

## CHAPTER FIVE PARTICIPATORY RESEARCH APPRAISALS (PRA) AND PARTICIPATORY RESEARCH OBSERVATION (PRO)

### **PRA with the Fishermen, Farmers and Other People of Kuakata**

Participatory Research Appraisals (PRAs) were conducted with the fishermen, farmers and people (of other occupations) in *Adarsha Village (Gram)* and Panjupara Village of Kuakata. The focus group of the PRAs was the fishermen community. The main aim of the PRA was to develop participatory development action plans for sustenance of the fishermen communities while ensuring their active participation. Members of varying age, sex, education, income, class, religion and activity pattern participated in these PRAs. They openly discussed their present socio-economic conditions and problems (ranking their priority), assessed their present and future needs (considered their limitations), explored their skills (inherent and potential), and experiences. They pointed out the ways to resolve their problems for their socio-economic development and overall improvement.

### **5.1 PRA With the People of *Adarsha Village (Gram)***

A detail PRA was conducted with the fishermen community of *Adarsha village (Gram)*, Kuakata. The PRA results are discussed below.

#### **5.1.1 Location and Area**

*Adarsha Village (Gram)* of Kuakata was established in June 2000 on about 4 acres of government owned (*khash*) land. The Bay of Bengal is on the south, metalled (pucca) road is on the east, Bastuhara Village is on the west and the embankment is on the north of this village. There is a 70/75-ft wide burrow pit just along the southern side of the embankment and northern side of the *Adarsha village (Gram)*.

#### **5.1.2 Population and Household Characteristics**

##### **Age-Sex, Religion, Occupation and Education**

The population of *Adarsha village (Gram)* is about 400. There are 50 families in the village. About 60% of the population of the village are below 14 years of age and the rest are above 14 years. All the people of the village are Muslim by religion. About 95% people of this village are involved in fishing, fry collection and fishery related business. They fish and collect fry in the sea.



**Participants:** Mosammat Khadeja, Hanufa Khatun, Minara Begum, Helena, Sahanaj Parvin, Saira Begum, Rokeya Begum, Majeda Khatun, Sarbanu Begum.

##### **Size of Land Holding**

Before settling in *Adarsha village (Gram)* all the settlers were landless. They were drawn from haphazard and temporary settlements of Kuakata. Altogether 3 acres of land was allotted among these 50 families. Each family got only 0.06 acre

(6 decimal) of land for constructing a small house. Each house consists of a living room, a kitchen and a small toilet. There is not enough space for vegetable production, gardening and poultry rearing in the homestead.

### 5.1.3 Daily Activity Pattern

The high tide and low tide of the sea rotate every six hours a day. The fishermen community carries out their fishing and fry collecting activities on the basis of the tide period. It is generally found that they spend about 12 hours (6 hours by day and 6 hours at night) per day in fishing or fry collecting in the sea. They collect fry during low tide and go for fishing during high tide.

Daily activities of the people include fishing and fry collection in the sea, share cropping, pulling vans and pushcarts, day laboring in crop fields, construction works, working in hotels, restaurants and boats etc.

#### Livelihood Pattern:

During the month of February, March and April when the community gets very little fish or fry, they require a large sum of money to buy fishing gears (nets, boats, anchors, floats etc.) as the fishing and fry collection season starts from the next month (May). During this period, they get ready for fishing and fry collection by becoming well equipped.

Table 5.1: Seasonal income, expenditure and crisis pattern of the people of Kuakata

Months	Sources of income	Income/ expenditure status	Crisis pattern
January	Paddy/rice harvesting, fishing, and fry collection	Income is more than expenditure	No crisis, Low price of rice.
February	Fry collection, fishing and Aus paddy	Income is more than expenditure	No crisis
March	Fry collection, fishing and Aus paddy	Income is more than expenditure	No crisis
April	Fry collection, fishing and Aus paddy	Expenditure is more than income	More crisis (borrow money from money lenders to buy boats, nets, etc.)
May	Fishing	Income and expenditure are equal	More crisis
June	Fishing, Aman paddy cultivation	Income and expenditure are equal	Crisis prevails
July	Fishing, Aman paddy cultivation	Income becomes more than expenditure	No crisis
August	Fishing, Aman paddy cultivation	Income is more than expenditure	No crisis
September	Fishing	Income and expenditure are equal	No crisis
October	Fishing, fry collection, Carrot, Lalshak and seasonal vegetables.	Expenditure becomes more than income	Crisis prevails
November	Fishing, Paddy/rice harvesting, fry collection and seasonal vegetables.	Expenditure is more than income	Crisis prevails ( borrow money to prepare boats, nets etc. for fishing and fry collection)
December	Fishing, Paddy/rice harvesting, fry collection and seasonal vegetables.	Income and expenditure are equal	No crisis, low price of rice.

