

Participatory Rural Appraisal Report on *Sitakunda Eco-Park, Chittagong*



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Acronyms and abbreviations

ACF	Assistant Conservator of Forest
ADB	Asian Development Bank
AIGA	Alternate Income Generating Activities
ASA	Association for Social Advancement
BDR	Bangladesh Rifles
BELA	Bangladesh Environmental Lawyers Association
BO	Beat Office / Beat Officer
BRAC	Bangladesh Rural advancement Committee
BRDB	Bangladesh Rural Development Board
CBO	Community based Organization
CMC	Co-management Committee
CODEC	Community Development Centre
DFO	Divisional Forest Officer
DoF	Department of Fisheries / Director of Fisheries
FD	Forest Department
FG	Forest Guard
FGD	Focus Group Discussion
Fig.	Figure
FRMP	Forest Resource Management Plan
GI	General Interview
GoB	Government of Bangladesh
HHs	Households
IGA	Income generating Activities
Int.	Interview
IPAC	Integrated Protected Area Co-management
IRG	International Resource Group
KI	Key Informant Interview
LGED	Local Government Engineering Department
MACH	Management of Aquatic Ecosystem through Community Husbandry
Mat.	Material
MoEF	Ministry of Environment and Forestry
MoFL	Ministry of Fishery and Livestock
MP	Member of Parliament
NACOM	Nature Conservation Management
NFE	Non Formal Education
NGO	Non Government Organization
NP	National Park
NSP	Nishorgo Support Project
NTFP	Non Timber Forest Product
PA	Protected Area
PDB	Power Development Board
PRA	Participatory Rural Appraisal
RF	Reserve Forest
RO	Range Office / Range Officer
RRA	Rapid Rural Appraisal
SF	Social Forestry
SSH	Secondary Stake Holder
UP	Union Parishad / Upzilla Parishad
USAID	United States Assistant for International Developmen

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1. Introduction

1.1. Project Background:

USAID 's Integrated Protected Area Co-management (IPAC) project contributes to sustainable natural resource management and enhance biodiversity conservation in targeted forest and wetland landscapes with the goal of preserving the natural capital of Bangladesh while promoting equitable economic growth and strengthening environmental governance . IPAC is implemented by the ministry of Environment and Forests (MoEF) with the Ministry of Fisheries and Livestock (MoFL), through a consortium of partners led by International resources Group (IRG).

The overall IPAC *objective* is to promote and institutionalize an integrated protected area co-management system for sustainable natural resources management and biodiversity conservation that results in responsible, equitable economic growth and good environmental governance.

It has concentrated on preserving protected forest areas in Bangladesh, along with biodiversity conservation, by working with local resource users living around officially notified protected areas (wildlife sanctuaries, national parks and game reserves). Particular emphasis has been given to developing the capabilities of local resource management organizations to broker community consensus in understanding, accepting and assuming their roles and responsibilities under a co-management approach in collaboration with the Forest Department. Communities and Government across the country- working through ‘‘Co-management’’ organizations – are joining forces to reserve this trend.

To implement a co-management approach, managers engage the local stakeholders through a participatory process that empowers them with a voice and well defined role in decision-making and provides sufficient economic incentives to engage their interest and commitment to the successful achievement of the agreed upon natural resource management objectives.

The principal targeted beneficiaries of IPAC are the men, women and youth of poor rural households living within the landscapes around the targeted protected areas. However, the successful implementation of IPAC will generate benefits for the entire country over the medium and long term.

The Noishorgik Network is proposed as the common identity of the expanding network of co-managed wetlands and forests .

Main Principles of the Nishorgo Network:

The PAs under this national network are overseen by different organizations and include varying ecosystems; they are all characterized by these three fundamental traits:

- ✓ Conservation-Focused: Within every PA in the national network, there is a core area of natural wetland or forest preserved in its natural state.
As formally recognized parks or sanctuaries covered by Government forest Act or Rule, or a small wetland sanctuary within a large water body, this feature is maintained throughout the network sites.
- ✓ Collaboratively Managed: Each PA in the network is conserved through formalized collaboration between neighboring communities and the Government.
This co-management organization is formally recognized and accepted by Government.
- ✓ Pro-Poor: Co-management PA to promote local livelihood opportunities.
All network PAs are co-managed to ensure that benefits are directed to the neighboring poor to provide tangible economic incentives for their gainful participation in conservation.

A total of 25 PAs & conservation sites are the working areas under five clusters.

1.2. Purpose of the Report:

The main purpose of the present report is to present a synthesis of all findings from RRA and PRA exercises conducted by the Team in IPAC Sitakunda Eco-Park Site during December 2010-April, 2011. The report also details the methodology and tools used and highlight the issues in forest management and biodiversity conservation and identify the challenges for the IPAC Sitakunda Eco-Park Site. Finally the report makes suggestions on what the project, Department of Fisheries, Department of Forest and Department of Environment need to do immediately. Finally, the report puts forward set of recommendations for the improved management of the forest of Sitakunda Botanical Garden and Eco-Park Site.

2. The Resource Base

2.1. Description of Site:



Location: Sitakunda Eco- Park Site is situated at Sitakunda Upazilla under Chittagong District, Chittagong Division.

Sitakunda Eco Park Site is bounded by Sitakunda Paurashava and Sitakunda Chandranath Mondir (Temple) on the north, hills and Hathazari Upazilla on the east, Barabkunda Union of Sitakunda Upazilla, Kumira, Bangladesh Military Academy & Fouzdehat Cadet College on the south, and Muradpur Union of Sitakunda Upazilla and Bay of Bengal are on the west. Sitakunda Eco- Park Site is situated within Sitakunda Paurashava, Barabkunda and Muradpur Union. Sitakunda Eco- Park Site covers 2 unions and 01 Paurashava of Sitakunda Upazilla. Total area is about 35 km north of Chittagong on Dhaka-Chittagong road and the railway.

Surrounding Communities:

Sitakunda Botanical Garden and Eco Park is surrounded with settlements of mainly Bangali Communities and Tripura Communities, harboring about 14,612 household. About 50 Tripura Families live in the hills.

Area:

The Sitakunda Botanical Garden and Eco-Park was declared within the area of Protected under Mahadebpur and Sitakunda Jagonla blocks Chittagong Botanical Garden and Eco-park area details of Sitakunda Botanical Garden and Eco-park.

