in December to 95⁰F in May. The humidity overall is very high throughout the year.

In March, the wind starts to prevail from south to west and continue up to May. However, it prevails South to East from June to September and north to west from October to February. The cyclones are of frequent occurrence and periodically cause severe damage and occur mainly during May to October.

This sanctuary is the largest protected area in the hilly areas of Bangladesh, which is the habitat of the biggest terrestrial mammal – the Asian elephant. Other available wild

animals are - *Hoolock gibbon*, Sambar Deer, Barking Deer, Bison, Wild Dog, Sun Bear, *Rhesus macaque*, Langur, Wild Boar, Rock Python, Grey Lizard, Brass tailed Porcupine, Indian Pangolin, Squirrel, Rose ringed parakeet, Red vented bulbul, Hill myna, Red jungle fowl, Greater Racket-tailed Drongo (*Dicrurus paradiseus*), White-breasted Kingfisher, Yellow bird, Koel, Red-turtle Dove, Jungle Myna, Grey-headed Myna, Baya (*Ploceus philippinus*) and Pond Heron etc.

Once upon a time, the entire area was covered by dense evergreen forests. However, new settlement into the reserve enhances Jhum cultivation in the sanctuary area. Jhum led to decline forest cover, foliage shortage to animals, gradual degradation of forests area, political unrest in the hills, jhum cultivation, illicit felling and encroachments cause severe biodiversity loss in both reserved and sanctuary areas. Even some of the species are now locally extinct. In some areas, sporadically the forest floor is opened up and mineral soil is exposed causing large-scale soil erosion.

3. METHODOLOGY

As mentioned in the preceding section a two-step rapid appraisal strategy was taken. RRA was conducted as the first in the appraisal process, followed by PRA. RRA was carried out as an initial activity in the field with a primary focus on generating information that would help to get a sense of the range of stakeholders, key issues and challenges that need to be addressed and provide information on the context (social, economic, ecological) in which the project will operate.

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

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

- Who destroy and how the forest is destroyed
- What are the causal driving forces for the degradation of forest
- Cause and effects of the behavior of local people
- Opportunities for upgrading in forest management

3.1 Developing the RRA and PRA: Issues and Methods

After staffing of all the major project staffs and completion of Project Inaugural Ceremony and Inception Workshop in the CHT Cluster, all the technical project staffs sat together in a discussion meeting in the IPAC Cluster Office, K K Roy Road at Rangamati on 4 January 2009. The purpose of this meeting was to discuss about the necessity to collect baseline information and set out the priority issues and methodologies to collect such information at the beginning of the project. In the discussion, experiences of Nishorgo Support Project (NSP) came into action by the two NSP experienced staffs in the team. They had shared their view particularly based on the activities done in NSP sites. Other staffs present in the session share their views and finally reach a consensus to conduct the field activities under NSP adopted methodologies. They have also mentioned that there are some of the status reports prepared on NSP sites are now available in the Nishorgo website. Therefore, those reports will act as guidance for the team to design the study, set methodology, use tools, develop questionnaire and conduct the RRA/PRA sessions in the field and finally reporting. The team then drafted a simple questionnaire and finalized it after subsequent revisions in several sessions.

To minimize time constraints, more or less same spots with the same community been targeted for both RRA and PRA activities. RRA sessions were unstructured and semi-structured household interviews, KI interviews and focus group discussions based. The issues and activities covered in the RRA are shown in Table 3. In the PRA sessions, 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.

Table 3: Selected RRA Issues for Pablakhali WS, 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 Sketch Mapping	Local HHs; Local school teacher, Doctor, Community people (villagers, elites etc) Local community people Headman, Karbari, Local Govt. Representatives
2	Stakeholder Demographic Profile	Settlement wise no. of HHs/population HH occupation, education, forest use, land holding	Secondary Info HH Interview, KI, FGD Trend Analysis	Upazilla Statistics Office / Local union parishad, HHs heads/members Community people School/College teachers & Headman, Karbari, Local Govt. Representatives

Sl.	RRA Issues	Specific Activities	Tools Used	Participants
3	Stakeholder Economic Activities/ Livelihood Strategies and Human Capital Development	HH primary and secondary income sources of HH Richness/poverty Unemployment and its seasonal trend Credit and alternate income generating opportunities Skill and skill development opportunities Seasonal workload of male and female	HH Int. KI FGD Seasonal Calendar	HHs heads/members Headman, Karbari, Local Govt. Representatives, Teacher, retired officers, old people Local elite, Community people, Forest villagers
4	Gender Issues	General impression on living standard, education and health status etc. Participation in decision making (household and PA management) Women mobility in the area Access to IGA and credit etc	HH Interview FGD KI, Direct observation	HHs heads Community people Local elites RRA team members
5	Behaviour of Local People	Initial response of the local people and FD staff towards the project - Sources of conflict and conflict resolution	FGD Discussion HH interview	Local community FD staff HHs heads
6	Local Level Awareness	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 interview FGD	HHs heads Local community
7	Resources/Resource Status	Trend in changes in major resource bases Endangered/extinct plant and animals Causes for the decline in different resources	Trend analysis, HH interview FGD KI	Local people/FD staff Local HHs heads Community, FD staff Headman, Karbari, Local Govt. Representatives, Local educated old,
8	Resource Exploitation	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	FGD, HH interview KI, Trend analysis, Seasonal calendar	Local HHs heads Public representatives, Community & FD staff Headman, Karbari, Local Govt. Representatives Community people Local educated old, Local elite and FD staff
9	Resources Regeneration Practices	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, KI, Seasonal Calendar	Secondary data from FD FD staff Headman, Karbari, Local Govt., FD Officer Community people Local elite, teacher
10	Legal Aspects	Access to the forest by locals Forest villagers and land use agreement Conflict and negotiation with FD staff Land encroachment/recovery Law enforcement mechanisms in the PA Illegal tree felling and forest cases	FGD KI FGD	FD staff and forest villagers Headman, Karbari, Local Govt. Representatives Local elites, FD staff, community people, teacher
11	Power Structure	Local influential and their role, local hierarchy Nature and sources of power and their domain of influence	HH interview FGD, KI	Local HHs heads Local community and local govt. Headman, Karbari, Local

Sl.	RRA Issues	Specific Activities	Tools Used	Participants
		Conflict and conflict resolution Social cohesion and adhesion		Govt. Representatives
12	Others	Access to areas and settlements NGO activities in the locality Challenges for conservation Local problems Mobility in the area	HH interview FGD, KI	HHs heads Local community and local govt. Headman, Karbari, Local Govt. Representatives & FD Staff Local elites

To allow the team to triangulate the information gathered, more than one tool been used for any particular issue. The issues and activities performed in the PRA are summarized in Table 3.

Table 4: PRA Issues, Specific Activities Performed & Tools used in Pablakhali WS

Sl.	PRA Issues	Specific Activities	Tools Used	Participants
1	Forest make up Dynamics	-observation on forest physiography and topography and forest make up -land use cover, resource exploitation and regeneration areas, animal distribution -changes in forest cover, thickness, vegetation, settlements, animals and availability of resources	Transect walk KI Resource mapping Secondary data, FGD, KI Trend analysis	PRA Team Local elite, FD staff FD staff and Village headman, forest villagers. Local people and FD staff, forest Villagers
2	Local governance system and community structure and functions	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	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	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 Impact on the forest and future risks for the collector	FGD & seasonal Analysis	Fuel wood collector, community people, local hotel and tea stall owners

Sl.	PRA Issues	Specific Activities	Tools Used	Participants
6	Illegal timber Felling	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	FGD, GD and KI Seasonal calendar and trend analysis	Illegal timber feller, FD staff and community people, teacher and local elite
7	Collection of trees as building materials	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	FGD, GD and KI	Community people, FD staff, forest villagers, local public representative and elite
8	Bamboo and cane collection	Information on collector purpose and reasons for collection uses of the resource and extent of extraction dependence on the extraction and marketing conflict and negotiation with FD or other people over the extraction alternate source for the resources needs and expectation of the collector impact on the forest and future risk for the seasonal changes and trend in abundance	FGD, GD Seasonal calendar and trend analysis	Bamboo and cane collector, community, people and FD staff Bamboo collector and local people
9	Information on Forest villagers	Distribution of forest villager's settlements Registered and actual number of forest villagers compliances to FD agreement Present economic activities Resources exploitation and dependence on forest resources land encroachment by the forest villagers or by their dependant relationship and conflict with FD internal governance system needs and expectation	FGD Secondary data	Forest villagers and FD staff FDs villagers Register
10	Jhum Cultivation	Amount and distribution of jhum cultivation in and around the Pablakhali WS, major activity in jhum crop field, seasonality, variety of crops cultures atc. Impact on the forest resources particularly due to burning Conflict with FD	FGD	Betel leaf cultivator FD staff Local Community
11	Land Encroachment	Historical perspective and trend information on encroaches and reason for encroachment and what drives to undertake the activity Legalization of process Conflicts and negotiation process Uses and transformation of encroached land Local mechanisms/system or traditional practice for land encroachment	Secondary data and trend analysis FGD and KI	FDs encroacher Register Encroacher Group and FD staff, local elite and community people

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: fuel wood, 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: Forestland use cover, resource zones, resource exploitation zones, animal distribution and settlements.

3.2 Fieldwork Preparation

3.2.1. Selection of RRA and PRA Sites

Based on the information provided by local FD staffs responsible for the management of Pablakhali WS, RRA/PRA team decides on the representative villages as sample locations for the purpose of information collection. These locations were then termed as RRA and PRA spots. Selection of those representative villages was based on a number of selection criteria. The selection criteria were based on the availability and distribution of major resources, degree of dependence on resources, diversity in people, ethnic groups,

distance from the park, presence of conflicts/challenges, presence of any other issues that may affect project planning etc.

While the number of sites visited during the RRA was limited, the team focused on gaining an overview of issues covering the whole of the Wildlife Sanctuary area.

However, because of the size of the Wildlife Sanctuary, it became clear there would have to be a trade off between the size of the study area and the depth and quality of the information collected. Therefore, it was decided that the PRA would focus on only issues and stakeholders relating to the management of forest within the Pablakhali WS area. A list of the selected RRA and PRA spots for Pablakhali WS is given in Tables 5

Table 5: List of Selected RRA / PRA Spots and Schedule for Visits

Date	Name of Spots (Village) Visited		Remarks
	Village/FD	Location	
23/02/2009	Range Office, PWS	Amtali	Sharing of PRA and planning
3/03/2009	Sintaram Chara	Durchari Forest Camp	
4/03/2009	Midinipur	Sishok Area	Transect mapping
5/03/2009	Brick field/Furniture industries	Baghaichari	
6/03/2009	South Khagrachari, Naba Parachara, Surakhali, Mallya,	Amtali Range	FGD, HHoLs, KI
7/03/2009	Amtali Sardar Para, Amtali Bazar para, Amtali Mea Para	Amtali	FGD, HHoLs, KI
27/03/200	Kumra Aruke Chara Mauttang	Pablakhali	FGD, HHols, KIs

3.2.2 Formation of RRA and PRA Field Teams

The same team who developed the questionnaire others employed to carry out RRA/PRA activities in the field level under the leadership of Site Coordinator, Pablakhali WS. The full team moved in the field in a body and after reaching to a specific site, the team always been divided into two groups to carry out two different set of activities. One group was responsible to carry out household survey and other group to carry out / conduct focus group discussions and KI interview. Participants in the RRA/PRA team is given in the Table 6.

The RRA and PRA field exercises were conducted between 6 January to 10 February 2009. The detailed time schedule for the field activities are provided in Tables 5.

Table 6: RRA/PRA Team for Pablakhali Wildlife Sanctuary

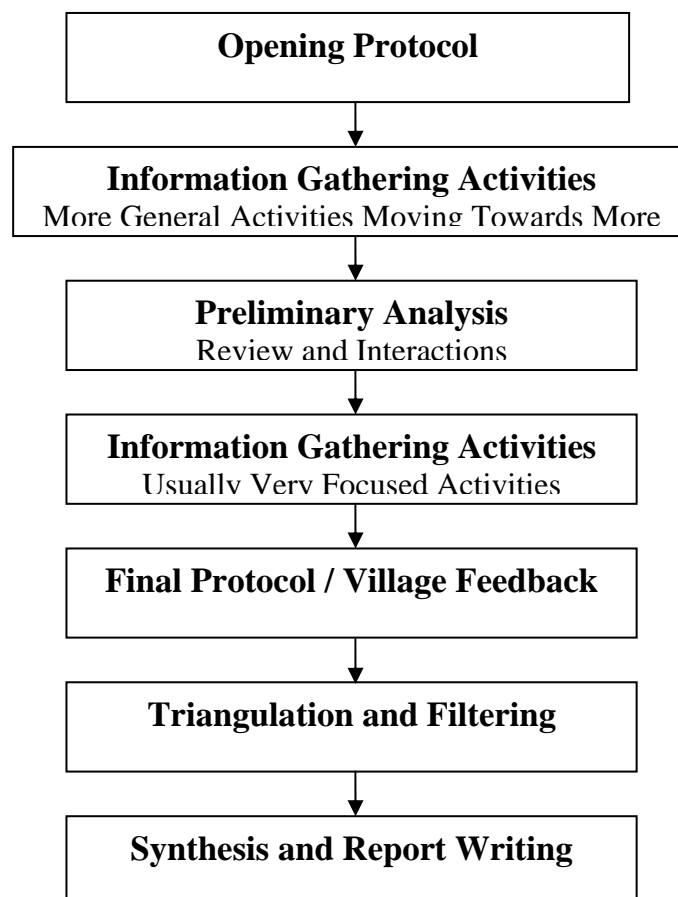
Name	Designation & Workstation	Organization
Nikhilesh Chakma	Site Coordinator (SC), PWS, Rangamati	CIPD
Partha Dewan	Communication, Outreach and Governance Facilitator (COGF), Rangamati	CIPD
Pulak Chakma	Enterprise Support Facilitator (ESF), Rangamati	CIPD
Subinoy Khisa	Site Facilitator (SF), PWS, Baghaichari	CIPD
Sunayan Chakma	Site Facilitator (SF), PWS, Baghaichari	CIPD
Mostofa Omar Sharif	Performance Monitoring and Applied Research Associate (PMARA), Rangamati	The WorldFish Center

3.3 Field Implementation Strategies

3.3.1. Organization of the RRA and PRA field work

RRA and PRA exercises involved series of sequential steps to follow. The teams always put ample efforts to adhere those steps that shown in the flow chart (Fig 3).