Source: Field survey 2001.

A group of fishermen (consisting of 6 members) take loan from moneylenders (of about Tk. 70,000/ to Tk. 80,000/) for catching fish in the sea. This money is needed to buy boat, net, rope, floats, bamboo and anchors.



Table 5.2: Seasonal employment and labor requirement of the people of Kuakata

Months	Field of employment/ labor requirement	Requirement status			
		High	Medium	Low	Nil
January	Paddy/rice harvesting	√			
	Fry collection and fishing		√		
February	Fry collection, fishing and Aus paddy		√		
March	Fry collection, fishing and Aus paddy		√		
April	Fry collection, fishing and Aus paddy		√		
May	Fishing		√		
June	Fishing	√			
	Aman paddy cultivation		√		
July	Fishing, Aman paddy cultivation	√			
August	Fishing	√			
	Aman paddy cultivation		√		
September	Fishing	√			
October	Fishing,		√		
November	Fishing, Paddy/rice harvesting, fry collection, Carrot,		√		
December	Paddy/rice harvesting	√			
	Fishing, fry collection and seasonal vegetables.		√		

Source: Field survey 2001.

Table 5.3: Labor-capital requirement, profit-risks and credit options of different occupations

Sl.	Occupation	Labor requirement		Capital requirement		Profit status		Risk status		Credit payment	
		High	Low	High	Low	High	Low	High	Low	Easy	Difficult
1.	Fishing/Fry	√		√		√		√		√	
2.	Agriculture		√		√	√			√		√
3.	Grocery/ Cloth store		√	√		√			√	√	

Source: Field survey 2001.

Table 5.4: Different options on credit/loan support

Sl.	Description	Months											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Demand of more credit		√	√	√								
2.	Availability of credit/ Provision of adequate credit		√	√	√								
3.	Maximum credit recovery							√	√	√	√		
4.	More crisis		√	√	√	√							
5.	More natural calamities/ disaster						√	√	√	√			
6.	Agricultural crops harvested (paddy)	√										√	√
7.	More income from fishing							√	√	√	√		

Source: Field survey 2001.

Table 5.5: Daily time utilization of different age-sex groups

Age-sex group	Morning	At noon	Afternoon/Evening
Man (Young/adult)	Namaz-Kalam (Pray to Allah), eating, fishing, fry collection, fishery business, agricultural works, tourism related works etc.	Eating and slight rest	Fishing, gossiping at market, Bazaar, eating, fishing, sleeping.
Woman (Young/adult)	Namaz-Kalam (Pray to Allah), reading the holy Quran, cooking foods, serving foods to all family members, eating, sending children to schools, household works, works on hotels, restaurants, day laboring etc.	Cooking foods, serving foods to all family members, eating, slight rest household works, works on hotels, restaurants, day laboring etc.	Serving foods to all family members, eating, household works, sleeping.
Children (Male/female)	Sending cows and goats to grazing fields, reading, eating, fry collection, going to schools and madrasas.	Lunch, staying at school, fry collection.	Fry collection, playing footballs, cricket and outdoor games, bringing the cows and goats back to yard, reading book, eating, sleeping.

Source: Field survey 2001.

Table 5.6: Population of Kuakata by religion over different time periods

Sl.	Religion	Periods and population in percentages			
		1940-45	1960-62	1970-71	2001
1.	Muslims	8%	28%	48%	90%
2.	Burmese	90%	70%	50%	8%
3.	Hindus	2%	2%	2%	2%
4.	Total	100%	100%	100%	100%

Source: Field survey 2001.

Table 5.7: Food habit of people of Kuakata over time

Sl.	Daily Time	Food intake
1.	Morning	Panta Bhat ( Watered rice) and Chili ( Marich/Zhal)
2.	At Noon	Rice, fish, vegetables, meat etc.
3.	Night	Rice, fish, vegetables, meat etc.