Forest rang	Forest beat	Block/ Mouza	Area (hac.)
Chittagong Botanical Garden and Eco-park	Sitakunda Botanical Garden and Eco-park	Mahadebpur Jagonla	807.75 hac.
Total area			807.75 hac

Weather of the Sitakunda Botanical Garden and Eco-park:

June to September	:	Rainy season
December to February	:	Winter Season
March to May	:	Summer Season

Temperature of May is very high then others months.

Average temperature	:	26.60°C to 28.10°C
Rainfall in July	:	689.2 mm
Humidity	:	February: 67%
		June-July: 85%

Biophysical Characteristics:

Sitakunda Botanical Garden and Eco-park comprises undulating hills, natural forests with rich diversity in flora & fauna, and numerous hilly creeks/streams. Some additional bio-physical features of the area is :

Topography: Small and medium hills, cross-crossed by numerous creeks, covered with forest and grasses.

Flora: In Sitakunda Botanical Garden and Eco-park, Plant family-96, Genus-291, Species-412, Tree-156, Shrub- 110, herb- 119, Climber-27 and bamboo, orchids and cactus plants in the park. Akasmoni is dominant tree species along with its associate, namely Chalmorga, Jacaranda, Kanaidinga, African tulip, Dharmara, Simul, Bohal, Dhug-gach, Bhadi, Chagol-nadi, Bauhinia, Batna, gutgutia, Bailam, pistal pamp, Sonalu, Nodusa, Minjiri, Krishnachura, Holud krishnachura, Asok, Tetul, Jhau, Raktan Arjun, Bohera, Kathbadam, Horitaki, Araucaria, Pine, Bashpata, Cycas, Chalfa, Hargeza, Boilum, Garjan, Gamar, Shall, jackfruit, mango, Telsur, Gab, Bilati-gab, Tamal, Jalpai, Bish-gach, Sinduri, Kanjal, Keonra, Gelonium, Putranjiva, bhura, Kalibatna, Punnal, Cowa, Nageshar, Akorma, Pichla-menda, Tejapata, Hijal, Naglingom, Bandarola, Jarul, Sidha, Bot (banyan) , Champa, Pitraj, Nim, Toon, Chierashi, Lambu, Mehgini, Rakta-kambal, Epil-lpil, Babul, Akash-moni, Mangium, Chakua, Kalo-koroi, Tetua-koroi, Motor-koroi, Raj-koroi, Rain-tree, Loha-kat Chapalish, Dewa, Rubber, benjamina, Bat, Dumur, Jugga-dumur, Ashath, Pakur, Jogya-dumur, Sajina, Eucalyptus, Cork-plant, Kalo-jam, Khudi-jam, Dhaki-jam, Jamrul, Peyara, Supari, Tal, fish tail palm, Narikel, Khejur, Palash, Padak, Bakful, Karamja, Mander, Sisso, Bara-nil, Boro, Kadam, Holdu, Bhui-kadam, Bel, wood apple(Kod-bal), bazna, Litchi, Ritha, Bara-hariana, Kusum, Joyna, Sofeda, Mohua, Bakul, Udal, Buddhu-narikel, Assar, Janglibadam, Agar, Assar, dhamon, Sheora, Jibon, Gamar, Teak, Nishinda, Arsol. There are many types of bamboo such as Jai bansh, Muli bansh and various canes like Jali bet, Golla bet. Besides, there are many types' climbers and vines, herbs and shrubs.

Fauna: The flagship species of the leaf monkey, Other important wild life include Jungle Cast , Large civet, Small civet, Assamese macaque, Common mongoose, Pangolin, Wild dog, Barking deer, Flying squirrel, Jackal, Hispid hear and Wild boar etc.

Different birds Maina, dove, parrot, Shalik, Bulbuli, pancoudi (cvb†KŠwo, WvûK) , Dahuk (WvûK), wild Cock (eb †gviM), different types of butterflies live in the eco- park.

Different kind of snakes also found in the Sitakunda Botanical Garden and Eco-park.

Table 1: Sitakunda Eco-Park:

SL #	Particulars	Area in hectare	Year of Establishment
01	Sitakunda Botanical Garden and Eco-park	807.75 hac.	2001

2.2. Resources of Sitakunda Botanical Garden and Eco-Park:

Sitakunda Botanical garden and Eco-Park activities have started its activities since 2001. It is situated at Sitakunda, Chittagong, 35 kilometers north from the Chittagong city and by the site of Dhaka-Chittagong Railway and great highway. The area of the garden is 1996 acres or about 807.75 hectares. It looks almost rectangular in size, north-south elongated. The garden consists hundreds of hill, Range of height from 25 meters to 400 meters of the hills. All the hills are covered with evergreen plants. The highest peak rises up to 400 meters, which made a sacred place called Chandranth Mondir (Temple). It is very renowned place, every year people from home and abroad (India) come here to complete their prayers.

Two waterfalls Sahasradhara and Suptadhara found. There are three rose gardens. One of these gardens is situated at main gate of eco-park and other two are inside the park. These gardens comprise with hybrid variety of roses. Rose gardens bloom profusely, especially in winter season; it is also an attractive place.

There are three nurseries in the garden, here produces indigenous and exotic seedlings and propagating rare plants and endangered species.

For visitors there are picnic spots, visitor sheds, observation tower/ sheds, public toilet etc. in the garden.

Objectives of the garden: Botanical garden and Eco-Park was established for the following objectives;

- To develop a rich gene pool area and conservation.
- To develop bamboo garden, cane garden, shrub garden and medicinal plants garden with indigenous and exotic plant species and proper management system.
- To develop a quiet for rich biodiversity with plants, animals and birds.
- To develop gardens with rare precious and endangered species and their multiplication system.
- To develop infra-structure for visitors that is environmentally suitable.
- To develop facilities for students, teachers and researchers that they can study/work easily in the garden about plants, animals, birds and on environment.



Sitakunda Eco -Park

2.3. The Landscape Zone of Sitakunda Botanical Garden and Eco-Park:

The Landscape Zone consists of 33 villages of (i) Sitakunda Paurashava, Barabkunda Union & Muradpur Union.