Figure 3 Flow of RRA/PRA Field Activities (3-4 days)



During RRA and PRA exercises in the field, a total of 12 HHs interviews, 9 key informant interviews, and 10 Focus group discussions were conducted. The other RRA tools were applied during above mentioned interviews and discussions. This is summarized in Table-7.

Table 7: Summary of Performed Activities in Pablakhali WS during PRA RRA

Appraisal	Village/ Settlement Covered	FGD	KI	HH Interview	Trend Analysis	Resource & Social Mapping	Seasonal Calendar	Ven Diagramming
RRA & PRA	12	10	9	12	30	3	30	30

Further details on the implementation of the fieldwork methods used provided below:

3.3.2 Household (HH) interview

HH interviews were conducted with randomly selected interviewees, typically visiting one household at each stop.

Both male and female respondents were considered. HH interviews typically last for about 1 hr – 1:15 hr. The interviews were conducted with both closed and open structured questionnaires. A Checklist of issues was used, though not necessarily addressed all questions in each interview and often deviated 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 traditional leaders e.g. Headman, Karbari and public representative e.g. UP chairman, member etc. 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 conducted by both prior appointment and spot visit. 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 typical KI interview lasted for about 1.5-2 hrs.
- As with HH interview, a similar checklist of questions was used for the purpose of

- KI interview.

3.3.4 Focus Group Discussion

- The purpose of the planned FGD was to collect 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.
- Mapping, seasonality, ranking and scoring exercises etc. were done in such FGD.
- Typically a FGD lasted for about 2-3 hrs
- At least one FGD was held each day
- This was based on structured and unstructured interview and a checklist of issues was used as a basis for questions

3.3.5 Other PRA tools

Various other PRA tools like Resource mapping, Venn diagramming, seasonal calendaring, trend analysis, ranking, scoring etc. were used as part of RRA activities. Most often, these exercises were performed during focus group and key informant interviews. Participants in these sessions were either invited by local leaders or local people instantly gathered at places.

3.3.6. Direct Observation

This is another way to collect information from the field level through direct observation the RRA/PRA participants. The participants in the team met with number of local people, discussed many things on different matters. Moreover, they had observed the resources, people's behavior and their activities, etc. These observations and informal discussions helped the team to triangulate collected information and generate new questions for interview or discussions.

3.3.7 Secondary Information Collection

During the field visit by the team, some demographic data were collected from Statistics office of Baghichari upazilla and some collected from relevant Union Parishad offices. There are some other secondary data presented in the report actually collected from the local Forest Department office at Pablakhali, some from Divisional Forest Office in Rangamati and some after discussion with the experienced staffs working in the

Pablakhali Wildlife Sanctuary and adjoining areas. Some of the presented information actually collected from other different organizations particularly UNDP-CHTDF including NGOs.

3.4 Limitations of the Fieldwork

Large areas of the Pablakhali Wildlife Sanctuary are remote to access. Only way to reach these areas is by boat followed by a long walk. Therefore, it was always difficult for the RRA/PRA team to reach there and to organize a large-scale participants gathering to meeting the needs for PRA. In traditional PRA approach, participants work together to complete large-scale matrices on the ground and the information is analyzed and owned by the participants themselves. However, that was quite impossible for most parts of the PWS at the initial stage of the project with a limited number of staffs and limited support. Therefore, the team 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. The difficulty of access and the time required to travel to the actual sites, meant that time actually collecting data was often limited to 3 or 4 hours a day.

When the field level activity started for RRA and PRA sessions, there was no approved Technical Project Proposal (TPP) for Chittagong Hill Tracts (CHT) Cluster. Therefore, full-fledged assistance from different departments particularly from Forest Department (FD) could not be ensured. The team had assistance from FD in respect to field level work planning process rather informally. FD officials could not spare their staffs who are believed to having much better experience regarding the field conditions, conflicts of local people with the FD, Wildlife Sanctuary boundary tracing, information sharing, attitudes of local people towards FD activities, finding out potential persons who have great influence on forest resources either positively or negatively etc. When team moved to different other govt. departments particularly for secondary data collection, they have shown their inability to assist before government's approval of the project.

Arranging Focus Group Discussion and ensure participation of mass people is always tough. To ensure better participation of local people in such gatherings, it is necessary to schedule and disseminate the information to the respective persons earlier. A community mobilizer or any ranked/designated staff can arrange such a discussion meeting well

before the actual program very easily. Due to uncertainty of the project continuation in the CHTs, authority could not recruit community mobilizer for the project locations. That actually affects the mass participation of the local people in the focus group discussion. In some cases, the targeted key informant was not present on the site during the team's visit to the area, as the team could not reach him before. Unlike other parts of the country, most of the parts of the CHTs particularly in and neighboring sites of the Pablakhali WS is out of mobile phone network. This actually affected the message sending process to the individuals and resource users groups.

Until then, there was no office facility available at Pablakhali. Discussions were going on with the Forest Department at higher level to spare the Project Director's Office of recently completed Pablakhali Wildlife Sanctuary Project for setting office facilities of IPAC Pablakhali Wildlife Sanctuary Site Office. Moreover, there was no supply of data gathering (e.g. GPS, Camera etc.) and recording (computer in particular) devices until the end of the field activities. Afterwards, the team has received computers during the phase of reporting.

Table 8: Identified settlements and their level of stakes with Pablakhali Wildlife Sanctuary

Sl	Name of Village	Situation	Range/Beat	Location	Level of Stake
1.	Naba Parachara	Sarboatali Union	Amtali Range	Inside Buffer	Major
2.	Ranghi Para	Sarboatali Union	Amtali Range	Inside Buffer	Major
3.	Amtali Bazar Para	Sarboatali Union	Amtali Range	Inside Buffer	Minor
4.	Churakhali	Sarboatali Union	Amtali Range	Inside Buffer	Major
5.	Talukdar Para	Sarboatali Union	Amtali Range	Inside Buffer	Major
6.	Haringhat Chara	Sarboatali Union	Amtali Range	Inside Buffer	Major
7.	Paccua Khali	Sarboatali Union	Amtali Range	Inside Buffer	Major
8.	Surakhali Dosar	Sarboatali Union	Amtali Range	Inside Buffer	Major
9.	Bara Malaya	Sarboatali Union	Amtali Range	Adjacent	Moderate
10.	Chowtah Malaya	Sarboatali Union	Amtali Range	Inside Buffer	Major
11.	Bara Malaya	Sarboatali Union	Amtali Range	Inside Buffer	Major
12.	North Sarboatali	Sarboatali Union	Amtali Range	Inside Buffer	Minor
13.	Dakarmachara	Sarboatali Union	Amtali Range	Inside Buffer	Major
14.	Kumraroofchara	Sarboatali Union	Amtali Range	Inside Buffer	Major
15.	Jyothakhamar	Sarboatali Union	Amtali Range	Inside Buffer	Major
16.	Dakkhin Mauttan	Sarboatali Union	Amtali Range	Inside Buffer	Major
17.	Tangum	Sarboatali Union	Amtali Range	Inside Buffer	Major
18.	Surakhali	Sarboatali Union	Amtali Range	Adjacent	Moderate
19.	South Sarboatali	Sarboatali Union	Amtali Range	Adjacent	Moderate
20.	Purba Hirachar	Sarboatali Union	Amtali Range	Adjacent	Moderate
21.	South Khagrachari	Sarboatali Union	Amtali Range	Adjacent	Moderate
22.	North Khagrachari	Sarboatali Union	Amtali Range	Adjacent	Moderate
23.	Moich Pujjya	Sarboatali Union	Amtali	Adjacent	Moderate
24.	Khirachar	Sarboatali Union	Amtali Range	Adjacent	Moderate
25.	Amtali Bazar Para	Sarboatali Union	Amtali Range	Adjacent	Moderate
26.	Amtali Bara Para	Sarboatali Union	Amtali Range	Adjacent	Moderate

27.	Amtali Sardar Para	Sarboatali Union	Amtali Range	Adjacent	Moderate
28.	Tangum North	Sarboatali Union	Amtali Range	Inside Buffer	Major
29.	Tangum South	Sarboatali Union	Amtali Range	Inside Buffer	Major
30.	East Sijak	Sarboatali Union	Amtali Range	Adjacent	Moderate
31.	Sijak Forest Village	Sarboatali Union	Amtali Range	Inside Buffer	Major
32.	Sijak Muk-1	Sarboatali Union	Amtali Range	Adjacent	Moderate
33.	Sijak Muk-2	Sarboatali Union	Amtali Range	Adjacent	Moderate
34.	Sintaram Chara	Sarboatali Union	Amtali Range	Adjacent	Moderate

4. OUTCOMES

4.1 Status and Trend in the Forest and Forest Resources

Natural forests in the Chittagong Hill Tracts (CHT) had shrunk quite badly. Still a big portion of natural forests is present in the Ram Pahar and Sita Pahar area under Pablakahali Wildlife Sanctuary. According to FD officials responsible KWS, about 10 – 15% of the park area is under natural forest cover. There is about 30% area under scattered tree coverage. Clear felling and subsequent long and short rotational plantation practices have altered a portion of the natural forest. Total area of plantations in Karnaphuli Range is much higher than that of Pablakhali Range. However, in some of the oldest long-rotation plantations, the vegetation cover has taken on the structure of a secondary natural forest with the re-growth of creepers and naturally occurring trees and undergrowth species.

Major tree species in the Pablakhali WS are Garjan (*Dipterocarpus turninatus*), Champaful (*Mechelia champaca*), Boilam (*Anisoptera scaphula*), Gutguria (*Fortium serratum*), Bohera (*Terminalia belerica*), Civit (*Swintonia floribunda*), Chakua (*Albizia chinensis*), Narikeli (*Pterygota alata*), Chapalish (*Artocarpus chaplasha*), Pitraj (*Aphanamixis polystachya*), Nageshwar (*Mesua nagesarium*), Dharmara (*Stereospermum personatum*), Banspata (*Podocarpus neriifolia*), Chalta (*Dillenia indica*), Udal (*Sterculia villosa*), Kanak (*Schima wallichii*), Chickrassi (*Chickrassia tabularis*) etc. There are many types of bamboo such as *Jai bansh*, *Muli bansh* and various cane like *Jali bet*, *Golla bet*, *Kerak bet*. Besides these, there are many types of climbers and vines, herbs and shrubs present in this national park.

Major wildlife are Elephant (*Elephas maximus*), Indian Muntjac (*Muntiacus muntjak*), Para Harin (*Cervus porcinus*), Barosinga (*Cervus duvauceli*), Rabbit (*Lepus nigricolis*), Langur (*Presbytes entellus*), Hoolock Gibbons (*Hylobates hoolock*), Wild Cat (*Felis chaus*), Wild Boar (*Sus scrofa*), Porcupine (*Hystrix indica*), Otter (*Lutra lutra*), Wild

Goat (*Capricornis sumatracnsis*), Samber Deer (*Cervus unicolor*), Monkey (*Macaca sp.*), Mongoose (*Herpestes sp.*)

4.2. Causes for the Decline in Forest Resources

4.2.1 General cause

Discussions with different cross-sections of people in the target area led to the development of a Venn diagram that highlights the major causes for forest degradation and loss of biodiversity, and is shown in Fig. 4.

The major causes for the decline in forest in order of magnitude are as follows: Jhum Cultivation, illegal timber felling, population pressure (in-migrant settlers, and locally displaced indigenous people of Chittagong Hill Tracts), fuelwood collection, and, FD's plantation strategies, collection of house building materials in commercial scale rather than previously practiced subsistence scale, hunting, bamboo, brickfield operation etc.

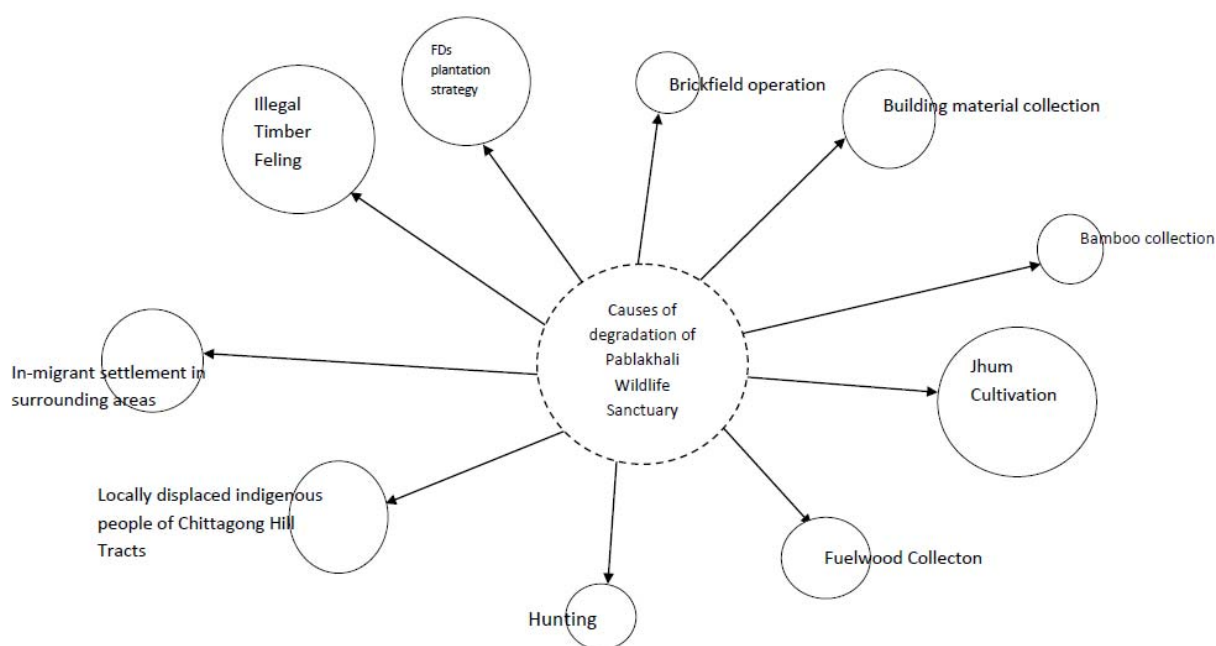


Figure 4 Causes of degradation of forest resources in and around WS

Pair wise ranking (Table 9) exercises illustrate that currently Jhum cultivation and illegal timber felling are the prime causes for the decline in forest biodiversity. Presently, hunting contributes negligibly as the activity is very limited. Absence of FD's plantation strategies in the target area vicariously played a significant role in forest degradation. However, it was advised that FD could not operate their usual activities due to existing

geo-political situations.