Source: Field survey 2001.

Table 5.8: Problems of the people of Adarsha village (Gram) and their solution ( as perceived by the people)

Sl.	Problems based on Priority Ranking	Ways of solution
1.	Absence of schools and madrasas for education.	Government & NGO
2.	Lack of capital	Government & NGO
3.	Undeveloped road	Government
4.	Absence of electricity	Government
5.	Damaged sanitary latrines	Government & NGO
6.	Inadequate residential facilities (space shortage)	Government & village people
7.	Inadequate trees and vegetation	Government, NGO and village people
8.	Lack of land	Government
9.	Unemployment	Government, NGO and village people
10.	Absence of health care facilities and medicine center	Government & NGO
11.	Absence of cyclone shelters	Government

Source: Field survey 2001.

The women and female children of Adarsha Village (Gram) collect firewood. Most of the children do not go to primary school due to poverty. They collect fry in the sea. Only about 10% of the children of Adarsha Village (Gram) attend the primary school.

The number of poultry birds is about 5-10 per family. Cattle, goats and poultry are subject to various diseases like mouth diseases, bloat, *ranikhet* etc.

#### 5.1.4 Existing Utility and Infrastructure Facilities

##### Roads, Sanitary Latrines, Ponds,

There is a narrow (10 ft wide) earthen (kutcha) road along the middle of the village from east to west. There is no bridge or culvert on the burrow pit which can be used as a way to reach the embankment linked with bazaar and the main road. The villagers have to go the bazaar (*ghatla*) at Kuakata crossing the burrow pit, (which is filled with water) during the rainy season. Clothes and necessary goods are normally bought from the bazaar, which get wet and damaged while crossing the borrow pit.



**Participants:** Abdul Malek, Hariz, Khaleque Biswas, Badsa Mia, Forkan Mia, Mukter Ali, Ripon Khalipah, Nasir Uddin, Belayet Hossain, Younus Ali, Musammat Renu.

The latrines provided to the households of the *Adarsha* Village (*Gram*) have been damaged. The rings, slabs etc. are made of low quality construction materials, which have deteriorated.

There is no pond in the village for bathing and washing. The people mostly bath in the sea and in the burrow pit. Hanging latrines have been built on the burrow pit that pollute the water of the burrow pit.

There are five drinking water tubewells in the village. The tubewells are located at equal distance from each house. There is no shallow tubewells in the village that could be used for washing and other household uses (other than providing drinking water).

#### **School, Mosque, Madrasha, Club, Playground**

There is no primary school in the village so that the children could get easy access to school. Most of the children of the village do not go to primary school. There is a government primary school at about a distance of 1.5 km. from *Adarsha* Village (*Gram*) located at the northern end of Kuakata Bazaar.



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There is no permanent mosque in the village where many people can pray together. The people of the village have built a small tin shed mosque with the help of their own little fund. Only 10-15 people can pray there. There is no *madrasha* in the village where the children and adult could learn Islamic education.

The children do not have any play field in *Adarsha Village (Gram)* to play football, cricket and other outdoor games. There is no club in the village (formed by the youth) that may work for the socio-economic and cultural development of the people.

#### **Fishermen Community and Disaster:**

During the period of monsoon, the sea remains unrest. Cyclone and tidal surge can destroy the village at any time. It may cause death of the entire population of the village. The people of this village always live in fear and uncertainty of life during these months.

#### **5.1.5 Problems Faced By the People of The Village**

##### **Beach and soil erosion**

About 50 years ago, it would take about 4-5 hours walk to go to the sea from the present location of *Adarsha Village (Gram)*. But at present, it takes only 2 minutes. It indicates that the rate of sea erosion in the past has been massive. Though the erosion has been barely minimum for the last three year, the village can be eroded into the sea at any time.

As the *Adarsha Village (Gram)* is established on the beach adjacent to sea, the soil of the village is sandy. Water washes away the soil in the rainy season and wind blows away the sands in the dry season.

##### **Inconvenience of daily life due wind driven sand particles**

The sand particles blows with the wind during the dry season are very harmful for health. The people of *Adarsha Village (Gram)* have to inhale the sand particles with every breathing when the wind blows across the village. The villagers even cannot take their meal conveniently due to fall out of flying sand particles into their dishes. People cannot easily move as the sand rushes into their eyes and cause irritation. The sand particles make a visible layer on clothes, furniture and utensils of the households.