Table 2: Landscape Zone Sitakunda Eco-Park:

SL #	Village	No. of House hold	Union/ Paurashava	Distance from Sitakunda Eco-Park (km)	Dependency on Sitakunda Eco-Park
A. Sitakunda Paurashava, Sitakunda Upazila of Chittagong District					
01	Madhya Yakubnagar	365	Sitakunda Paurashava	5.00	Low
02	Nunachare	280	Sitakunda Paurashava	4.50	Low
03	Uttar Yakubnagar	360	Sitakunda Paurashava	5.00	Low
04	Uttar Mohadebpur	258	Sitakunda Paurashava	1.00	High
05	Sobanbagh	320	Sitakunda Paurashava	3.00	Medium
06	Sheikh Para	325	Sitakunda Paurashava	4.25	Medium
07	Nij Taluk Para	210	Sitakunda Paurashava	3.00	Medium
08	Bhuiyan Para	105	Sitakunda Paurashava	3.25	Medium
09	Moulvi Para	210	Sitakunda Paurashava	3.00	High
10	Chowdhury Para	220	Sitakunda Paurashava	3.50	High
11	Nalua Para	210	Sitakunda Paurashava	0.50	High
12	Mohadebpur	105	Sitakunda Paurashava	0.05	Low
13	Edilpur	320	Sitakunda Paurashava	3.00	Low
14	Ponthishela	240	Sitakunda Paurashava	3.25	Low
15	Shibpur	245	Sitakunda Paurashava	4.00	Low
B. Barabkunda Union, Sitakunda Upazila of Chittagong District					
16	Hatilota	428	Barabkunda Union	2.50	Medium
17	Ali Chowdhury Para	150	Barabkunda Union	2.00	Medium
18	Uttar Mahmudabad	660	Barabkunda Union	3.00	Medium
19	Vhiarekhil	128	Barabkunda Union	2.00	High
20	Madaritola	560	Barabkunda Union	3.50	High
21	Draliapara	336	Barabkunda Union	6.00	Low
22	Madhya Mahmudabad	315	Barabkunda Union	3.75	High
23	Anontapur	165	Barabkunda Union	3.75	High
24	Rongipara	211	Barabkunda Union	4.00	Medium
25	Oli Nagar	205	Barabkunda Union	6.00	Low
26	Das Para	79	Barabkunda Union	5.50	Medium
27	Miazipara & Gala Para	102	Barabkunda Union	5.10	Medium
28	Teli Para	59	Barabkunda Union	4.90	Low
29	Som Para	70	Barabkunda Union	4.90	Low
30	Notun Para	320	Barabkunda Union	5.00	Low
31	Hashem Nagar	213	Barabkunda Union	4.50	High
32	Musa Kloni	135	Barabkunda Union	4.75	Low
33	Vulie Para & Chowdhury Para	430	Barabkunda Union	6.00	Low
34	Juder Para	189	Barabkunda Union	6.00	Low
35	Nodaliala	759	Barabkunda Union	5.00	Medium
C. Muradpur Union, Sitakunda Upazila of Chittagong District					
36	Boshtrat Nagar	345	Muradpur Union	6.00	Low

37	Uttar Bhater Khil	495	Muradpur Union	6.00	Low
38	Golabaria	310	Muradpur Union	5.75	Low
39	Bhater Khil	397	Muradpur Union	6.00	Medium
40	Guliakhali	329	Muradpur Union	6.00	Low
41	Paschim Muradpur	295	Muradpur Union	5.00	Low
42	Muradpur	325	Muradpur Union	4.00	Low
43	Dakshin Muradpur	310	Muradpur Union	4.00	Low
44	Goptakhali	355	Muradpur Union	7.00	Low
45	Hasnabad	319	Muradpur Union	6.00	Low
46	Dakshin Rahamot Nagar	370	Muradpur Union	4.00	Low
47	Dali Para	340	Muradpur Union	2.00	High
48	Purba Muradpur	355	Muradpur Union	3.50	High
49	Dhogi Para	395	Muradpur Union	3.10	High
50	Peshker Para	385	Muradpur Union	3.00	Medium

2.4.: Religion and Religious Status:

The study did not attempt to identify the population under religious category but identified the worship places number which is an indicator of estimating the religious status in the area. Under Sitakunda Upazilla , there are 99 mosques, 44 temples and 4 Pagoda in 02 unions & one Paurashava.

2.5: Health and Sanitation:

The UP provided information that shows the sanitation coverage is quite good. Available data shows minimum and maximum sanitation coverage as 89% & 100% with an average of 93% per UP.

There are some health care service facilities in each union in the form of “Family Health Care Center” and “Community Clinic”. There is a hospital at Sitakunda Paurashava. People have to mobilize to take treatment facilities from Upazila, district and divisional level . Majority people move from Upazilla to district level in Chittagong.

Tabale-3: Status of Sanitation and health services

PA Site	Upazila	Union	Sanitary latrine coverage	Family health care center	Community clinic	Animal treatment center
Sitakunda Eco Park	Sitakunda	Sitakunda Paurashava	100%	05	04	01
		Muradpur	90%	02	00	
		Barabkunda	89%	02	09	01

2.6: Drinking Water Availability

Information from 02 unions & one Paurashava shows that there are about 3,172 tube wells.

Tabale-4: Drinking water sources and status

PA Site	Upazila	Union	Total tube well #	Tube well functional	Tube well disorder	Total no. of drinking water pond	Govt. pond #	Private pond #
Sitakunda Eco Park	Sitakunda	Sitakunda Paurashava	420				08	
		Muradpur	1742			105	01	104
		Barabkunda	1010	958	52	241	01	240

2.7: Transport and Communication

The transport and communication services are not bad in the Sitakunda Eco Park area. Information from 02 unions shows that there are 33.5 km earthen road, 40 km brick-lining and 32.2 km tarmac road only.

2.8: Electricity and Power Services:

The status of electricity and power services is an indicator of overall development situation of an area and the prospectus of development. The electricity services are medium in the whole Eco Park area. The electricity and solar availability are there in all village level.

Tabale-5: Electricity and solar availability status

PA Site	Upazila	Union	Electricity coverage (%)
Sitakunda Eco Park	Sitakunda	Sitakunda Paurashava	100%
		Muradpur	80%
		Barabkunda	85%

3. Methodology

The overall purpose of the PRA/RRA was to come up with a comprehensive situational analysis of the Sitakunda Eco-Park with a view to understand (i) the rich gene pool area and conservation of indigenous, medicinal, exotic plant species and proper management system (ii) underlying driving force for the forest degradation (iii) Cause and effect of behavior and dependency on forest of local people (iv) Scope for ecotourism development (v) Opportunities and its improvement. PRA/RRA is designed to identify the stakeholder groups and to get a sense of range of issues that the project needs to address and be better informed during subsequent appraisals and surveys.