Table 9: Pair wise ranking for identifying main causes for forest destruction

	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	In-migrant settlement in surrounding areas	locally displaced indigenous people of Chittagong Hill Tracts	Fuelwood Collection	Brickfield operation	Hunting
Jhum Cultivation	----	Jhum Cultivation	Jhum Cultivation	Jhum Cultivation	Jhum Cultivation	Jhum Cultivation	Jhum Cultivation	Jhum Cultivation
Illegal timber felling	Jhum Cultivation	-----	Illegal timber felling	Illegal timber felling	Illegal timber felling	Illegal timber felling	Illegal timber felling	Illegal timber felling
FDs plantation strategy	Jhum Cultivation	Illegal timber felling	-----	FDs plantation strategy	FDs plantation strategy	FDs plantation strategy	FDs plantation strategy	FDs plantation strategy
In-migrant settlement in surrounding areas	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	-----	In-migrant settlement in surrounding areas	In-migrant settlement in surrounding areas	In-migrant settlement in surrounding areas	In-migrant settlement in surrounding areas
Locally displaced indigenous people of Chittagong Hill Tracts	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	In-migrant settlement in surrounding areas	-----	locally displaced indigenous people of Chittagong Hill Tracts	locally displaced indigenous people of Chittagong Hill Tracts	locally displaced indigenous people of Chittagong Hill Tracts
Fuelwood Collection	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	In-migrant settlement in surrounding areas	locally displaced indigenous people of Chittagong Hill Tracts	----	Fuelwood Collection	Fuelwood Collection
Brickfield operation	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	In-migrant settlement in surrounding areas	locally displaced indigenous people of Chittagong Hill Tracts	Fuelwood Collection	-----	Brickfield operation
Hunting	Jhum Cultivation	Illegal timber felling	FDs plantation strategy	In-migrant settlement in surrounding areas	locally displaced indigenous people of Chittagong Hill Tracts	Fuelwood Collection	Brickfield operation	---
Score	14	12	11	8	6	4	2	0
Rank	1	2	3	4	5	6	7	8

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 8 and Table 9. 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. Lacks of some local resources are also driving the people for increased timber felling (Table 10). Brickfield operations though not responsible for

the decline of WS, it is leading to huge amount of fuelwood collection around surrounding areas of WS (landscape area).

Table 10: Cause and Effect –Ranking (understanding underlying facts for forest degradation)

Name of resource Identified problems	Timber to sell	Fuelwood collection	Bamboo sell	Land encroachment (for Jhuming)	Hunting
Poverty	000	000	00	000	0
Unemployment	0000	0000	0		
Additional income needed	000	00	00	0	0
No resource for house building.	0		0000	000	
Income opportunities squeezed		000			
HHs consumption	0	00000	000	0000	0
Marketing opportunities dev	00	000	0		
Emerged as new income generation activity	000	00	000		
Brick Field	00	00			
Jhum cultivation	0	00	00	0000	
Forest cases	000	00	00	Not explored	

FD's poor forest patrol, easy negotiation with local FD staff, poor strength of local FD and emergence of increased local influential groups are all contributing to illegal timber felling in the surrounding areas of WS. Fuelwood collection is being enhanced by the development of transportation system and marketing opportunities while Jhuming has always been linked with customary rights of the indigenous people of CHT as well as lack of control over forest by FD (Table 10). Deforestation is also caused by over extraction and illegal logging combined with a slow afforestation rate. Unplanned settlement, encroachment and inadequate forest management are part of the problem; apart from this there is a wide lack of information on forest status and forest management. The regulations in CHT [such as the Chittagong Hill Tracts Forest Transit Rules (1973)] necessitate farmers to get written permission from the FD officials for cutting farm-trees and for transportation of timber to the market centres. Because of the bureaucratic meandering and bribe-seeking attitude of officials, getting permission is very difficult, predominantly for small farmers and it compels them to sell timber in the black market at a very low price. Therefore, selling of timber actually contributes little to eradicate poverty from the lives of local people.

Table 11: Cause and effect (investigating FD's management practice and local situation)

Practice/management practice	Jhuming & Land	Timber to sell	Fuelwood collection	Bamboo collection	Hunting
Poor forest patrol		000	0	00	
Easy negotiation	0	000	0		
Lack of control over forest by FD	0000	000	0	0	
Transportation development	000	00	0	0	
Traditional practice	000	0	000	0	
Increased role of influential groups	00000	00000			

Table 12: List of Powerful and Influential persons for Pabla Khali Wildlife Sanctuary

Sl	Name of Mauza/Village	Key Person	Designation
1.	Sarbotali Mauza	Kamini Ranjan Chakma	Headman
2.	Amtoli Mauza	Suvash Chakma	Headman
3.	Perachara	Amolya Raton Karbari,	Karbari
4.	Perachara	Vupati Chakma	UP member
5.	Raangee Para	Ronda Kumar Chakma	Karbari
6.	Amtali	Kader	UP member
1.	Churkhali	Banshi Mohon Karbari	Karbari
2.	Talukder Para	Jyotin Roy	UP Chairman (Acting)
3.	Haringhat Chara	Paccua Karbari	Karbari
4.	Paccuakhali	Banshi Mohon Karbari	Karbari
5.	Churakhali	Amoyla Raton Karbari	Karbari
6.	Bara Malya	Susil Karbari	Karbari
7.	Uttar Sarbatali	Tripon Chakma	Murubbi
8.	Dakatmarachara	Nandalal Karbari	Karbari
9.	Kumrarufchara	Nattuachoroi karbari	Karbari
10.	Joutakamar	Bimal Kumar Karbari	Karbari
11.	Tangum	Buddu Moni	Murubbi
12.	Surakhali-2	Rajjak	UP Member
13.	Dakkin Sarabotali	Anil Baron Karbari	Karbari
14.	Purba Hirachar	Amolya Karbari	Karbari
15.	Dakkin Kagrachari	Promot Karbari, Sonaram Karbari	Karbari
16.	Uttar Kagrachari	Mono Ronjon Karbari	Karbari
17.	Moich Pujiyachara	Binod Baron Karbari	Karbari
18.	Moich Pujiyachara	Atish Kumar Chakma	Member
19.	Shantinagor, longadu	Nabin Chakma	Murubbi
	Name of Mauza/Village	Key Person	Designation
20.	Jarulchara, Longadu	Koilas Chakma	Murubbi
21.	Buibachara, Longadu	Mongal Chakma	Murubbi
22.	Gulshakhali, longadu	Nazim Uddhin	Community leader
23.	Surakhali-2	Rajjak Member	Member
24.	Dakkin Sarabotali	Anil Baron Karbari	Karbari
25.	Purba Hirachar	Amolya Karbari	Karbari

26.	Dakkin Kagrachari	Promot Karbari, Sonaram Karbari	Karbari
27.	Uttar Kagrachari	Mono Ronjon Karbari	Karbari
28.	Moich Pujjyachara	Binod Baron Karbari, Atish Kumar Member	Karbari Member
29.	Dakhin Khagrachari	Tushar Kanti Chakma	Ex-UP member
**	The list of influential persons will be updated with the progress of site-level activities		

4.3 Exploitation of Forest Resources

A summary of information collected on resource exploitation from the PWS are provided in Table 13. About 11 different types of resource are extracted from the forest. Of them, 2 resource types (fuelwood and timber) are extracted on a large scale, 3 on a moderate scale, 4 on a minor scale and rest 3 are in very negligible scale

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.

Table 13: Information on Resource Extraction from PWS

Sl. No	Name of resources	Resource collector	Purpose	Extent	Impact	Risk	Destination
1	Timber	Poor people from adjacent and local villages, unemployed people	For selling	Medium	Reduce selectively large tree and forest thickness, loss of habitat for gibbon and others	High	Local timber trader, sawmill, furniture shop, urban areas
2	Fuelwood	Local poor people, reserved forest villagers, mainly women and children	For HH Consumption and Selling	Large	Loss of habitat, loss of forest biodiversity,	High	Local HHs, local markets, brickfield, transported to urban areas
3	Bamboo	Reserved forest villagers, local poor people from	Meet HH needs, Selling for added income	Medium	Wild stock already heavily depleted, further extract	Moderate	Local HHs Local markets, transported to urban

		adjacent villages			aggravate the situation		areas
4	Wildlife	Reserved forest villagers Local people	For consumption and selling	Little	Stock heavily depleted	High	Local HHs
5	Building materials	Reserved forest villagers Local 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 and selling	Negligible	None	Negligible	
7	Cane	Local people	HH use	Negligible	Little collected as they are not much available	Presently negligible	
8	Fruits	Local people, children and women	Own consumption, few for sale in the locality	Minor	Hamper forest regeneration to a little extent	Little	
9	Vegetables	Local people, mainly reserved forest villagers	Collect number of species of vegetable	Little	No apparent impact	Negligible	
10	Sun grass	Local people	Collect as house building materials.	Presently little	Reduce forest biodiversity	Negligible	Local HHs
11	Medicinal plants	Few local people	collect some selective species for preparing medicine	Little	Negligible	Negligible	

4.3.1 Seasonal changes in resource extraction

Table 14. shows the trend in forest resource exploitation by month. The exploitation of resources vary depending on the seasons. Timber are felled illegally more during the Vadro -Ashwin and extraction continues in the same pattern for the rest of the period. Fuel wood is mainly collected during dry season due to easy accessibility and mobility inside the forest during that time. Bamboo extraction mainly takes place in months of

Vadro –Ashwin-Kartik 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 Falgun-Choitra .Broomstick mainly collected during Winter and wildlife hunting take place round the year in the same trend.

Table 14: Seasonal Calendar of Resources Exploitation in Pablakhali WS

Name of Resources	Bai sha k	Joist ha	As har	Shra bon	Vad ro	Ash win	Karti k	Agra haion	Pou sh	Ma gh	Falg un	Choitra
Timber	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Fuelwood	0000	0000	00	00	0000	0000	00000	0000	0000	0000	0000	00000
Vegetables	000	000	0000	000	000	000	000	000	000	000	000	000
Bamboo	00	00	0	0	0000	0000	00000	00	00	00	000	0000
Medicinal plants	000	000	000	000	000	000	000	000	000	000	000	000
Wildlife	00	00	00	00	00	00	00	00	00	00	00	00
Honey	–	–	–	–	–	–	–	–	–	–	0000	00000
House Building materials	–	–	–	–	–	–	00000	0000	–	–	–	–
Jungle fruits	000	000	000	–	–	–	–	–	–	–	0000	00000
Broomstick	–	–	–	–	–	–	–	–	0000	0000	0000	–

(Note: Required data will be updated gradually)

4.3.2 Exploitation of Major Resources from PWS

4.3.2.1 Fuel wood collection:

Fuel wood collection is a major and visible activity in PWS. It is a year round activity, but most extraction occurs during the dry months. Most of the villagers, especially from reserved forest villages and villages that are very adjacent to the WS are 30% dependant on the forest for their fuel wood requirements to meet their household consumption

(Table 15)

About 5-7% villagers are entirely dependant on this for their livelihood, a large number of families undertake it to supplement their HH income. The collectors are dominantly women, children, but sometimes also the unemployed adult men. According to local

people, in an average 40-50 people enter into the forest each day to collect fuelwood. However, sometimes, the number may exceed 50. They are predominantly from few villages (**Table 15 & Fig 5**). Among the reserved forest villagers mainly the females are engaged in fuelwood collection and they sell almost one-thirds of their collection for supporting their livelihoods and use the rest two-thirds for their HH consumption. On the other hand, villagers from adjacent areas collect fuelwood from the forest for their HH consumption , only 1-2% people dependent on fuelwood collection for their livelihood support during odd season when there is less work in the locality .

Table 15: Village Wise (Having) Distribution of Fuel wood Collectors in PWS

Sl no	Name of villages	Total HH	Who collect fuel wood				Use	
			Male	Female	Children	Poor	Domestic use	Selling for livelihood
1	Nabo Perachara	31				100%	85%	15%
2	Ranghi Para	50				100%	75%	25%
3	Talukdar Para	50				100%	80%	20%
4	Purba Haringhat Chara	45				100%	95%	5%
5	Paccua Khali	31				100%	90%	10%
6	Choto Malya	145				100%	85%	15%
7	Baro Malya	131				100%	95%	5%
8	Dakatarmachara							
9	Kumraruk chara	38				100%	75%	25%
10	Jouthakhamar	54				100%	90%	10%
11	Dakkhin Mauttan							
12	Tangum Muk	40				100%	80%	20%
13	North Tangum	78				100%	85%	15%
14	South Tangum	92				100%	95%	5%
15	Mauttung Muk	89				100%	90%	10%
16	South Mauttung	31				100%	80%	20%
17	Haralyachari	45				100%	95%	5%
18	Surakhali Dosar	62				100%	85%	5%

(Note: Required data will be updated gradually)