All the houses of the *Adarsha Village (Gram)* are made of tin sheets. Tins become so hot in the months of summer that people cannot stay in their houses. There is no big shading tree in the village. The doors and windows could not be opened as the sand particles enter into the house.

The sea weather is extremely saline during the winter, spring and summer season. The saline weather is harmful for health. Besides, salinity affects the plants and trees. Plants can not grow due to presence of high soil salinity.

### Summary of problems

1. There is no big mosque in the village. The people of the village have built a tin shed (small mosque) with the help of their own little fund. A mosque could be provided in the village so that the people can pray conveniently.
2. There is no *madrasha* in the village where the children and adult could learn religious education.
3. There is no Government or NGO operated primary school within the village so that the children could get easy access to school. It is mentioned here that most of the children of the village do not go to the primary school regularly.
4. All the latrines provided to the households of the *Adarsha Village (Gram)* have been damaged. The rings, slabs etc. are made of low quality construction materials, which caused the damages. Sanitary latrines should be provided to the households by the Government or NGO.
5. There is no pond in the village for bathing and washing. The people mostly bathe in the sea and in burrow pit. Hanging latrines have been built over the burrow pit that pollutes the water of the burrow pit. Land can be provided to excavate ponds in the village for bathing, washing and other household use. A number of shallow tubewells could be provided for washing and for household uses too.
6. More land can be provided to the fishermen community so that they can use the land for homestead gardening and for planting timber and fruit trees.
7. The children do not have any play field to play football, cricket and other outdoor games.
8. There is no club in the village (formed by the youth) that may work for the socioeconomic and cultural development of people. Steps to be taken to form a youth club in the village to carry out social development and welfare program in the village.
9. Saline weather has a corrosive affect on tin sheets used as shed. It has already damaged the tin sheets and reduced the longevity and durability of houses.
10. There is no electricity in the village.
11. The villagers feel insecure due to presence of local and outside terrorists at the village. Their daily earnings are sometimes forcibly taken by the terrorist in dark nights.
12. The fishermen are frequently victimized by robbery while fishing in the sea. The robbers often forcibly occupy all the resources (nets, fishes, money, boat etc.) and the fishermen get lost and helpless. This is a very common phenomenon in the area. Most of the fishermen have to face such problems.
13. The fishermen community has lack of adequate capital for smooth running of fishing and fishery related businesses.
14. There is no NGO that can provide loan to the villagers of *Adarsha Village (Gram)* to run small scale income generating activities to improve their socio-economic condition.
15. There is no health complex in Latachapli Union and Kuakata too. The people have to suffer a lot due to absence of health care service and facilities.
16. The environment of adjacent fishermen villages is unhealthy, unhygienic and congested. Tourists feel bothered while visiting and enjoying the life of the fisherman community in these villages.
17. There are inadequate trees in *Adarsha Village (Gram)*. At present the villagers do not plant trees in their homestead due to the following reason:
  - Erosion may erode their homestead
  - Salinity greatly affect the growth of common timber and fruit trees planted in the homestead
  - Cyclone can damage the tree at any time.
  - Limited land in the homestead to plant more trees
  - Lack of awareness about the benefits of tree plantation in the homestead

### 5.1.6 Potential of the Village

There are a few potential for the village of *Adarsha Village (Gram)*. The present and future potentials are:

#### Present Potential:

##### Nearness to sea and fishing and fry collection ground

The *Adarsha Gram* is adjacent to the sea. As the residences are located near to the sea, fishermen can go to the sea (for fishing) at any time. It saves time to go to the sea for fishing. During bad weather, they can easily come back to their residences too.

##### The Village is close to the Market

The Bazaar/*Ghatla* is very close to *Adarsha Gram*. The villagers can easily buy and sell their daily products to and from the *Ghatla*.

### **Employment in tourism activities during dull season**

During off season, a few people of the village have employment in tourism related activities at Kuakata. The activities include driving vans, driving tourist boats in the sea (to and from different tourist attractions), working in hotels, restaurants and grocery shops, involve in transportation/construction works, and other development activities related to tourism development.