The total work has been done through FGDs (Focus group discussion), Mapping, Key Informant (KI) Interview, Interview, HH (household) survey and secondary information from Union Parishad (UP) , Eco-Park by following a set of questionnaires.

3.1. Study Period:

Preparatory work for primary and secondary data collection including focus group discussions and social mapping of some the selected spots of landscape zone of Sitakunda Eco-Park of the selected villages were conducted in December 2010. Formal PRA/RRA field works were conducted during December 2010 to April 2011. The detail time schedule of field studies are shown in Table 3

Table 6: List of selected spots and schedule for conducting primary data collection and PRA/RRA field work:

Date	Name of RRA Spots	Uninon; Upazila	Remarks
23-12-2010	South Mahadevpur	Sitakunda Paurashava	Formal PRA
27-12-2010	Nalua Para	Sitakunda Paurashava	Formal PRA
27-12-2010	Mondaritola	Barabkunda Union	Formal PRA
28-12-2010	Ukill Para	Muradpur Union	Formal PRA
29-12-2010	Vhaierkhil	Barabkunda Union	Formal PRA
01-01-2011	North Mahamudabad	Barabkunda Union	Formal PRA
22-01-2011	Anowara Jet	Barabkunda Union	Formal PRA
29-01-2011	Suklarhat	Barabkunda Union	Formal PRA
05-02-2011	Nodalia	Barabkunda Union	Formal PRA
06-02-2011	Anontopur (Brick Field)	Barabkunda Union	Formal PRA

3.2. Setting PRA/RRA Issues and Questions: as attached with the report

3.3. Formation of PRA/RRA Field Teams: (Discussed during PRA orientation)

Details of the PRA/RRA field team shown in Table 7.

Table 7: Team conduct PRA/RRA in the Field:

SL #	Name	Designation	Remarks
01	Mr. Shariful Alam	Site Facilitator	IPAC-CODEC
03	Ibrahim Khalilullah	Field Organizer	IPAC-CODEC
04	Farjana Akter	Social Worker	Local Resource Person
05	Basher Totul	Social Worker	Local Resource Person
06	Nurjahan Begum	Social Worker	Local Resource Person

3.4. Selection of PRA/RRA Spots:

On the basis of the information received from FD local officials and staff, field information received by the IPAC field team members. Various sample, locations were selected for visit by the team for information collection. The selection was based on selection criteria. The selection process was completed during the planning meeting held at Sitakunda Site Office. The selection process was discussed with Sitakunda Botanical Garden and Eco-Park Forest officers.

3.5. Holding Training/ Orientation:

A day-long planning and orientation for PRA/RRA team members was organized at CODEC Head Office on 20th December 2010. The similar planning and orientation was organized at Sitakunda IPAC project office.

3.6. Selecting PRA/RRA Methods and Tools:

Participatory tools such as transit work, trend analysis, Focus group discussion, social mapping, Venn diagram, seasonal calendar, ranking and scoring, resource mapping are used to collect information from villages. Moreover, data and information also collected through household Interview, Key Informant (KI) Interview, Group Interview, Observation and secondary sources such as Union Perished, Upazilla office and etc.

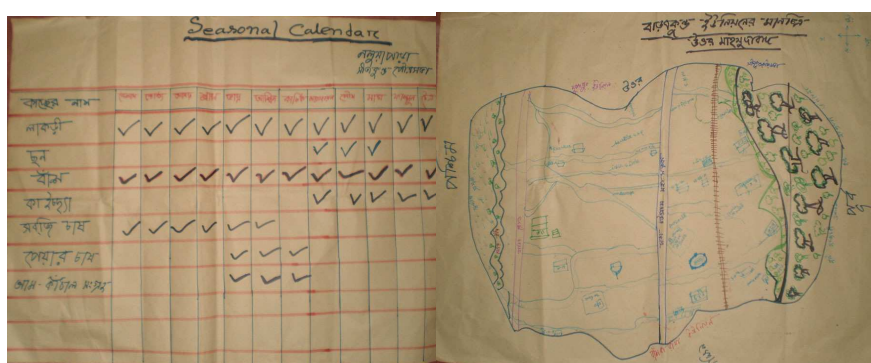
3.6.1. Metrics Covered under various PRA/RRA Tools:

i. Venn Diagramming:

Venn diagram showed relation between local power structure, local community organizations, local institutions and agencies, local conflicts and conflict resolution, family decision making, mobility, women & men, local NGO/CBOs.

ii. Seasonal Calendar:

The seasonal Calendar shows , flows of timber, Bamboo, Firewood and other non-timber forest product (NTFP) collection, workload, accessibility to forest, transportation problem, operation, forest petrol, agricultural activities, collection of building materials, hunting, vegetable collection, damages by natural calamities.



Seasonal Calendar

iii. Trend Analysis:

Forest cover, forest thickness, trees, herbs and shrubs, forest use, unemployment, local solvency, 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, wildlife, hunting, illegal felling, fuel wood collection, fish/crab trapping collection, medicinal plants, other NTFP livestock, agricultural activities.

iv. Ranking and Scoring:

Local problem ranking, wealth ranking and livelihood analysis

v. Transect Walk:

Soil, vegetation, land use, crops, wildlife, human activities, etc.

vi. Resource Mapping:

Land use cover, resource zones, resource exploitation zones, animal distribution, settlements.

3.7. Field Implementation Strategies for the Selected Tools:

3.7.1. Household Interview:

Household interviews were conducted by randomly selected household-owners from the place/gathering where formal Focus Group Discussions were organized. Household interviews were conducted at the specific houses of the respective household interviewees. Specific questionnaires were used to conduct the interviews.

3.7.2. Key Informant (KI) Interview:

Secondary information was collected from Key Informants (KI) including Union Parishad Chairman, Member, Local Elites, and Elderly Persons. KI interviews were conducted by making prior appointments as well as at spot visits. The interviews were conducted at the Offices/ Houses of the KI using a checklist of questionnaires developed for the purpose.



Key Informant (KI)

3.7.3. Group Interview:

The purpose of the planned group interviews was to collect some information on the locality and local situation based on the consensus of the local people. Group interviews were conducted in different places like tea stalls and other places where local people gather spontaneously. Mapping, seasonality's, ranking and scoring exercise, whenever possible were done in group interviews. This is basically unstructured interview and a checklist of issues was used as a basis for questions.