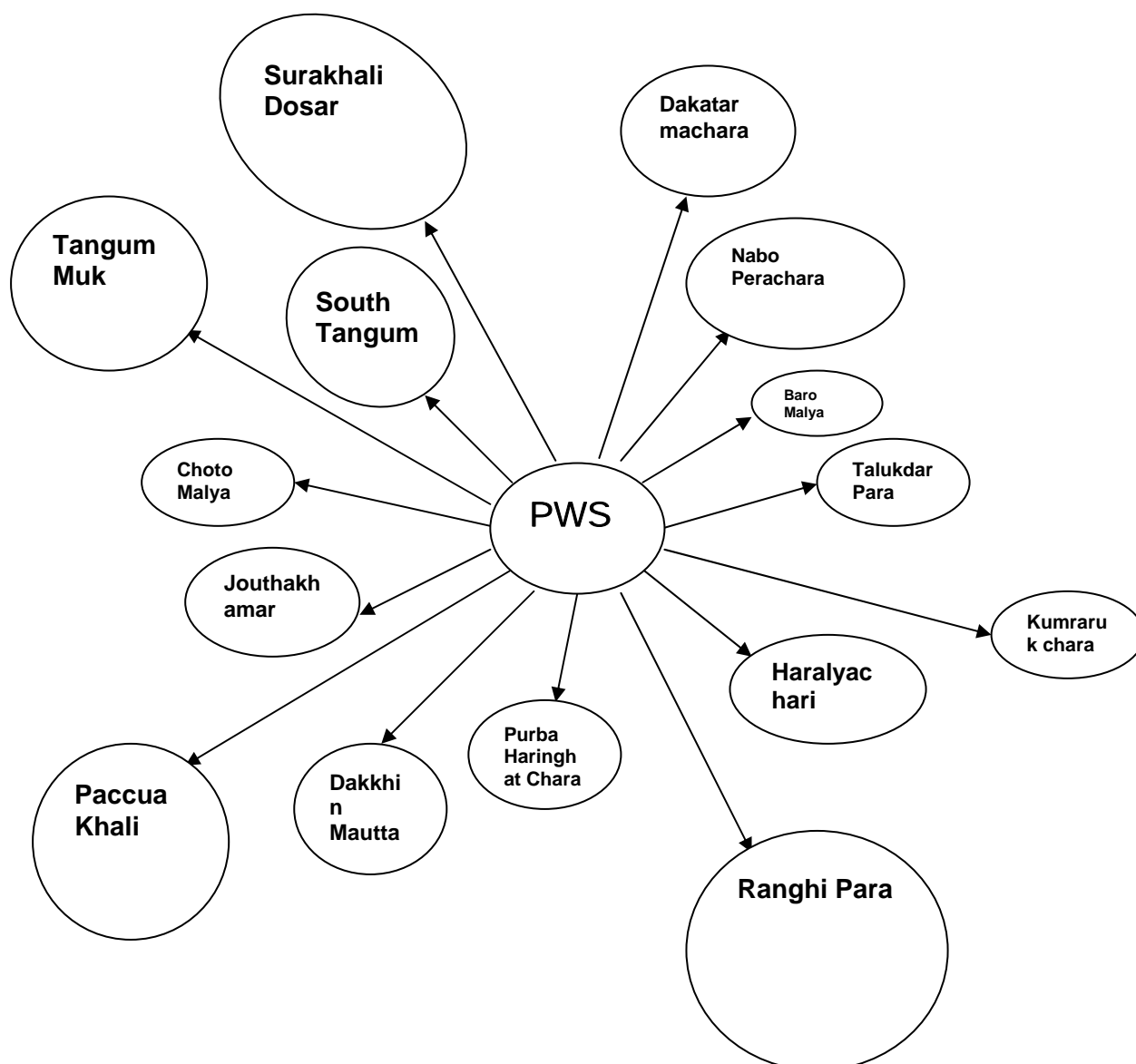


Figure 5 Relative level of fuel wood extraction by different villagers

Usually, a person collects a 20-40 kg fuelwood each day. They carry it either as their shoulder or head loads. They do not pay any Levi to FD for collecting fuelwood because patrolling is absent so no restriction to access and collect fuelwood.

As can be seen from Table 13, a large number of women are engaged in fuelwood collection especially from reserved villages. They sell almost one-third of their collected fuel wood for their livelihoods whereas two-thirds of the collected fuelwood is used for their HH consumption.

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

collected for commercial purpose, mainly goes to Baghaichari and Longudu where it is sold to fuelwood traders or to the local consumers. Fuel wood is sold as 60-70 taka per mond (approx 37.5 kgs) in the market. It is mainly transported by boat .

4.3.2.2 Timber extraction

Timber extraction is also major activity in PWS and often regarded as the major cause for the destruction of WS forest. Although, timber felling is illegal in WS, the activity is going on in a good scale basis. Many people from surrounding villages of PWS are directly involved with illegal extraction of timber from the forest. The villages involved are Ranghi para, Tangum mukh, Dakkhin Mauttan, Sarbotoli, Paccuakhali, Perachara, Surakhali, etc. (**Table 16**). The villages inside the reserved area are most involved villages in timber extraction which are very adjacent to the WS. In all other villages, in an average, about 15 – 20 people (mainly male) are involved with illegal felling of trees and most of them are poor. The villagers who are involved with illegal felling of trees mainly carry out this activity for supporting their livelihoods. There is a cash income (200-300 taka per day) from this activity, although a bit risky.

Table 16: Village–Wise Distribution Illegal Timber Fellers Associated With PWS

Sl	Name of villages	Total HH	Who are involved						Use	
			Male	Female	Children	Poor	Mid class/Rich	Local people	Domestic use	Selling
1	Nabo Perachara	31				100%		100%	—	100%
2	Ranghi Para	50				100%		100%	—	100%
3	Talukdar Para	50				100%		100%	—	100%
4	Purba Haringhat Chara	45				100%		100%	—	100%
5	Paccua Khali	31				100%		100%	—	100%
6	Paccua Khali Natun Para	21				100%		100%	—	100%
7	Surakhali Dosar	62				100%		100%	—	100%
8	Surakhali	29				100%		100%	—	100%
9	Choto Malya	145				100%		100%	—	100%
10	Baro Malya	131				100%		100%	—	100%
11	Dakatarmachara					100%		100%	—	100%
12	Kumra aruk chara	38				100%		100%	—	100%
13	Jyothakhamar	54				100%		100%	—	100%
14	Dakkhin Mauttan					100%		100%	—	100%
15	Tangum Muk	40				100%		100%	—	100%
16	North Sarboatali	84				100%		100%	—	100%
17	South Khagrachari	89				100%		100%	—	100%
18	North Khagrachari	96				100%		100%	—	100%
19	South Moich Pujjya	74				100%		100%	—	100%
20	Hirarchar	28				100%		100%	—	100%
21	Amtali Bazar Para	98				100%		100%	—	100%
22	Amtali Baro Para	30				100%		100%	—	100%
23	Amtali Sardar Para	25				100%		100%	—	100%
24	Amtoli Mia Para	42				100%		100%	—	100%
25	North Tangum	78				100%		100%	—	100%
26	South Tangum	92				100%		100%	—	100%
27	North Sijak	112				100%		100%	—	100%
28	South Sijak	141				100%		100%	—	100%
29	Sijak Khagrachari	96				100%		100%	—	100%
30	Sijak Muk-2								—	
31	Sintaram Chara	53				100%		100%	—	100%
32	Mauttung Muk	89				100%		100%	—	100%

(Note: Required data will be updated gradually)

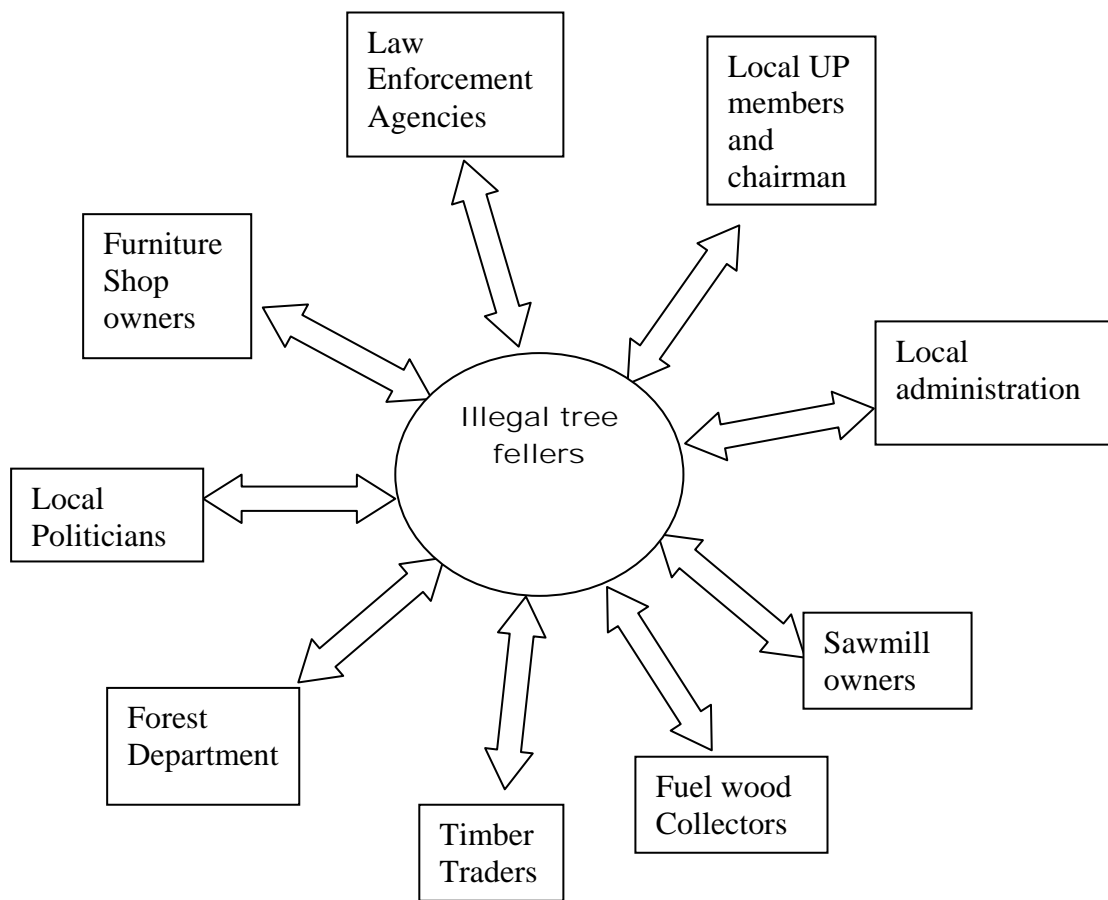


Figure 6 Link of various stakeholders with illegal fellers

There are some organized gangs (locally called syndicate) who are involved with illegal tree felling from the PWS. These syndicates are controlled by influential people (mainly timber traders and other political and elite persons).

They mainly fell the medium sized valued timber trees, like teak, chapalish, garjan. The activity is carried out at day time without any fear because absent of forest patrolling. More or less round the year this process of illegal felling take place.

4.3.2.3 Bamboo Collection

Bamboo has many uses in the locality, e.g. as house building materials, as material for fencing, as roof ceiling, basket and mat making and also as fuel. There are various types of bamboo naturally occur in the WS, among them tengra, ora, farua kata, kalisiri and mooly, are available and both are collected by the local people. Earlier, bamboo was

abundant in the forest. Now, their stocks are seriously depleted, primarily due to extensive extraction and recently flowering of bamboos. So it will take time more than three years to regenerate the bamboo in the PWS. Reserved forest villagers and local people collect bamboos from the WS, mainly for meeting their HH needs and additional income. It is reported by local people that some people undertook this as a commercial activity. According to local people, about 4-5% of the local HHs are completely or partially dependent on bamboo collection for their livelihood. Everyday about 20-30 individual people enter into the forest for bamboo collection. Bamboo is carried as shoulder and head load. Some traders from distant villages also come to the locality for purchasing bamboo. They prepare bamboo mats, many fishing traps and baskets and sell those to outside markets. The extensive collection of bamboo has posed a threat to this resource sustainability.

4.3.3 Collection of other Resources

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

4.3.3.1 Vegetables

Reserved forest villagers' almost everyday collect some vegetables from the forest.

Besides, the fuel wood collectors collect some vegetables during the time of collection of fuelwood. The vegetables exploited are: bamboo shoots (manthana), bonkachu (bandhugi), wild potato, leafy vegetables eg. thankuni, dheki shak, kochu ramkala, palong shak, kachu shak, kachur lati, etc. from the WS mainly during rainy season.

4.3.3.2 Fruits

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

4.3.3.3 Wildlife

Hunting is now a days, is limited in PWS as there is decline in the resources and due to increased awareness. The local people hunt for wild boar, deer, jungle fowl and other

birds for their HH consumption. Sometimes, people from distant places come to the forest for hunting.

4.3.4 Other causes for forest degradation:

4.6.4.1 Land Encroachment by Farmer/tiller for cultivation

Usually they are reserved forest villagers and poor people. Usually the tiller encroach plain land and cultivate various crops in the forestland, for this kinds of encroachment forest cover are decreasing. Some times they also level the highland (hills) by cutting/digging soil.

4.3.4.2 Shifting Cultivation (Jhum Chash)

In the WS area, land especially hills also encroaches for Shifting Cultivation which is a one of the major activities responsible for destruction of forest and biodiversity . For Jhum chash lands are temporary encroached by the Jhum tiller. In Previous, only the ethnic minority peoples was involved in Jhum. Now the poor Bangali settlers also involved in Jhum .Though the jhum cultivation has banned but it continues to be predominant land use system in the area till today despite the governmental efforts to stop it right from the British period. It posed a great threat to the conservation of forest bio-diversity. In some places of WS, Jhum is almost certain to be blamed for deforestation and soil degradation. For this kind of cultivation, people burn the hill plants for the preparation of Jhum land. It is carried out predominately on the steep slopes of the high hills. A Jhum cultivating family or community (Jhumia) selects a convenient piece of land in the month of January and February. Then the Jhumias cut all the trees and vegetation. The cut jhum is then dried in the sun. It is fired before the monsoon rain begins (in April/May). Thoroughly dried bushes/ vegetation covers and reduced to ashes from burning. The ground is then cleared of charred logs and debris. Now the Jhumias await rains. As soon as rain falls and saturates the ground, sowing commence. They mix seeds of different crops and plant them in small holes at fairly even intervals. Several crops along with some indigenous rice species (i.e Salong rice), various vegetables and some fiber plants are cultivated. A jhum plot can be cultivated only one year and then the land takes approximately 11 years or more to recover. Officially Jhum cultivation has declared banned into the WS. Because of security reason FD staffs are not allowed to enter into the WS area. So monitoring, patrolling and required measures to stop the shifting cultivation can not be enforced.

4.3.4.3 Natural disaster

Natural disaster such as cyclone made a serious impact on forest resources. Many of trees have been destroyed during the cyclone of 91 & 94. In 91 & 94. Cyclone damages a lot of tall trees and a large number of wild lives had died.

4.4 Local Community and Power Structure and Local Governance

4.4.1 Local decision makers and influential people

A total of 35 influential persons (including personnel of traditional administrative system of CHT as well as formal national administrative system) have been identified so far in the locality and many of them have control over the local people, their activities and often, even over local administration though the regional and national political leaders. Table 4 provides the name and address of the influential persons, while Fig. 2 shows the social dimension of power structure of the area. Besides, there are several outsiders who also have influence on the local people and their activities and are also involved with illegal harvesting of trees. These outsiders are mostly timber traders who invest money to involve local people in tree felling on wage basis. Information on the domain of their power are expected to be investigated with the progress of work at the site level. However, the sociogram of Power structure (Fig.7) of Pablakhali WS has shown below.