### **Future Potential:**

#### **Integrated Agriculture-Aquaculture Project in the Burrow Pit**

An integrated agriculture cum aquaculture (income-generating) project can be developed on the burrow pit adjacent to the *Adarsha Gram*. Water remains in the burrow pit for six months (July to December) of the year. Seasonal fish and common carps can be cultured in the burrow pit. The villagers have a plan to culture fish in the burrow pit on a cooperative basis.

#### **Rehabilitation/Relocating the *Adarsha Village (Gram)* inside the Embankment:**

According to the villagers, there may have government owned (khas) land in Islampur Mauza inside the embankment. If *Adarsha Village (Gram)* was established in a pre-planned way in Islampur Mauza, people could live without fear and anxiety of cyclone. They would feel secured at times of depression, cyclone, tidal surge or any sort of disaster. They could plant timber and fruit trees in and around their homestead. The trees could be their permanent assets to meet future demand.

The village can be relocated on government khas land inside the embankment considering all sorts of facilities and services for sustainability of the villagers. It should be established following a long term planning perspective. The village can be eroded into the sea at any time, it can be damaged by cyclone, washed away into the sea by floods and tidal surge. If tourism develops at Kuakata the land of the entire village can be occupied for tourism development. Then the village is to be relocated urgently. So the concerned authority should consider this point.

### **5.1.7 Concluding Remarks**

The fishermen community can be provided with government and non-government soft loans so that they can run their fishing and fishery business smoothly without taking loan (*dadan*) from the money lenders (*dadanders*).

These loans to be provided during the month of February, March and April when the community get little or inadequate amount of fish and fry. They require a large amount of money during this period to buy necessary items (nets, boats, anchors, floats etc.) for fishing and fry collection which start from the next month. During this period, they get ready for fishing and fry collection for the coming season.

The women can be provided loan for different income generating activities. If the women establish sewing business, poultry farming etc. they could spend 5-8 hours per day in these activities even after completing all other household activities. This could raise their income resolving their unemployment problem.

An integrated agriculture-aquaculture income-generating project can be developed on the burrow pit adjacent to the *Adarsha Gram*.

Health care centers should be provided at Kuakata so that the fishermen community and the tourists can avail the service.

Saline tolerant trees can be planted at the nearest fronts of the sea and then less saline tolerant trees towards the land. Less saline tolerant trees are namely Mehagani, Raintree, Sisoo, Chambal, Coconut, Betel nut, Mango, Jackfruit etc.

The tourists are interested to see the life of the fisherman community. Steps to be taken for improving the environment of adjacent fishermen villages in healthy and hygienic way so that the tourists feel better while visiting them.

The fishing community of *Adarsha Village (Gram)* realized that they are capable to resolve a few of their problems through cooperative efforts. They urged for government and non-governmental supports for solution of these major problems.

## **5.2 PRA WITH THE PEOPLE OF PANJUPARA VILLAGE**

### **5.2.1 Location and Area**

Panjupara Village is a medium sized village having an area of about 2.5 sq. Km. Keranipara Village and the Bay of Bengal is located on its south, Nabinpur Village lies on its east, and Musalliabad Village is on the west.

### **5.2.2 Population and Household Characteristics**

The population of the village is about 1500. About 80% people of the village live on fishing, fry collection and fishery related activities. The rest of the villagers are involved in agriculture, business, day laboring and tourism related activities



(namely driving vans, driving tourist boats, working in hotels, restaurants and grocery shops, buses, and in construction works for tourism development).

Most of the villagers are poor. The small and landless farmers are mainly involved in cultivation of land of the rich farmers. Some of the small farmers are tenant farmers. A significant proportion of the landless farmers are agricultural laborers. Regarding off-farm activities, the landless farmers often drive vans to carry the tourists and local people.

The females are not engaged in agricultural activities. They are found to be engaged mainly in household activities. Only the housewives of the most vulnerable families are involved in fry collection. It is found that the women of this area still now follow the custom of *Purdah*/curtain strictly. Most of the villagers are illiterate and or have education only at primary level.