3.7.4. Focus Group Discussion:

Focus Group Discussions were conducted at public places especially on open spaces in front of mosques, schools; adjacent of tea-stalls or dwelling houses where local people usually gather. Different information under different indicators like Resource Map, Wealth Rank, Mobility Map, Seasonal Calendar, Trend Analysis, etc., were collected using previously developed checklist as well as semi structured interviews.

3.7.5. Direct Observation:

The team while walking through the area, talked to the local people, discussed many things and made observation on the resources, people's behavior and their activities, etc. It also helped in triangulation of collected information and also helped in generation new questions for interview or discussions.

3.7.6: Data Sources:

The adopted methodology was collection of Union Parishad based information from the existing information at UP level and sharing with one or more personnel (chairman, member, secretary, and community people).

3.7.7. Secondary Information Collection:

Some demographic data were collected from respective local union parishad sources. Relevant reports and documents were consulted and some information was used whenever necessary.

3.7.8. PRA/RRA Fieldwork Review:

After each day fieldwork, the team sat together at night for team interaction and triangulation. The activities performed during the session included (i) reviewed information gathered that day and made summary of the information, triangulated whenever necessary; (ii) planned the next day's activities; and (iii) make methodological review.

Table -8 Summary of Data Collection formats.

Sl. #	Format Name	Issues covered
1	General information of Sitakunda Eco Park areas	90 items of information population, education, health, drinking water, Resources, AIG opportunities etc.
2	Village level information	Includes village names, distance from Eco Park, HH number, Population etc.
3	Institutional Information	Information on Govt., private, NGOs and project, club and societies information with their services.

4. Outcomes

4.1. Forest Land/Resource Use Cover:

The Sitakunda hill forest is a source of livelihoods of thousands of people lining next to the Sitakunda hill forest including those living in adjoining and distant places. From the time immemorial, these people are involved in harvesting/collecting various resources from for their livelihoods. Major resources that are officially allowed to collect/ harvest include varieties of NTFP.

4.2. Forest Land/Resource Use Dynamics:

Table 09 shows the changes in some key socio-economic factors and local activities. Compared to 1970, there has been an increase in population; the expenditure of local people has increased with corresponding decline in solvency. Income of local people in terms of taka has increased, but at the same time livelihood expenditures have increased. Although, literacy rate has increased, unemployment rates have also increased. During this time, use of the forest for both as HH needs and income has increased. However, local food scarcity has reduced while opportunities for alternate income have increased.

Table: 9. Trend Analysis (Forest quality and resource use matrix):

Issue	Pre-1971	15 Years Ago	Present	Cause of Change
Population	0	000	00000	Population growth,
Solvency	00	000	0000	Livelihood expenditure increased and also income
Livelihood expenditure	00	000	00000	Increased price of goods, use of increased commodity
Literacy	0	000	0000	Awareness raising, educational opportunity increased
Unemployment	0	00	00000	Less cultivated land than pre- 1971, case in forest village, population growth, resource depletion
Use of forest for income	00	0000	000	Poverty, unemployment
Use of forest for HH needs	00	000	0000	Poverty, Population growth, easy access and no alternate source
Transportation and mobility	00	000	0000	Development of communication and transport road
Homestead plantation	0	00	0000	For income generation, HHs consumption, awareness
Food scarcity	00000	000	0	Increased employment opportunity and agricultural development
Credit and IGA	-	-	00	Increased GO, NGOs credit and IGA programs
Occupation	0	00	000	Increment of IGA and small business, day labors in forest

4.3. Stakeholders Assessment:

Information collected from stakeholders and summarized as well that showed in the Table 10 below. A total of 17 categories of stakeholders have been identified, of them, 71% primary stakeholders-extract resources from the Sitakunda Eco-Park, 29% are secondary stakeholders- indirectly involved with use of forest resources and others. Some of the stakeholders are described in the following sections.

Table 10: Stakeholders of Sitakunda Eco-Park:
Tertiary Stakeholders/ Institutions

Tertiary Stakeholders/ Institutions			
1.	Local Community Organization and NGOs	Work with the poor communities on their rights and entitlement	-Demand co-management and conservation of Sitakunda Eco-Park - Support poor communities,
2.	Chittagong Botanical Garden and Eco-park	Government FD institution	Rich gene pool area and conservation of rare precious & endangered species and their multiplication system develop facilities for students, teachers and researchers, Wildlife conservation, Eco-Park management & Development.
3.	IPAC Team	GOB Project	Conservation of forest, Co-management with stakeholders and GOB, Capacity building, development, AIGA support and Eco- tourism development.

4.3.1. Primary Stakeholders

About 14 different primary stakeholders, who directly extract different resources from the forest, have been identified. Of them; Fuel wood Collector, Illicit timber Feller, Bamboo collector , House Building Materials Collector , Jhum cultivator, Broom Stick Collector, Cane Collector, Vegetable Collector , Sungrass Collector, Agriculture farmer, Visitors, Fodder Collector, Medicinal plant collector, Fruit collector are as primary stakeholder.

4.3.2. Secondary Stakeholders

Total 5 different Secondary stakeholders such as Furniture shops Owner, Brickfield Owner, Fuel wood trader, Sawmill Owner & Timber trader are found in the survey.

4.3.3. Institutional/ Organizational Stakeholders

These institutional/ organizational stakeholders are NGOs, Jute Mills and PHP factory, Local Government and administrative structures including Forest Division. Local Community Organization (CBOs)/ NGOs/ Financial Institutions work with poor communities on their rights and entitlement. These organizations support to access poor communities in the social justice and rights, micro-credit support to increase income generating activities, enterprise development and skill development training. A large number of NGOs are found, majority of are involved in Micro credit programme. PRA field study shows that only a

few NGOs are providing education, environment, health, sanitation and social awareness services to the community people. List of NGOs are showed in Table 11 below which are providing services to the villages/ communities.