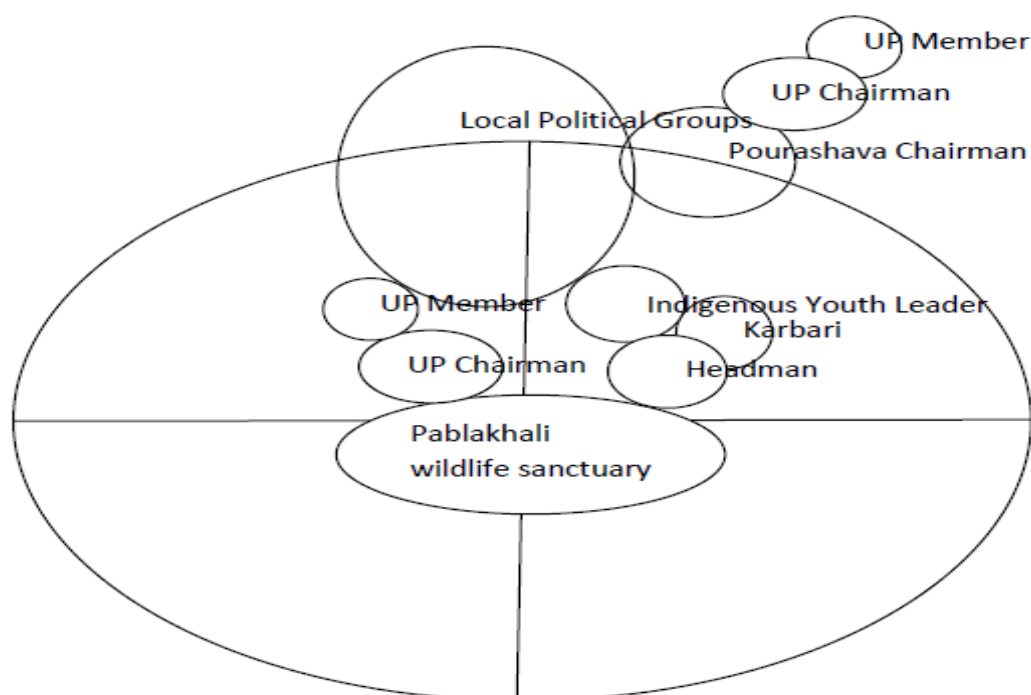


Figure 7 Venn diagram showing Power Structure in and around WS

4.8.2 Local governance:

As part of the administrative and governance systems prevalent in Chittagong Hill Tracts, the landscape area of WS falls under the jurisdiction of Traditional Administrative System of CHT, and formal National Administrative System. The formal administrative legal system works through the chief executive of a sub-district, district commissioner and the district council. The two administrations often work independently and the decision-making process is therefore ambiguous and affects the administrative processes at the lower level.

The indigenous administrative system is three tiered:

- ☛ Village level: the basic administrative unit is a village with a karbari as its leader (head), appointed from among the villages , by the raja directly or on the recommendation of the mauza headman. The karbari is responsible for all matter relating to that village;
- ☛ Mauza level: A number of villages are clustered together to form a territorial unit of jurisdiction called mauza, of which there are more than 350 in the entire CHT. Each mauza has a headman/woman, who is responsible for collection of revenue, preservation of peace, allocation of agricultural lands including the Jums, conservation of the natural resources of the mauza, administration of customary law etc.
- ☛ *Territorial level:* At the highest level, it is the Raja who has authority over his / her territory.

The British introduced the present system of dyarchy in the Hill Tracts. Parallel to the three chiefs (each for Rangamati, Bandarban, and Khagrachari), there is a state-operated administrative structure with the deputy commissioner as the chief executive (Fig. 8). The gradual expanding role of the state apparatus has been at the expense of the indigenous system. The power and authority of the Rajas and their headman and karbaris gradually weakened with each successive administration. And, at present, although they retain certain judicial and revenue powers (including land administration), and in matters relating to personal law, their authority has been progressively more undermined by the concentration of more and more power in the hand of government officials.

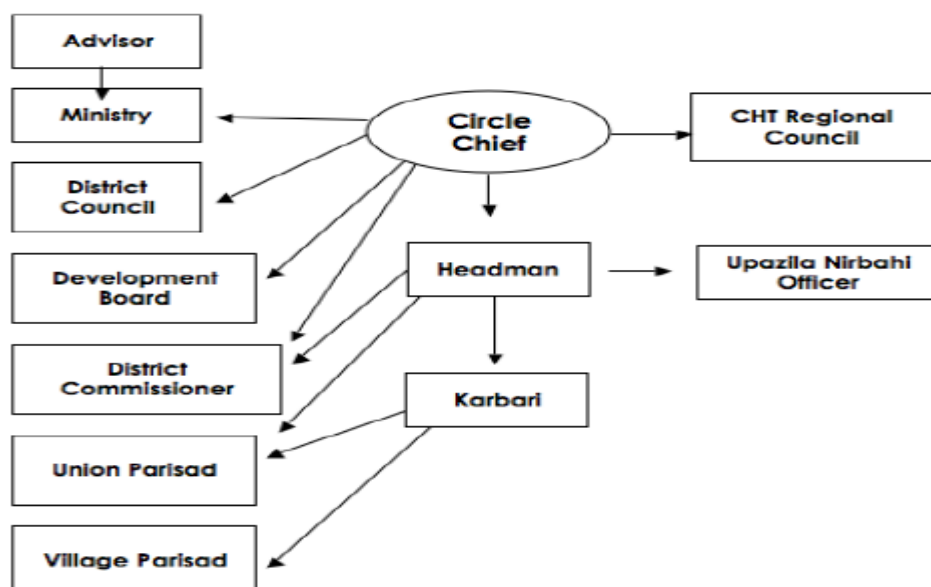


Figure 8 Prevalent Administrative system of Chittagong Hill Tracts

Currently, local Union Parishad is the lower level local government entity and look after local welfare and development. The local public representatives are consulted whenever there is a local issue.

Police administration at Upazila level is the local law enforcing agency and are involved with maintaining local law and order situation. They are the authority to make arrests of warranted person by forest cases. BDR also plays supportive role in forest protection and several BDR set ups are there in and around WS. Both parties claim that they help in forest protection. The indigenous people have their own traditional way of governance and administrative system of their community as mentioned earlier. They are very organized community having respect to their community leaders.

4.4.3 Local conflict, conflict resolution, social adhesion and cohesion

Sources of conflict: Fig. 9 illustrates the relative causes for conflicts in the area. The main sources of conflict among local people are centred on land disputes, over both legal and illegally occupied, and also for money lending, family matter, kid's matter etc. It was found some different dimensions of conflict into different communities. Between the in-migrant settlers and indigenous people, in most of the cases conflict arises in the case of deciding the boundary and ownership of land which is in fact the scenario of the whole of

Chittagong hill tracts. Government, Land commission, and Regional Council along with public representatives are in the process of resolving this land dispute.

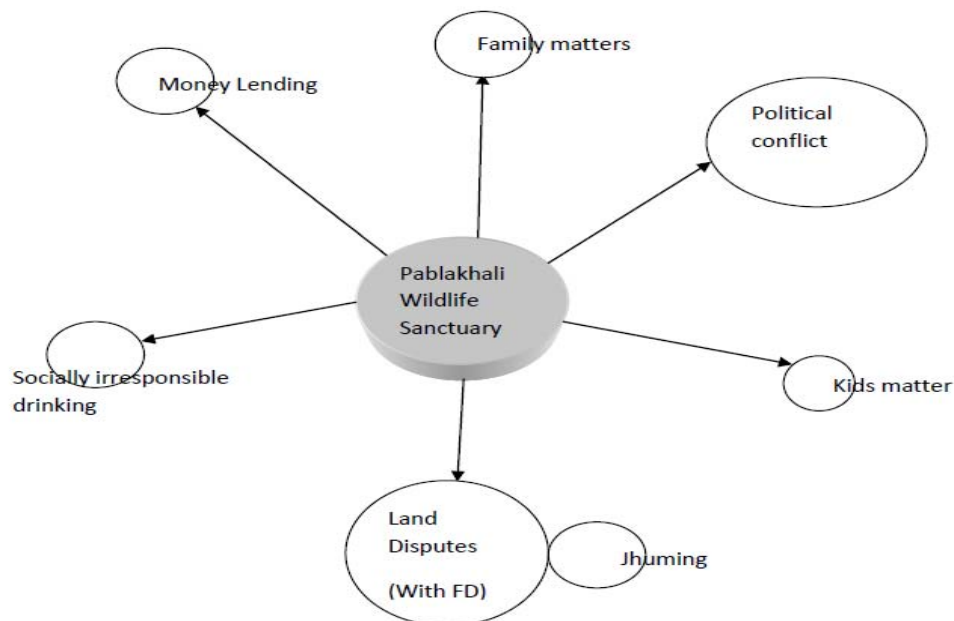


Figure 9 Sources of conflict in and around WS

Conflict resolution: The internal matter including conflicts of each village community are decided by its members, inducting a council of elders under the leadership of the *karbaris*. Most matters are resolved by consensus; if there are any dispute, the *Karbari* has the decisive voice. Any matters which can not be resolved satisfactorily, or involve members of other villages, are placed before the relevant mauza headman for decision. If required, matters are taken to the Raja, and can be filed as a court case if necessary. However, conflicts with higher degree are often resolved by arbitration by local elites & public representatives (MP, UP chairman, members). If the local efforts are not fruitful it may lead to filing cases with Thana-police and even to courts, but this happens hardly in case of local indigenous people.

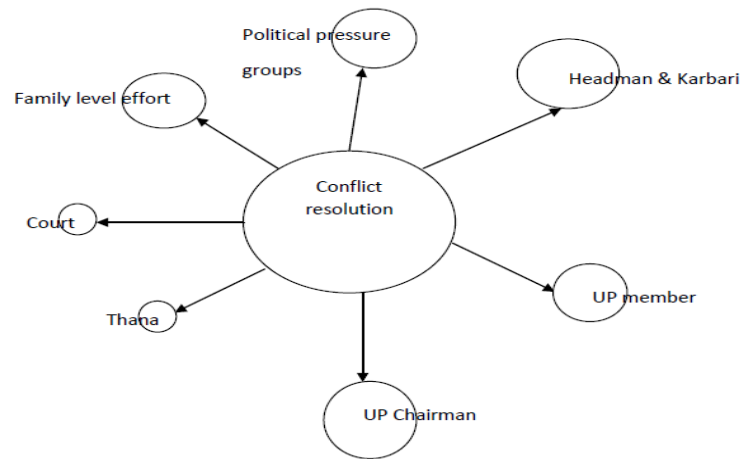


Figure 10 Conflict resolution in the target areas

Conflict resolution mechanism: The local level conflicts are resolved in several ways. Fig. 5 shows the ways of resolving conflict in the area. If the conflicts arise due to forestland disputes then people often go to the nearby forest office. However in the cases of family level conflicts, usually the family head and old member tried to resolve the conflict. As mentioned earlier, in the community level, conflict usually resolved primarily by the village head locally called Headman as mentioned earlier in *Governance* section.

Conflict with FD: The conflict with local people dependant on Jhuming in WS area as well as living around WS is very severe due to existing land dispute and practice of customary rights issue prevalent in Chittagong hill tracts. There is a huge conflict with local FD with local people, particularly with tree feller from various villages. Fig. 11 shows the relative sources of conflict with FD and local people. The other causes of conflict arising with FD are forest and land encroachment, forest cases by local FD staff, prevention in resource exploitation. While FD sees Jhuming and the settlements in and around WS as land encroachment, the indigenous people take it as part of ‘Practice of their customary rights’.

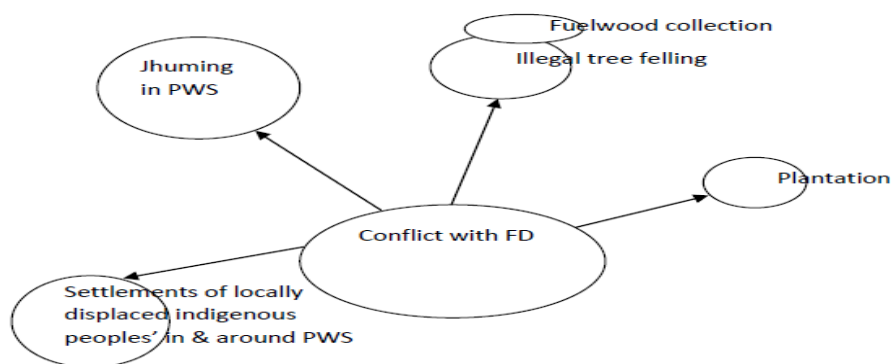


Figure 11 Venn diagram: conflict with FD

4.4.4. Social cohesion and adhesion:

There are many social activities that maintain social adhesion and cohesion among the villagers. Some of them are cultural events like Bizu, Sangrai, Boisu; marriage ceremony, religious functions, collective action through local community organizations, etc. that brings all the villagers together.

4. 5 Local Socio-economic Settings and Dynamics

4.5.1 Demographic Profile: HHs & Population

Table -17 show the settlement wise HHS number and total population. Among identified villages, barring Dakkhin Mauttan, Dakatarmachara, Sijak Mukh-2 and Pankhuas settlements for which data were unavailable, the total number of households in villages surrounding the WS is approximately 2,300 and total population is about 12,000 (in those villages) (Table- 00) which have stakes with the forest. The average family size is 6.