Table 11: Information of CBOs/ NGOs/ Financial Institutions along with their activities:

SL #	Name of CBOs/NGOs	Area of Work	Activities
01	CODEC	Sitakunda Upazilla	Institution building, Children Education, Adolescent livelihood and skill development training, Social awareness, Training programme, Health & sanitation, Micro-credit, Forest Co-Management, Disaster awareness, Advocacy
02	BRAC	Sitakunda Upazilla	Micro-credit, Education, Social awareness, Health & sanitation,
03	ASA	Sitakunda Upazilla	Micro-credit
04	Grameen Bank	Sitakunda Upazilla	Micro-credit
05	Sanirbare Bangladesh	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
06	PADDAKHEP	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
07	Jonoshaba Society	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit, Education,
08	Bhadhon	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit, Education,
09	YPSA	Sitakunda Upazilla	Education, Social awareness, Health & sanitation, Micro-credit
10	Protiva	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
11	SUS	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
12	VARAK	Sitakunda Upazilla	Social awareness, Health & sanitation
13	STEP	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
14	TMSS	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
15	CSS	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
16	PROSHIKA	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit
17	Buro Bangladesh	Sitakunda Paurashava and Barabkunda Union & Muradpur Union.	Micro-credit

4.4.1. Exploitation of Resources:

A total of 9 resources are exploited from Sitakunda hill forest by the community people. Exploitation of resources takes place round the year. Different resources are harvested during different period of times. Resource harvesting times/ periods of Sitakunda Eco-Park and others hill forest are provided in Table 12 below.

Table 12: Resource harvesting calendar of Sitakunda Eco-Park Forest:

Resources	Months											
	Baishak Apr/May	Jaistha May/Jun	Ashar Jun/Jul	Shrabon Jul/Aug	Badro Aug/Sep	Ashin Sep/Oct	Kartik Oct/Nov	Agrahan Nov/Dec	Poush Dec/Jan	Magh Jan/Feb	Falgun Feb/Mar	Chaitra Mar/Apr
Timber												
Fuel wood												
Bamboo												
House Building Materials												
Medicinal plants												
Leafy vegetables												
Jungle Fruits												
Wildlife												
Broomstick												

Resources from Sitakunda hill forest are collected both for household consumption as well as for commercial purposed. Cause-effect analysis for understanding underlying factors for Sitakunda hill forest resource extraction in Table 10 shows that local poverty, unemployment, physical location of others hill forest in Sitakunda, scarcity of resources in the locality drive the local people- particularly the poor to exploit the resources from Sitakunda hill forest.



Resource collection from Sitakunda Hill forests

Table 13: Causes and Effect ranking for understanding underlying factors for Sitakunda Eco-Park resource extraction:

SL #	Resources / Problems	Fuel wood	Other plant based NTFP collection	Timber wood collection	Bamboo	Sun grass
01	Poverty	*****	***	**	*****	***
02	Unemployment	*****	***	*	*****	***
03	Additional income needed	*****	**	***	*****	
04	Scarcity of resources in the locality	*****	*****	***	*****	
05	Household consumption	*****	***	**	***	***
06	Less/ No employment opportunity					
07	Involvement of influential persons & money lenders	*****	***	***	***	**
08	Few manpower of FD to control/ manage forest resources	***	***	***	***	

NOTE: 1 star (*) indicates relatively lowest abundance/ intensities, 5 stars (**) indicate relatively highest abundance/ intensities

Table 14: List of Brick Field owner in different villages/ communities adjacent of Sitakunda Eco-Park:

SL#	Brick field owner	Village	Union,	Upazila	Remarks
01	Nurjhan Group	Anonta pur	Barubkunda,	Sitakunda	

There is 1 (one) brickfield in the landscape village' Anonta Pur village of Sitakunda upazilla. The brickfields used Sitakunda hill forest wood, almost entire quantity as fuel for brick burning. Species used from others hill forest of Sitakunda eco- Park.

ii. Education:

Household interview shows that about 60% people are illiterate and 40% are literacy rate (According to the Upazilla education officer literacy rate 53% and enrollment rate of 6-10 years old children in primary school is about 87%) comprising 60% educated in primary school, 30% in high school and the rest 10% are educated in college and above. But PRA field study shows about 50% illiterate and 50% literate which is different from household interview findings.

iii. Occupation:

PRA/RRA study shows that 25% households are completely depend on Sitakunda hill forest resources

25% in collecting fuel, wood, Bamboo and other forest resources

40% households involve in agricultural activities.

15% households are involved in business,

15% households are involved Jute factory, PHP & others factory.

5% households are involved teaching, Govt. service and others.

4.5.2. Livelihood Analysis (income/ expenditure, poverty/ richness, credit, skills, etc):

i. Income source:

PRA study shows that 40% households main income source is agriculture that includes different varieties of crops specially seasonal vegetables, in non-timber forest products harvesting that includes fuel wood, fencing and thatching/building materials; 40% in agriculture; 25% in selling labor at industries, forest resource collection and handling; 15% in business; Majority of the households involved in agriculture, business, and some of in other different activities are well to do families. Households involved in NTFP collection, labor collection basically very poor, some are poor, and lead a very inhuman livelihoods round the year.

Household survey (Table 15) shows that 63% households remain insolvent with their income and expenditure where 25% remain permanently insolvent and 63% remain temporary insolvent. 9% households found solvent with their monthly income and expenditure where 03% can save for future development.

Table 15: HH solvency status:

SL#	Particulars	Monthly Income in Taka				Remarks %
		< 2,500	2,500- 4,000	4,000- 6,000	>6,000	
01	Permanent insolvent	15 HHs (Average 3.5 members/ HH)	-	-	-	25%
02	Temporary insolvent	-	38 (Average 5 members/ HH)	-	-	63%
03	Solvent	-	-	5 (Average 5 members/ HH)	-	9%
04	Have savings	-	-	-	2 (Average 5 members/ HH)	3%
Total		15 HHs	38 HHs	5 HHs	2 HHs	100%

iii. Land ownership:

iv. Credit:

PRA studies shows that about 55% households took credit from different NGOs. This rate varied from different organizations. The major credit providing NGOs in the villages are CODEC, BRAC, ASA, Grameen Bank, Sanirbare Bangladesh, PADDAKHEP, Jonoshaba Society , Bhadhon, YPSA, Protiva, SUS, STEP, TMSS, CSS, PROSHIKA & Buro -Bangladesh.

4.12. Opportunities:

Ecotourism development: A large number of people visit around the year at Sitakunda Botanical Garden and Eco-Park. The development of infrastructures will attract more visitors and ecotourism awareness activities will plan accordingly. Local administration initiatives and security of tourist will help the process.

Development of communication materials: Different communication materials (audio and visual) such as posters, booklets, postcards, view cards, broacher, bill board, documentaries through CD / DVE will help the process.

Eco-cottage and other living facilities: Eco-cottage may establish in identified spots with outside forest. A large number of visitors come from home and abroad to attend prayer ceremony at nearby Sitakunda Eco –Park. Therefore, living facilities may be one of the opportunities to increase income/livelihood of the community.

Handicraft of forest resource: Bamboo made product, cane product (Shital Pati, basket, mat), and other forest materials can be use to made attractive handicraft. These products are environment friendly and attract tourist and this kind of activities will enhance income of forest dwellers.

Tourist shop: Tourist shop may be develop and organized by local people. Ethnic / traditional products displayed and attract tourist as well.

Eco-guide: A number of Eco-guide groups may be trained with the involvement of ethnic, local people and students.

Positive responsiveness of the local people: The general people showed interest to the project. This positive attitude of local people can be utilized to ensure their participation in the project and thus eco-tourism facilities will establish to enhance income opportunities and local community will be more involve to conserve biodiversity and forest resources.

This positive attitude of local people can be utilized to ensure their participation in the project and thus will help in establishing co-management.

4.12.1. Alternative income generating activities (AIGA) at local level:

AIGA opportunities of Sitakunda Botanical Garden and Eco-Park and others hill forest Landscape Zone are varied. Sitakunda is historically renowned place and variety vegetables are grown in this area. Moreover, it's an industrial area and many people live here. So, there is scope to take diverse AIGA. A total of ten AIGAs identified by the people , these are i) Vegetable production ii) Agriculture iii) Small business iv) Horticulture / tree nursery v). Handicraft VI) Jhum Cultivation vii) eco- tourism viii) Tourist shop and ix) Eco-guide x) Poultry xi) Fish culture etc. are shown the in Table 16 below.

Table 16: Village-wise List of AIGAs :

SL #	Name of Village	Possible AIGA	Remarks
A. Sitakunda Paurashava of Sitakunda Upazila, Chittagong			
1	Madhya Yakubnagar	a. Local variety poultry, b. Home state gardening ,c. Small agriculture d. Small business,	
2	Nunachare	a. Local variety poultry, b. Home state gardening, c. Small agriculture d. Small business	
3	Uttar Yakubnagar	a. Local variety poultry, Home state garden ,d. Small agriculture e. Small business	
4	Uttar Mohadebpur	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation g, Tourist shop	
5	Sobanbagh	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
6	Sheikh Para	a. Local variety poultry, Home state garden ,d. Small agriculture e. Small business	
7	Nij Taluk Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
8	Bhuiyan Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
9	Moulvi Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
10	Chowdhury Para	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Pond Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
11	Nalua Para	a Horticulture/tree nursery, b Local variety poultry, c .Cow & Goat rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation, g. Tourist shop	
12	Mohadebpur	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation, g. Tourist shop	
13	Edilpur	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
14	Ponthishela	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
15	Shibpur	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
B. Barabkunda Union of Sitakunda Upazila, Chittagong			
16	Hatilota	a. Jute factory & others factory, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
17	Ali Chowdhury Para	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
18	Uttar Mahmudabad	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
19	Vhiarekhil	a Horticulture/tree nursery, b Local variety poultry, c .Cow	

		rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation, g. Tourist shop.	
20	Madaritola	a Horticulture/tree nursery, b Local variety poultry, c Jute factory & others factory., d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation g.. Cow rearing.	
21	Draliapara	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
22	Madhya Mahmudabad	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation g. Jute factory & others factory.	
23	Anontapur	a. Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation g. Tourist shop.	
24	Rongipara	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
25	Oli Nagar	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
26	Das Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
27	Miazipara & Gala Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
28	Teli Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
29	Som Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
30	Notun Para	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
31	Hashem Nagar	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
32	Musa Kloni	a. Local variety poultry, b, Home state garden ,c. Small agriculture d. Small business e. Jute factory & others factory.	
33	Vulie Para & Chowdhury Para	a. Local variety poultry, Home state garden ,d. Small agriculture e. Small business f. Handicraft	
34	Juder Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
35	Nodalia	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation g. Jute factory & others factory.	
E. Muradpur Union of Sitakunda Upazila, Chittagong			
36	Boshrat Nagar	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
37	Uttar Bhater Khil	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
38	Golabaria	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
39	Bhater Khil	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	

40	Guliakhali	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
41	Paschim Muradpur	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business f. Handicraft	
42	Muradpur	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
43	Dakshin Muradpur	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
44	Goptakhali	a. Local variety poultry, Home state garden ,d. Small agriculture e. Small business	
45	Hasnabad	a. Local variety poultry, Home state garden ,d. Small agriculture e. Small business	
46	Dakshin Rahamot Nagar	a. Local variety poultry, b, Home state gardening , c. Small agriculture d. Small business e, Jute factory & others factory.	
47	Dali Para	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
48	Purba Muradpur	a Horticulture/tree nursery, b Local variety poultry, c .Cow rearing, d. Fish culture, e. Vegetable gardening f. Zinger and Turmeric Cultivation	
49	Dhogi Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	
50	Peshker Para	a. Local variety poultry, Home state gardening ,d. Small agriculture e. Small business	

5. Present Issues and Challenges for IPAC

5.1. Present Issues of Concern

i. Environmental situation:

The inhabitants dependent on Sitakunda hill forest resources, agriculture in forest and nearby forest, and others. The environmental conditions of the area are polluted day by day by the expansion of ship yard industries and others waste product of jute mills, PHP and others factories. Few day ago a large area's coconut trees burn automatically by unknown reason. It needs to examine by the professional researchers or student of university.

ii. Indiscriminate resource extraction:

A proper management of forest resources applicable as fuel-wood collection, illegal felling of trees and collection of sand from hills caused by the local community and forest resources are declining rapidly. Regeneration is required for bringing back wilderness in forest and it should be major option for the management of the forest resource. The resource harvesters harvest resources at its highest level without considering its conservation.

iii. Management situation:

Management of Sitakunda eco –park and hill forest needs special attention to grow diversify plants and species. Need to regenerate indigenous species and plants to attract people and researchers as it is very close to the Chittagong city.

iv. Local poverty and unemployment:

Local poverty and unemployment have been identified as the driving forces for the illegal forestland use by the local people. The rapid growth of population and density of people in this area should be addressed to achieve success in the implementation of the project and special attention would give to improve the situation.

V: Lack of Coordination on Development Issues:

There are many NGOs and projects working in this area, Sometimes it found that there are lack between coordination with GOB and others organization.