Table 17: Identified settlements and populations around Pablakhali Wildlife Sanctuary

Sl	Village	Households	Estimated Populations			Location
			Male	Female	Total	
1.	Nabo Perachara	31	92	93	185	Inside Buffer
2.	Ranghi Para	50			250	Inside Buffer
3.	Talukdar Para	50	150	144	294	Inside Buffer
4.	Purba Haringhat Chara	45	174	173	347	Inside Buffer
5.	Paccua Khali	31	84	83	167	Inside Buffer
6.	Paccua Khali Natun Para	21	55	54	109	
7.	Surakhali Dosar	62	194	152	346	Inside Buffer
8.	Surakhali	29	101	78	179	
9.	Chowtah Malya	145	432	383	815	Inside Buffer
10.	Baro Malya	131	375	378	753	Inside Buffer
11.	Dakatarmachara					Inside Buffer
12.	Kumra aruk chara	38	115	125	240	Inside Buffer
13.	Jyothakhamar	54	174	169	343	Inside Buffer
14.	Dakkhin Mauttan					Inside Buffer

15.	Tangum Muk	40	112	116	228	Inside Buffer
16.	North Sarboatali	84	216	208	424	Adjacent
17.	South Khagrachari	89	274	238	512	Adjacent
18.	North Khagrachari	96	235	248	483	Adjacent
19.	South Moich Pujjya	74	226	212	438	Adjacent
20.	Hirarchar	28	100	68	168	Adjacent
21.	Amtali Bazar Para	71	184	139	323	Adjacent
22.	Amtali Baro Para	75	199	147	346	Adjacent
23.	Amtali Sardar Para	89	181	174	355	Adjacent
24.	Amtali Mia Para	42	136	122	258	Adjacent
25.	North Tangum	78	224	217	441	Inside Buffer
26.	South Tangum	92	265	220	485	Inside Buffer
27.	North Sijak	112	285	257	542	Adjacent
28.	South Sijak	141	378	372	750	Adjacent
29.	Sijak Khagrachari	96	347	276	623	Adjacent
30.	Sijak Mukh-2					Adjacent
31.	Sintaram Chara	53	162	155	317	Adjacent
32.	Mauttung Muk	89	314	288	594	Inside Buffer
33.	South Mauttung	31	157	146	303	Inside Buffer
34.	Haralyachari	45	118	113	234	Inside Buffer
35.	Shantinagor, longadu	72				
36.	Jarulchara, Longadu	36				
37.	Buibachara, Longadu	40				
38.	Gulshakhali, longadu	39				

(Note: Required data will be updated gradually)

4.5.2 Education

By RRA/PRA it was collected information on educational status of the surrounding villages. Reflected from FGD & KI interviews, literacy rate is less than 50% (But inside the reserved area this rate is about 10% only). From the HH interview it was found that 60% people are illiterate. But the whole pictures are worse than this reflection. Only 85% people are going to primary school, 10% goes to high school and about 5% have above level education. In comparison in between the two sides, the people of outside reserved forest area are more educated than inside area. The rate of adult literacy is about only 5% inside the reserved area, but at present most of the children are going to school. Men and women education rate is almost same but inside the reserved area women education rate is poor.

Among the Bangali community, now a days 85-90% children go to primary school, about 10% go to High School and more than 1% study in the colleges. Among the adult, about 50% are illiterate. (above 30 years of old).

Table 18: Literacy status of settlement in the PWS area.

Sl. No.	Villages	Illiterate	Primary	Secondary	Graduation
1	Naba Perachara	90%	95%	5%	-
2	Ranghi Para				
3	Talukdar Para				
4	Purba Haringhat Chara				
5	Paccua Khali				
6	Paccua Khali Natun Para	80%	70%	28%	2%
7	Surakhali Dosar				
8	Surakhali				
9	Choto Malya				
10	Baro Malya				
11	Dakatarmachara				
12	Kumra aruk chara				
13	Jyothakhamar				
14	Dakkhin Mauttan				
15	Tangum Muk				
16	North Sarboatali				
17	South Khagrachari	55%	85%	10%	5%
18	North Khagrachari				
19	South Moich Pujjya				
20	Hirarchar				
21	Amtali Bazar Para	50%	90%	10%	-
22	Amtali Baro Para	45%	85%	12%	3%
23	Amtali Sardar Para	50%	90%	8%	2%
24	Amtali Mia Para	45%	95%	5%	-
25	North Tangum				
26	South Tangum				
27	North Sijak	50%	90%	10%	-
28	South Sijak	50%	90%	10%	-
29	Sijak Khagrachari				
30	Sijak Muk-2				
31	Sintaram Chara	85%	95%	5%	-
32	Mauttung Mukh				
33	South Mauttung				
34	Haralyachari				

(Note: Required data will be updated gradually)

4.6 Livelihood Strategies Analysis

4.6.1 Occupation

The major occupation of almost all Indigenous people are agriculture, shifting cultivation followed by day labour. The major primary occupation of Bangalee people are agriculture (40-50%), principally paddy cultivation, followed by day labour (20-25%), fishing (15-

20%), fuelwood collection (5-6%), petty business (2-5%) and service (4-5%) Table-19 shows the changes in occupation of the local people over time.

Table 19: Trend in Changes in Occupation of People Around PWS

Sl	Occupation	Before 1971	Before 15 Years	Present
01	Shifting Cultivation	00000	0000	000
02	Agriculture	0	000	00000
03	Day Laborer	0	000	00000
04	Fuelwood Collector	0	000	00000
05	Small Business	0	00	00000
06	Service	0	00	
07	Illegal logman	00	00000	000
08	Timber Trader	00	00000	000
09	Furniture Maker	0	000	00000

4.6.2 Richness-poverty level

Poverty level is significant due to scarcity of cultivable land and lack of scope to access in other income generating activities. Very handful number of families are in middle class category, majorities are in poor and extreme poor level among them big percentage does not possess any land and negligible percent fall under rich category.

Among the Bangalee community landless peoples are very little, most of the families come under rich and middle class category. Table-18 shows village wise percent distribution of different strata of the richness and poverty level.

Table 20: Livelihood Status of the Adjacent Villagers

Sl No	Villages	Rich	Mid class	Poor	Extreme Poor	Landless
1	Nabo Perachara	-	-	55%	45%	40%
2	Ranghi Para					
3	Talukdar Para					
4	Purba Haringhat Chara					
5	Paccua Khali					
6	Paccua Khali Natun Para	-	2%	65%	33%	46%
7	Surakhali Dosar					
8	Surakhali					
9	Choto Malya					
10	Baro Malya					
11	Dakatarmachara					
12	Kumra aruk chara					
13	Jyothakhamar					
14	Dakkhin Mauttan					
15	Tangum Muk					

16	North Sarboatali					
17	South Khagrachari	-	40%	50%	10%	18%
18	North Khagrachari					
19	South Moich Pujjya					
20	Hirarchar					
21	Amtali Bazar Para	1%	45%	49%	5%	2%
22	Amtali Baro Para	50%	50%	-	-	-
23	Amtali Sardar Para	-	35%	60%	5%	-
24	Amtali Mia Para	4%	50%	5%	5%	-
25	North Tangum					
26	South Tangum					
27	North Sijak	-	18 %	65%	17%	10%
28	South Sijak	-	20%	70%	10%	6%
29	Sijak Khagrachari					
30	Sijak Muk-2					
31	Sintaram Chara	1%	30%	44%	25%	20%
32	Mauttung Mukh					
33	South Mauttung					
34	Haralyachari					
35	Shantinagor, Longadu					
36	Jarulchara, Longadu					
37	Buibachara, Longadu					
38	Gulshakhali, Longadu					

(Note: Required data will be updated gradually)

4. 6. 3 Unemployment

Unemployment has become a big problem now a days in the area. So to speak, unemployment is one the most difficult problems not only in this area but also all over the country. More than 15% of the workable men around the PWS area are unemployed. In fact, this number of population is a great burden And making pressure on the shoulder of the PWS resources. It obstructs the resource conservation of the PWS. In fact, the rate of unemployment is increasing day by day. Indeed, majority of the unemployed people are young. As they do not have any job, they are prone to different social crimes. They get involved in destructive politics. They are addicted to alcohol and engaged in tree logging and various other social crimes. So, the social value is degrading day by day due to the unemployment problem. Among the participants of FGD, KI and HHs interview, 95% respondent replied that a large number of people are unemployed in the area. Because most of the people has no permanent job. More than 50% people have no permanent job to do, so they depend on seasonal occupation. In average, 10% are absolutely unemployed in various seasons. It was reflected from FGD, GD & KI that in the month of Ashar, Bhadra and Ashwin, the unemployment rate remain high, where as in Shrabon, Falgun

and Choitra people have less work but in the month of Kartik, Agrahaayan, Pous, Mahg, Boishak and Joistya people have various job and cash in hand. But during the HHs interviews 25% people indicated that they have some sort of work in the year round but 50% expressed that they become workless in few specific period of a year. But it was significant that they're noticed no permanent unemployment in between very poor/poor & illiterate group. The RRA team also tried to identify the cause of unemployment. It was found that in the area prevails a scarcity of scope for work. Owing to the scarcity of scope for work, all the workable members of a family cannot work. For example, if a family consists of five active members, only one or two are working. The other members remain unemployed. Technically, it is called the Shadow Unemployment or Disguised Unemployment. It is created due to the over population. This kinds of unemployment are creating more pressure on the WS & its resources. Others causes were increased population, mass illiteracy, seasonal unemployment due to the agricultural pattern of the area, lack of vocational training and technological knowledge of the local people, lack of vocational education and lack of skilled population due to limited opportunities of developing skill.

4. 6. 4 Credit

Some NGOs eg. BRAC, CIPD, IDF and ASA are operating micro-credit program in the locality. NGOs and banks eg. Krishi bank & BRDB provide credit/loan mainly for IGA and agriculture. NGO's IGA programs concentrate on small business, fish culture, poultry, pig, livestock rearing etc. NGO credits are mainly focused on women. The HHs had also asked about taking credit in the HHs survey, 70% household has informed that they have taken credit from NGOs. Most of the credit taker said that it is not so easy to take credit. In some specific villages especially villages inside the reserved area there are no opportunities for taking credit from NGOs. In this area, no NGO for credit or any other activities has observed except UNDP's CEP activities; here people often take loan from their relatives, neighbors and dadoner or landlord.

4.6. 5 Income and expenditure profile

Data also collected on the income and expenditure of community people of the area. Fig.-00 and Fig.-21 represent the income and expenditure profiles of a village called Karbari Para in Uttar Sijak, as an example.

Data show that the main source of income of the area comes from agriculture followed by jhum, day labor , fuel wood collection, small business, timber poaching etc.

Table 21: Yearly income profile of a village : Karbari Para, Uttar Sijak

SI No	Source of Earning	Percentage
01	Agriculture	40%
02	Jhum	30%
03	Day labour	10%
04	Fuelwood	5%
05	Small business	2%
06	Livestock	3%
07	Service	2%
08	Timber Poaching	5%
09	Fishing	3%

On the other hand, the expenditure profile shows (fig.-00.) that people expend highest percentage of money for purchasing food followed by cultivation, education, clothing etc. But it is significant that they expend a little money for healthcare purpose.

Table 22: Yearly expenditure profile of a village : Karbari Para, Uttar Sijak

SI No	Activities	Percentage
01	Food Purchasing	50%
02	Cultivation(Jhum, Agri.....)	25%
03	Education	10%
04	Healthcare	2%
05	Clothing	2%
06	HH construction	2%
07	Religious	1%
08	Marriage	3%
09	Social welfare	2%
10	Others	3%

4.6.6 Skill & Skill development opportunities

Only a few percent of people have skill on various trades such as fish culture, carpentry, apiculture , bamboo art ware, making fishing net, poultry etc. There prevails limited opportunities for getting skill development training in the area. Most of the participants of FGD, KI and HHs interview, informed that they did not received any training so far. Only people can avails skill development training from Upazilla livestock office, agricultural extension department on dairy , goat rearing, and agricultural practices, from Upazilla

Fisheries office on fish culture. But the local people expressed a strong intention for receiving skill training on various trade. Though apiculture has a great prospect in the area but no opportunity exist , people expressed keen interest to receive training on honey bee culture. Among the skilled people most of them informed that they could not initiate IGA for having lack of capital .

4.6.7 Alternating Income Generation (AIGA)

There prevails good opportunities for IGA such as honey bee & fish culture, nursery, homestead gardening, bamboo works, weaving, sewing, poultry and dairy etc. People often take loan for maintaining their livelihood expenses during the odd season and for seasonal cultivation, rearing of cow , pig and poultry etc.

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

4.7.1 General Dynamics

Table-23 shows changes in some key socio-economic matrices and local activities.

Compared to 1970 situation, population and income of local people had increased with corresponding decline in solvency. Although, literacy rate has increased, unemployment rates have also increased. During the time, use of forest for both as HH needs and income generation have decreased because of limited forest resources. Local food scarcity has reduced while opportunities for alternate income has increased to manifold.

Table 23: Trend in Changes in Some Socio-Economic Situation

Issue	Pre-1971	15 years ago	Present	Causes for change
Settlement/Population	0	000	0000	Population growth
Solvency	0000	000	00	Unemployment, livelihood expenditure increase and shrinking scope of added income.
Livelihood expenditure	0	00	0000	Increased price of goods, production not increased in accordance with population growth
Literacy	0	00	0000	Awareness increased, educational opportunity increased.
Unemployment		00	0000	Lack of employment, population growth, resource depletion
Use of forest for income	0000	000	00	Depletion of forest resources
Use of forest for HH needs	0000	0000	00	Depletion of forest resources
Occupation	0	00	0000	Increment of IGA and small business
Credit & IGA	-----	-----	0000	Increased NGOs credit and IGA programs
Homestead plantation	0	00	0000	Income generation, HH consumption and awareness increased
Food scarcity	00	0000	00	Increased employment opportunity and agricultural development
Transportation and mobility	0	00	0000	Development of road communication and transport

4.7.2 Seasonal changes in socio-economics of the local people

Table-24 provides information on seasonal fluctuations in some socio-economic parameters and some resource extraction activities. Unemployment is higher during Ashar-Shrabon and during Vadro-Ashwin. Timber felling is take place round the year at the same rate due to absence of patrolling. 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. During winter people collect broomstick because of availability only in this season. Hunting is also taking place round the year at limited scale which posing threat to the endanger wildlife species in the PWS.

Table 24: Seasonal changes in socio economics

Activities	Bais hak	Joist ha	As har	Shra bon	Vad ro	Ash win	Karti k	Agra haio n	Pou sh	Ma gh	Falg un	Choit ra
Unemploy ment	0	0	000 00	0000	000 00	0000 0	0	0	0	0	000	0
Fuelwood collection	0000 0	0000 0	000	000	000 0	0000	00000	0000 0	000 00	000 00	0000 0	00000
Timber felling	0000 0	0000 0	000 00	0000 0	000 00	0000 0	00000	0000 0	000 00	000 00	0000 0	00000
Bamboo collection	000	0	0	0	0	0	0	0	000	000	0000 0	00000 0
Building Materials	0000	0	-	-	0	0	0	0	000	000	0000 0	00000
Transporta tion problem	000	0	0	0	0	0	0	0	0	0	000	000
Agricultur al activities	0000 0	0000 0	0	0	0	0	000	000	000 00	000 0	00	0000
Accessibil ity to forest	0000 0	0000 0	000 00	0000 0	000 00	0000 0	00000	0000 0	000 00	000 00	0000 0	00000
Brickfield/ sawmill operation	0000 0	000	-	-	000	0000	00000	0000 0	000 00	000 00	0000 0	00000
Vegetable Collection	000	000	000 00	000	000	000	000	000	000	000	000	000
Hunting	00	00	00	00	00	00	00	00	00	00	00	00
Forest patrol	-	-	-	-	-	-	-	-	-	-	-	-

4.8. Local Problems

During PRA/RRA activities causes of the local problems and its possible solutions were also investigated. The major problems, according to the magnitude, relate to poverty, unemployment, health and sanitation, road communication, education, electricity, drinking water, forest cases, etc. (Table 25).