5.2 Challenges

i. Reduction in dependency on Sitakunda hill forest Resources for dependent people:

- Now a days the literacy situation has been change due to the government “Education for All” programme and scope to work in different factories. However, some people are illiterate and it is difficult to mobilize people to conserve forest and climate change. Traditionally people are depended in the forest resources and it is difficult to influence people to reduce dependency in forest. Moreover, people are fully depending on fire wood from the nearby forest.

ii. Sustainable management of Sitakunda Eco-Park:

- Awareness raising activities should be carried out on a priority basis in the area to make the people understand how they would get benefit from this project .
- Develop rich biodiversity with plants, animals and birds and evolve local community .
- Local people and local Organization involved with IPAC project.
- Developing and strengthening linkage among local club or federations and local government;
- Enforcing Forest Acts and rules;
- Capacity building in forest management and community development required for the local FD and related GoB staffs;
- Steps for improving the moral of local staff and make them dedicated to biodiversity conservation.

iii. Reduction in local poverty and unemployment:

The problem is huge in magnitude and comprehensive national policy is needed to address the issue. Unemployment is another severe problem that puts pressure on over exploitation of forest resources. Among the villagers, about 15%-20% people are unemployed. In average, about 15% local surrounding people are unemployed. However, there is a strong seasonal trend in unemployment level in the area. Unemployment is a major concern/problem in the area.

iv. Reducing vulnerability to natural calamities:

As most of the areas adjoining Sitakunda hill forest are not suitable for permanent human settlement and subject to frequent destruction by natural calamities, comprehensive national program is required to address the issue. However, some settler lived and some of them move due to the shortage of drinking water and wild life.

v. Addressing the conflict between adjacent people and FD:

Sitakunda hill forest is naturally well-off with varieties of species, flora and fauna. As FD is responsible to conserve forest resources and adjacent people such as resource collector, user and business man are mostly consumer, conflicts arise between the two parties. It is important to address the issue by involving the all concerned in the management of Sitakunda Eco Park and hill forest resources somehow on benefit sharing basis with local community.

6.0. Suggestions and Recommendations:

6.1. There is an urgent need to strengthen the capacity of FD for effective management of Sitakunda Eco-Park forest resources. Some of the aspects are-

- Adequate staffs for the local FD offices.
- Developing and strengthening linkage among local club or federations and local government;
- Enforcing Forest Acts and rules;
- Provision for providing incentives to local staff to make the job lucrative
- Provision for strong monitoring and supervision of activities
- Illegal felling should be stopped by any means to conserve the forest and biodiversity.

6.2. Awareness raising activities should be carried out on a priority basis in the area to make the people understand how they would get benefit from this project. The local community people are not much aware about the Eco Park. Many people don't have idea on Eco Park. Some awareness activities can consider the following issue:

- Eco Park: definition, purpose, authority etc.
- Eco Park Norms.
- Eco Park: description, delineation etc

- Display board on Biodiversity and its importance.
- Its importance and conservation.
- Natural resource importance and conservation.
- Climate change awareness.
- Flip Chart regarding Eco-Park forest conservation

6.3. Rehabilitation of poor vulnerable people who are fully dependent on Sitakunda hill forest resources.

6.4. Provision for habitat restoration through forest regeneration ensuring appropriate protection need to be executed.

6.5. Local elite's producers need to be brought on board with the concept of forest protection and sustainable natural resources management.

6.6: AIG support:

Some AIG support can be considered for implementations which are prominent and effective through the formation of Village Conservation Forum(VCF).

6.7 Capacity Building:

Need to develop the capacity of leader to form VCF, Sustainability of VCF. Linkage building with Eco-Park and surroundings community. Strengthen the capacity of VCF members to urge with local government and others institution.

6.8. Linkage with local Jute factory & others factory for services.

6.9. Strong coordination efforts need among all concerned agencies (development/ administration/ law enforcement/ civil society) for conservation of Sitakunda Eco-Park and others hill forest of sitakunda.

6.10. Fire management system development in Sitakunda Botanical Garden and Eco-Park as some people still fire the hill and not aware regarding the burning of forest resources.

Annexure-1

Sitakunda Upazilla Map



FCD Meeting



Annex-3

Checklist of questions for FGD

Stakeholder Assessment

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

Resources and resource status

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

Power structure and local conflict

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

Resource exploitation

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

Demographic profile

20. What are major occupations of the people of the locality? Please rank them.
21. Are there many illiterate people in the locality? Do many people go to High school, college, and universities? Please rank them and indicate on the format

22. Do you think that the occupations of people in the locality have changed over past (30-50 years)? Please indicate the shift in occupation local people over time? Format, in which occupation the shifting have occurred (Trend analysis).

Socio-economic activities/livelihood strategies

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

Gender issues

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

Others

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

Annex- 4

Checklist of questions for Key Informant (KI) interview

Stakeholders Assessment

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

Power structure and local conflict

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

Resources and resource status

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

Resource exploitation and dependency on forest

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

Demographic profile

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

Socio-economic activities/livelihood strategies

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

Legal aspects

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

Gender issues

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

Others:

42. What are the major threats to the forest habitat and its resources

What would be major challenges for the conservation of biodiversity and restoration of its habitat?

Annex- 5

Checklist of questions for HH interview

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

Stakeholders

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

Resources and resource status

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

Resource exploitation and dependency on forest

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

Power structure and local conflict

17. Who are the more influential people in your locality? Tell who are more and who are less influential among them
18. What are the sources of conflict among local people
19. Whom do you go for conflict resolution
20. How the local conflicts are resolved
21. Have you or your neighbors any conflict with forest department? If yes, what are those?

Demographic profile

22. What is your primary and secondary occupation?
23. How many people in your HH are educated upto School, how many in the colleges and above and how many are illiterate.

Socio-economic activities/livelihood strategies

24. What is your HH primary and secondary source of income
25. Do you have land of your own (home stead/agricultural)?
26. Is your HH income adequate to meet your family expenditure or you having surplus?
27. Have many people in the locality no work?
28. Have you work to do in all seasons? In which season/seasons people of the locality have little/no work
29. What do you do when you have no work opportunities locally?
30. Have you taken loan from, bank NGO or other organizations? Was it easy to get the loan
31. What are the different organizations, which operate credit in the locality?
32. Have you any skill to do a particular work but you don't do? Why don't you do it?

Resource regeneration practices

33. Are there many plant nurseries in the locality?

Legal aspects

34. Can anybody can go to the forest and collect any thing?
35. Do you know that there is tree poaching in the forest? If yes, from where they come (villages)?

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