Table 25: Causes of local problems and possible solutions

Name of Problems	Reason	Solutions
Poverty	Over population mostly due to in-migration, little agricultural land, unemployment, lack of capital to initiate small business, lack of alternative income generating activities, lack of skills.	Generation of opportunities for new IGA ,and provision of interest-free credit, skill development training, more NGO activities
Unemployment	Lack of agricultural land, lack o f sufficient work, population pressure, Lack of education	----- do-----
Education	Absence of sufficient educational institution	Establishment of new and technical schools, awareness, and financial support
Road communication	Roads are yet to be developed	involving local government or NGOs in road construction
Health care facilities	No hospital/clinic and good doctor near their villages, lack of sanitary latrine and tube well	Promoting government and NGO health and sanitation programmes
Drinking water	Lack of deep tube well and deep pond	Need Government and NGO efforts to provide tub well and pond construction.
Electricity	Lack of electricity supply	Electricity should be supplied through REB or PDB.
Forest case	Cases lodged by local FD against illegal resource extraction, sometimes causes are not valid	Illegal use of forest resource should be stopped. FD should not file any case based on falsehood.

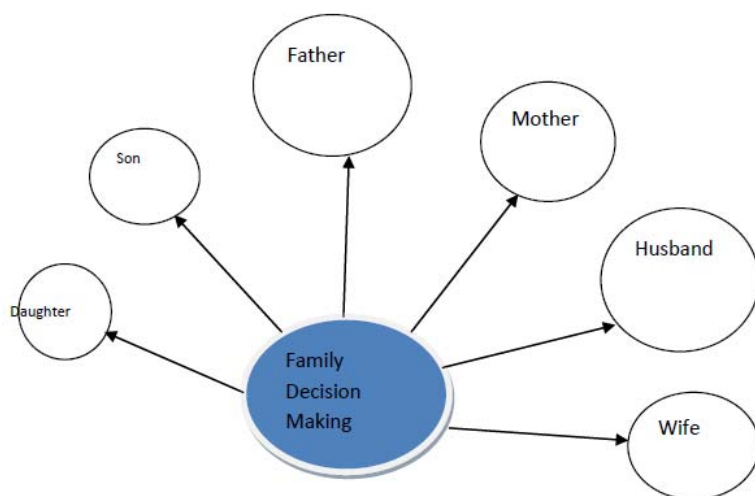


Figure 12 Venn Diagram showing roles of family members in family decision making

4.9 Outdoor mobility and access to credit and IGA

Overall, in and around WS, outdoor mobility of females is considered to be moderate to high depending on the geographic location. Participation to social events by women is comparatively less than males (Table 26). However, now-a-days access to NGO credit and IGA is much higher in case of women. On the other hand, access to bank loan is very limited for women. Figure 12 and 13 represent the nature of daily activities of male and female in the region.

Table 26: Mobility and participation in social events and access to credit and IGA by male and female in and around WS area.

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

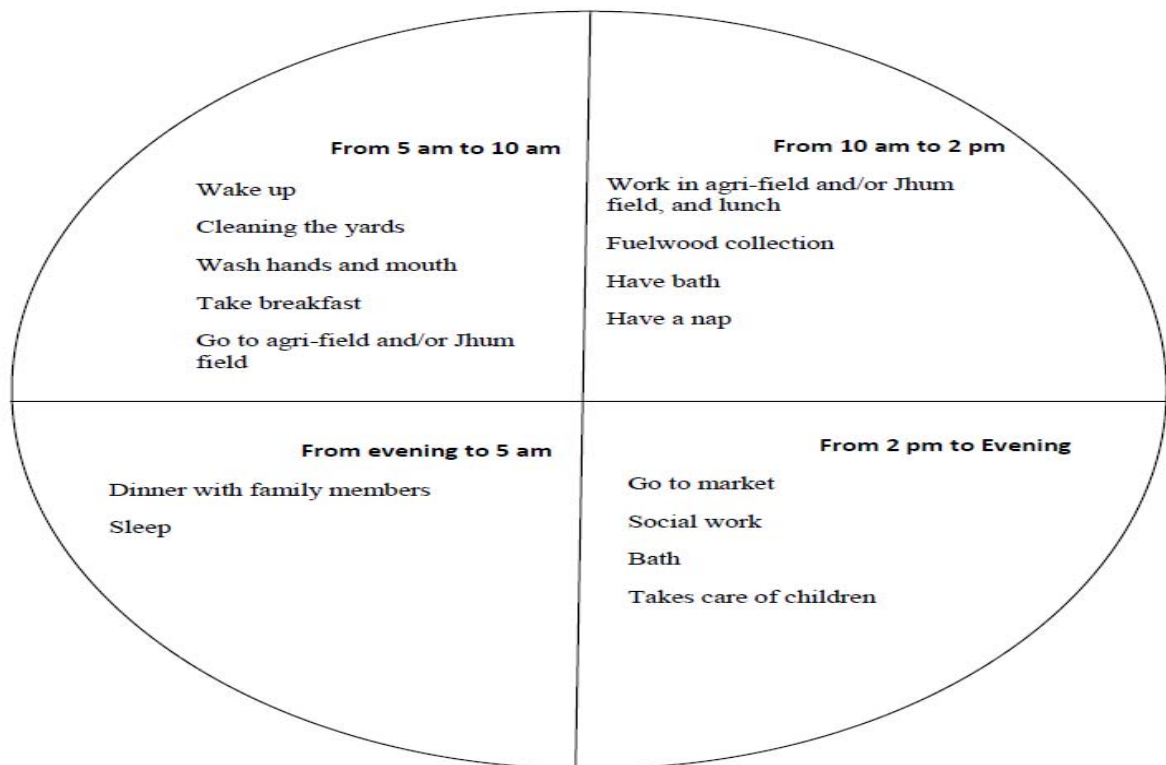


Figure 8. Typical daily activities of male living in and around WS

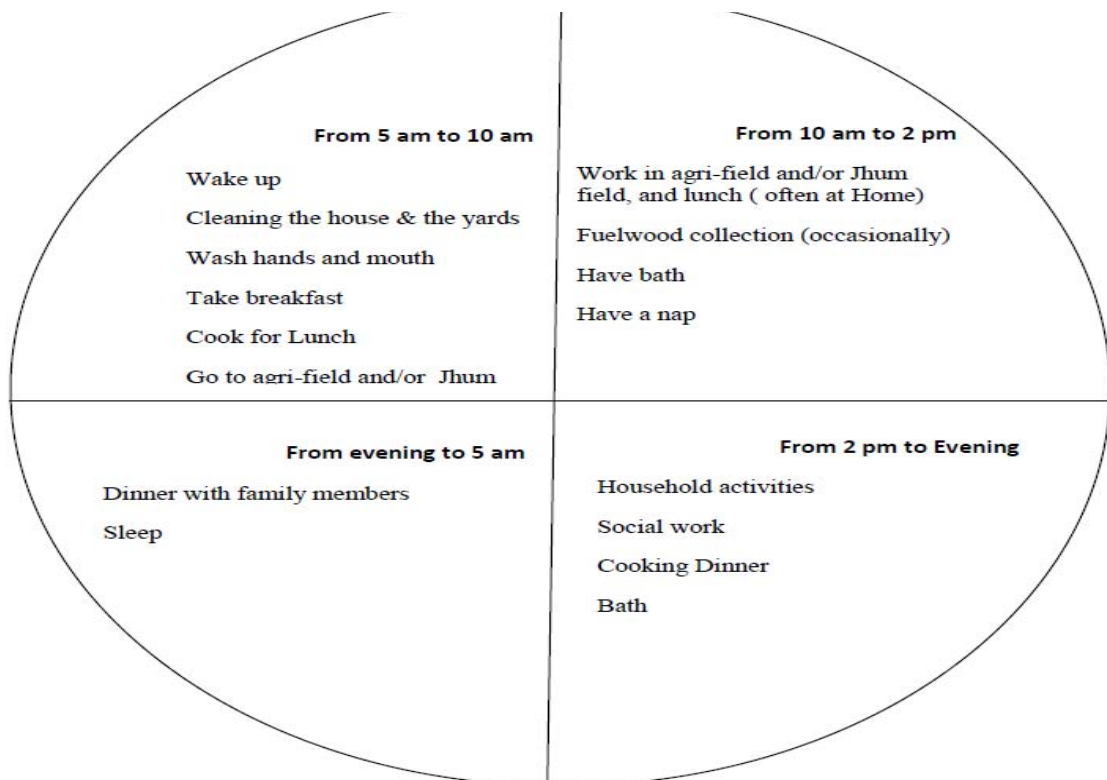


Figure 13 Typical daily activities of female living in and around WS

4.10 Education

The overall literacy rates of male and female are close. In the recent years, the numbers of school going girls are higher than the boys. However, in case of higher studies boys outnumber the girls (Table 27). Overall, females are less educated than the male.

Table 27: Comparison of Educational Status of Male and Female in and around WS area.

Overall literacy (based on adult)		Primary	Secondary	Colleges	Above	Informal
Male	000	0000	000	000		
Female	00	0000	000	00		

4.11 Local Level awareness and Behaviour Local level awareness

4.11.1. Local level Awareness

The insight of the local community concerning resource degradation and its impact on their livelihoods is quite good even though they lack a total understanding of the ecosystem. They foster a positive attitude towards conservation. This insight of conservation is rooted to their traditional community-managed Village Common Forests (VCFs) or mouza-ban occurring in smaller watersheds of Chittagong hill tracts, and they (VCFs) contain headwaters of streams, natural springs and other aquifers, and represent large repositories of biodiversity. However, very few of them know well about the rules, regulation and activities those are permissible in reserve forest and/or protected areas. As revealed from HHs interview, 100% people think that the forest resources should be conserved so that they can sustainably procure resources in future. Most local people are against the protection of elephant though they are in favor of plantation to be tailored in CHT perspective. In FGD and GD, the local community expressed a willingness to be involved in the process of forest conservation. Very interestingly, the field level forest personnel (such as forester and beat officer) have no clear idea about differences in between the management of present WS and previous RF.

It revealed from HH interview that 90% of people of the area support the Govt. plans to preserve the forest biodiversity and to improve the socio-economic condition of the people provided it doesn't hamper their customary land rights and respect the rights of indigenous people. Most of the inhabitants reported that they have temporary settlements for Jhuming purpose but no permanent settlements inside the WS. They believe that if the

forest is preserved than their livelihood status would be improved. Local people know little about some of the rules of Forest Act, but most of them not aware of the legal framework of the WS. As revealed so far, from FGD and HH interview that majority people know that the forest is a reserve but only 40% of them have heard a little about the WS but not aware about the restrictions. However, the study revealed that 60% of the respondents know nothing, 4% have heard about the rules & regulations, and negligible portions know about some restrictions in the WS. Compared to males, females are less aware of this issue though they are very much linked with natural resource utilization process.

4.11.2 Behavioural Aspect

So far the PRA/RRA was carried out, initial response of local people towards the project is positive particularly in Parachara, Chintaramcara, and Dakkhin Khagrachari but still they believe that co-operation and necessary advices from the Regional Council of Chittagong Hill Tract will encourage them to comfortably participate in the co-management approach of the project. However, a number of local leaders, and people appeared to be fostering negative attitude towards the project, with an assumption that they might be dislocated from their current settlements in the course of advancement of project activities.

Though vast tract of land inside the WS are reported to be occupied for the purpose of Jhuming, 90% of interviewed HHs of the area support the Govt. plans to implement such kinds of project towards preserving the forest biodiversity by developing co-management. By observing the current scenario of forest, local people are able to realize that forest should be conserved and should have more plantations. But they demand that these initiatives should be in harmony with their traditional norms, customs and indigenous rights.

But in most of the cases lower level FD staff is not aware about the project. They have a curiosity to know about their personal benefits from this project.

The indigenous communities are well behaved and cooperative but their total active participation seems to be happening only if the regional political powers act in favour of the project. People assume that if the project really can provide alternative income to the people then the project may see the light of success. However, some of the villagers predicted that a small amount of earning through alternative income may not attract the illegal poacher as they earn a lot of money by cutting timbers in comparison to the

alternative income. Some people expressed their concern that if the program negatively affects the livelihood of local people they will not cooperate and may oppose the program.

4.11.3 FD Forest Management Regimes: Past and Current Situation

4.11.3.1 Past Forest Management in CHT

Forestry first initiative has been started from Chittagong Hill tracts with toll collection on forest produces during British regime controlled under Bengal and Assam Forest Department.. An Assistant Forest Conservator recruited in 1862. During Pakistan period Forest Department was controlled under Agricultural Ministry. Then the Forest Service was known as -East Pakistan Senior Forest Service Sub-ordinate Forest Service. In 1980 Senior Forest Service was included B.C.S (Forest) Cadre. In 1989 Environment and Forest Ministry was established. King of Arakan occupied CHTs and Ctg in 953 : King of Tripura occupied later in 1240. This region was first recorded in the map of Bengal in about 1550. The Mughals controlled the area from 1566 to 1760. In 1760, the are was ceded to East india Company. The British occupied the area in 1860 and ruled under the province of Bengal. CHTs Regulation of 1900 instituted a local system of tax collection with the headman and circle chief at the apex During the early eighties CHTs has been divided into three individual district: Rangamati, Khagrachari, Bandarban.

4.11.3.2 Current Forest Management of PWS in CHT

There was no initiatives has been taken after the declaration of PWS. PWS has been managing in the way traditional production forest management. For proper management it needs proper protect area management plan.

4.11.3.3 Land Area and Man Power

The sanctuary is headed by Divisional Forest Officer of Chittagong Hill Tracts North Forest Division, under him there is an Assistant Forest Conservator attached to her head office in Rangamati. The Pablakhali Wildlife sanctuary with one Range Officer, three foresters and tow Boat man are present staffs. A little afford has been taken after the declaration of the WS. There was boundary demarcation and GPS reading found in the gazette notification.

4.12 Status and role of forest villagers and ethnic community

4.12.1 Forest villagers

According to information from participants of FGD, HH and KI interviews, there are no forest villagers inside the Wildlife Sanctuary area but in the Reserved forest area.

Reserved forest villagers were settled in the early 1990s, due to severe political unrest ethnic people from Baghaichari and Longadu Upazila specially from gulshokhali, Bhangamura, Sarbotoli and sajek villages settled inside the reserved area . As the land is not leased by the FD to these people ,so they are still considered encroacher on the eyes of the FD. At present there are around 14 villages where inhabitants are mainly ethnic community people.

Ethnic people made strong objection about naked discrimination by the govt. since govt. declared dereserved at the Bangali settlement area giving one kind of authority to live there on the other hand, considering ethnic people as encroachers and not rehabilitating in their own land after the Peace Accord. The PRA research has indicated that these villages are playing an important role in the destruction and the protection of the forests.

It is locally held that the so-called forest villagers cause most harm to the WS. Most of the forest villagers are fully dependent on forest for their livelihood. In the WS area, land especially hills encroaches for Shifting Cultivation. A significant portion of HHs are involved in jhum chash inside the WS. All the HHs in those villages which are located in the reserved area and at the edge of the WS are dependent on fuel wood, bamboo, house building materials, medicinal plants, broomstick and some vegetables from the forest for their HH needs. FGD suggests that they depend on the forest for many of their daily HH needs and they also use the forest for added income. Most forest villager's HH are involved with fuel wood and bamboo collection.. They are in a advantageous position being located within the forest areas.

At present there is no rules and regulation for controlling the forest villagers. People occupied the land whatever they can and using for crops and horticulture cultivation. Because they have no means for livelihood support but forest land and its resources. It was revealed that people kept an area as reserved like VCF around 600 acres where still rich biodiversity exist.

Reserved area is under the jurisdiction of Sarbotoli Union , the lower tier of Local Govt. system responsible for local welfare and development. Apart from that traditional

Governance system is common and prominent in Ethnic communities so, in forest village communities also. People pay due respect to the Traditional Leaders who are selected on consensus of local villagers or get according to laws of inheritance. These Leaders play significant role in decision making and problem solving on local issues beside public representatives. So public representatives have to entertain traditional leaders in local development and welfare issues. Though there is both governance systems exist but for final decision making for any local issues, these leaders can not influence more but regional political leaders. So in most of the time their voices remain silent. This problem is common in ethnic community villages.

The forest villagers especially ethnic communities expect to get formal authority to live at the reserved area or rehabilitation inside or outside the reserved area as per the Peace Accord as they are the worst victim of the decade long turmoil in the CHT. They have also some expectation from the project that IPAC should provide some support to solve their long standing problem eg. land issues and improve their livelihood development strategies because they are the most isolated and backward communities deprive from education, health care services, safe drinking water and all other services and amenities .

4.12.2 Ethnic Community

There are two ethnic communities, Chakma and Pankhua located within the reserved and around the WS. Once the Pankhua popularly known as Kuki was the majority of the area. But at present they became minority. On the other hand most of the Chakma's are settled here as forest villager in the early 1990s and some are after Peace Accord. In comparison, the stake with forest is higher to Chakma than the Pankhua. The main occupation of Chakma are agriculture, shifting cultivation, fuelwood collection, day laborer etc. On the other hand, most of the Pankhua are involved with petty business. Their main occupation is Jhum chash, followed by petty businesses. The Chakma people's main source of income is Jum cultivation and agriculture within the forest land, day laborer and fuelwood collection. The rate of literacy among the Ethnic community is very low, only 10% are literate among them most are school educated because of non availability of educational institutions in the locality but now a days people are more aware than before ,so they are trying to educate the children by their utmost strength and sending them where access is available. However, this two ethnic community has a unique similarity in

forest resource using, both of the community hunted wildboar , deer and other wildlifes for their own HHs consumption.

Chakmas are Buddhists and observe religious rites such as paying homage to GAUTAM BUDDHA, listening to sermons, observing Buddha Purnima, Kathin Chibar Dana, Maghi Purnima,Ashari Purnima etc. They have a Pagoda in their localities, acquiring around 200 acres land which they declared as sanctuary for all kind of animals. Because followers of Lord Buddha abstain from killing any kind of animals. They celebrate biggest social and traditional festival 'Biju' to mark the end and beginning of the Bengali year. On the other hand Pankhuas are follower of Christian religion and observe the religious days like other Christians.It is customary that Pankuas are having regular and free access to the India,s Mizoram State. They have strong base in Mizaram and their children usually go to Aizowal capital of Mizoram for study .Pankhuas have good business linkage with Mizoram, exporting Bangladeshi goods to India and importing Indian goods to Bangladesh illegally through porous border.

Table-28 shows the settlements distribution of the two ethnic communities that live inside the reserved and adjacent to the WS.

Table 28: Information on Chakma & Pankhua in reserved forest area

Sl. no	Village	Community	No. of HHs
1	Nabo Perachara	Chakma	31
2	Ranghi Para	Chakma and Pankhua	50
3	Talukdar Para	Chakma	50
4	Purba Haringhat Chara	Chakma	45
5	Paccua Khali	Chakma	31
6	Chowtah Malya	Chakma	145
7	Baro Malya	Chakma	131
8	Dakatarmachara	Chakma	
9	Kumra aruk chara	Chakma	38
10	Jyothakhamar	Chakma	54
11	Dakkhin Mauttan	Chakma	
12	Tangum Muk	Chakma	40
13	North Tangum	Chakma	78
14	South Tangum	Chakma	92
15	Mauttung Muk	Chakma	89
16	South Mauttung	Chakma	31
17	Haralyachari	Chakma	45
18	Surakhali Dosar	Chakma	62

(Note: Required data will be updated gradually)

4.12.3 Bangali Settlers

Govt. settled the Bangali People inside the reserved area during 1986 from plain land, later on declared that area dereserved which is about 9,000 acres forest land .For that reason within short period of time whole dereserved area turned into place of dwelling and cultivation. These in land migrants are locally known as settlers. The main occupation of Bangalis are agriculture, day laborer, fishing ,petty business etc. So their main source of income is agriculture, day laborer and fishing. The rate of literacy among this community is higher than that of ethnic community, around 70% people are literate because of availability of educational institutions in the locality, among them most are school educated and a small percentage having the education at tertiary level. However, this community is not involved with hunting like ethnic communities. The Bangali communities have less stake with the forest than the Ethnic communities. These migrants are mainly Muslim and observe religious rites eg. Eid, Milladunnabi, Maharram etc. like other Muslims of Bangladesh

Table 29: Shows the settlements distribution of the Bangali community that live inside the reserved and adjacent to the WS.

Sl no.	Location	Village/Para	No. of HHs
1	Amtoli, adjacent to Pablakhali Range office	Bazar Para	71
2	-do-	Sardar Para	75
3	-do-	Mia Para	42
4	-do-	Pradhan Para	89

5. PRESENT THREATS, ISSUES AND CHALLENGES FOR IPAC

5.1 Priority Threats to the WS

- Continued unsustainable large scale and commercially targeted harvesting of most forest resources, including timber, fuel wood and bamboo which have led to loss and decline in many forest natural resources. Extraction is being carried out by timber traders and organized illegal loggers by involving local communities as ‘wage-earners’.
- Repeated burning and shortened fallow period of Jhuming (Shifting cultivation) in the WS area is preventing regeneration of the few remnant natural forest. Jhuming is reported to be practiced at least half of the WS.
- Extensive and illegal use of fuel wood and timbers by adjacent brickfields.

- d. Hunting of wildlife, especially wild boar and barking deer, and other wildlife resulting in the depletion of wildlife.
- e. Widespread habitat destruction is leading to a loss of forest dwelling wildlife species.
- f. Encroachment of forest land and its subsequent conversion to settlement leads to habitat loss resulting in the decline in forest biodiversity.
- g. Lack of understanding of conservation issues and values, wildlife protection and management of protected areas by FD personnel, who are the stewards of the Reserve, has lead to inappropriate management practices.
- h. FD's plantation strategies and practice include clearing and burning of forest, plantation only valued timber tree, exotic tree and monoculture probably caused most harm by removing the indigenous species, wilderness, and alien environment for the wildlife resulting in the serious depletion in forest biodiversity.
- i. Increasing development of road network inside around the WS, resulting in increased access to and removal of forest resources.
- j. In-migrant settlers from the plain as well as indigenous people locally displaced from their original location due to the built-up of Kaptai dam in late 60s, and during the period of insurgency are concentrated around the WS ,and their activities has a detrimental impact on the forest and still remains as an important threat.
- k. Operation of brickfield around the WS has a great indirect role in forest degradation as they use huge quantity of fuel wood.

5.2 Issues of Concern

5.2.1 Reduced Forests regeneration

Forest regeneration is severely impacted in the Pablakhali WS, primarily due to Jhuming (shifting cultivation) induced fire, and claiming of land for cropping. This poses a threat to attaining wilderness resulting in the loss of forest biodiversity. In order to bring back wilderness forest regeneration aspect should be given a priority.

5.2.2 Jhuming and expansion of settlements in the forest

Jhuming, illegal commercial scale logging, and conversion of forests into settlements has been identified as the major cause for degradation to Pablakhali WS. The process is still

continuing and remains as an important threat to forest and its biodiversity. Future success of WS management will depend largely on the stopping and recovery of the encroached land.

5.2.3 Over- and unsustainable resource exploitation

Commercially targeted over exploitation of various resources of the forest, including timber, bamboo, fuel wood, wildlife etc. in the past mainly contributed to the depletion in the resources and the fauna they supported. Still these remain as threats equally to the sustainable management of the WS.

5.2.4 Local dependence on the forest resources

Traditionally, almost all inside HHs and many HHs of the adjacent villages are depend directly or indirectly for their needs of fuel wood, building materials and some other forest products of the forest. Apparently, it seems that there is little alternative for these resources. Besides, many poor HHs are entirely or partially dependent on the forest for their livelihood. Thus this issue remains as a concern for the project

5.2.5 Deteriorating local law and order situation

The law and order situation in the region as whole has deteriorated greatly and this has an influence on the people living in and around the WS. Therefore, some people particularly those who are bit powerful show disregard to law and the local FD staff has lose control in many areas of the WS. Similarly, the other law enforcing agencies, except BDR, can do little in this regard. This is a particular concern to be considered.

5.2.6 Poor forest management by the FD and lack of specific WS management action plan

The finding of the PRA/RRA analysis elucidates that the forest is inadequately managed by the FD principally due to shortage of adequate and trained man power for WS 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 management action plans for the management of the WS and therefore are important issue for consideration.

5.2.7 Local poverty and unemployment

Local poverty and unemployment have been identified as the driving force 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 the particular attention.

5.2.8 Presence of in-migrant settlers in and around the WS

One of the findings of Fads and KI interviews during PRA/RRA was that settlement of in-migrants from the plain district around the WS and inside the Pablakhali reserve area was allegedly encouraged by the government in 80s. As a result, a large tract of land, which is almost 1000 acre, was declared as “De-reserved area”. These settlements have been shown detrimental to the forest and its biodiversity. Still now, allegedly they become often involved with illegal extraction of forest resources. The project needs to address this issue.

5.2.9 Association of local influential people in illegal felling

Many local people those who are influential help in illegal tree felling in the way of negotiating with FD or other law enforcing agencies to ensure safe transit of illegally felled logs, and sometimes they impose their influence to cover up the offences. The project should take into account this issue while plan for the management of the forest.

5.2.10. Brickfield operations

There are two brick fields are operating near Baghaichari upazila. Two brick field do have clearance letter from DoE. Though huge quantity of fuel wood to meet the demand of brickfields still comes from the adjoining reserve forest area of WS, in near future, this increasing demand of fuel wood (which is currently reported to be 40,000 mound per year/brickfield) will pose threat WS, and thus , will contribute to the depletion of forest resource and existing biodiversity. The operation of fuel wood operated brickfield is the violation of the forest laws. This issue needs to be addressed in the project.

5.2.11 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 among the local people. It seems that enhancement local level awareness could help in successful implementation of the project.

5.2.12 Extensiveness and inaccessibility of the project site

The Pablakhali WS is extensive in its area coverage, and it's often inaccessible not only due to the geographic remoteness and terrain but also due to geo-political situation even after the peace treaty. Apart from co-operation of Regional Council and regional political parties is a prerequisite for successful implementation of the co-management approach of this project.

5.3 Challenges for the Project

There are certain issues that could be challenging for the project in the course of implementation of the project. This section prioritizes a number of such issues that should be given due consideration while planning and implementing the project. The following major challenges are identified:

- Strategically branding IPAC to the grass-root indigenous communities as well as to the political leaders of CHT in such a way that 'trust' is built in them about the project, and they become ensured that the project activities will not go against the Peace Accord.
- Diversification of production methods of indigenous people from their traditional Humming (Shifting Cultivation), and reducing their dependence on forest for livelihood.
- Stopping of commercial scale collection of fuel wood, bamboo and other building materials.
- Reversing FD's plantation strategies and practices.
- Preventing illegal tree felling
- Bringing changes in morale of the local FD staff
- Reduction in local poverty and unemployment
- Ensuring participation of local influential people
- Curbing dependence of local people on the WS
- Establishing co-management system over the entire WS

6. SUGGESTIONS AND RECOMMENDATIONS

Political situation & poor forest management in ws by the FD has been identified as one of the most important causes for the forest degradation. Therefore, there is an urgent need

to strengthen the local FD in the WS with adequate and skilled manpower and to capacitate them in dealing with comanagement of PWS. Particularly the FD may strongly consider the following:

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

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 habitat restoration and rehabilitation
- a plan of action for protection and sustainable use of forest resources and biodiversity
- a plan of action for re-introduction and rehabilitation of endangered plants and animal species
- From the management point of view, local migrants should be resettled in a suitable area to

A rehabilitation scheme should separately be considered for the non-human primates, the most important component of the PWS 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

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.

Fuel wood, 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

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

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

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/Upazila Chairman and MP, and involve them, at least in advisory role. The project should also work with existing local community organizations identified under the appraisals.

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

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.

The project should make an effort to negotiate with local development partners/agencies to extend their social welfare services to the area.

The project should initiate dialogues with sawmill owners, fuelwood traders and furniture shop owners of Baghaichari upazila on a priority basis and later with the same of Amtali and Mainimuk bazaar.

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, to ensure the effective involvement of law enforcement agencies at the local level.

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

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

The project should also make provisions for generating a scientific and social knowledgebase about the PWS. 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

Map drawn by the Community Peoples during FGD at South Khagrachari