### **5.2.3 Soil, Crops and Vegetation**

The village is characterized by sandy clay soil. Settlements, crop fields and rice fields etc. are the common land uses of Panjupara village. The village is representative of a rice growing area. The major crop of the village is Aman paddy. The low lying areas are used for cultivation of transplanted Aman rice followed by rabi crops. The farmers also produce Aus and Boro paddy to some extent. Minor crops include sugarcane, mustard, mashkalai, lentil, potato, sweet potato, banana, papaya, guava, brinjal, beans, kakral, radish, tomato, pepper, lady's finger and turmeric. They produce vegetables mainly in their homesteads and high land. Fruit trees of the village include Jackfruit, coconut, betel nut, lemon etc. Forest species are mainly mahogany and eucalyptus.

### **5.2.4 Water Body**

Panjupara villave is located in a sandy area. Water remains in the ponds and ditches for a period of 6 months (July to December). The ponds remain dry for rest of the months of the year.

### **5.2.5 Potentials**

There exists great demand for vegetables at Kuakata, mainly in the hotels and restaurants. The land of the village is suitable for vegetables production.

The shallow tubewells and power pumps are effective in the area. If the people are provided with shallow tube-wells and power pumps, they would produce more vegetables and rice over the years.

### **5.2.6 Constraints**

The villagers have lack of awareness and skill to utilize effectively the fallow land for agricultural production and the derelict ponds for fish culture. The farmers also cannot properly grow vegetables due to lack of irrigation facilities.

The ponds, ditches, closed canals and burrow pits remain dry during the dry season, as the water bodies are shallow. The water bodies cannot be made deeper due to the presence of sand layers located 7 ft below the ground.

### **5.2.7 Needs for Policy Support**

1. Irrigation facilities can be provided so that the farmers can produce Aus, Aman, Boro paddy and vegetables over the years.
2. Agricultural credit needs to be extended to small and marginal farmers.
3. Ensuring timely availability of HYV seeds and pesticides are essential.
4. Appropriate steps to be taken for profit sharing arrangement between the moneylenders (*dadandars*) and fishermen and fry collectors.
5. Community service facilities such as schools, madrasas and health care centers to be established in the village.
6. More ponds can be excavated and derelict ponds to be renovated for bathing, fish culture and irrigation for vegetables production.
7. Training should be provided to the fishermen and fry collectors on sustainable fishing, fry collection and fishery business.

## **5. 3 PARTICIPATORY RESEARCH OBSERVATION (PRO) IN KUAKATA**

Participatory Research Observations (PROs) were conducted across Kuakata, *Adarsha Village (Gram)*, Islampur and Panjupara villages considering the sea as base or origin. The research team walked around the villages and physically observed the topographical variations, major land uses, cropping practices, homestead utilization, livestock, fodder situation etc. across the transect. While walking around, the team talked to the people and held group interviews using a prepared checklist. They were interviewed about their daily activity pattern, socio-economic condition, income-expenditure pattern, problems and potentials for their livelihood and the area etc. They were also asked about their problems in fishing, fry collection, fishery related activities and their relation with tourism development activities. A few transects across different points of Kuakata that were drawn and these are presented in this chapter.

## 1. Transect along the road originating from the sea beach, Kuakata




Land Type	Sea	Beach	Vegetation & Road side ( Stalls, shops, hotels, restaurants, fish depots, markets, offices)	Burrow pit & embankment	Market/Bazar and Road side ( Stalls, shops, hotels, restaurants, fish depots, markets, mosques, schools, offices)
Soil	Sand	Sand	Sandy, clay	Sandy, clay	Clay, Sandy
Trees & vegetation	-	-	Coconut, palm, betel nut, nim etc.	Coconut, betel nut, mahogany, rain tree, pathari korai, sisoo, jilapi ( khai) etc.	Coconut, palm, betel nut, jack fruit, mango, guava, sisoo, lichu, boroi etc.
Crops & vegetables	-	-	-	-	Sweet potato, banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauliflower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalshak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Bushes & shrubs	-	-	Vanna gach, telakucha, thantani, zarmani lata, vhat gach, etc.	Thantani, dhekishak, vhat gach, vanna gach etc.	Katha dawanga, vanna gach, telakucha, thantani, zarmani lata, bunu kachu, kachur boi, lajjabati, kumari lata, laitha, dhekishak, aitholiy, vhat gach, tulshi gach etc.
Fish	Hilsa, rupchanda, laksha, laitha, shaplapata, maad, machan, jhatka etc.	-	-	Tengra, chingri, pangas, boal, puti, rui, katla etc.	Hilsa, rupchanda, laksha, laitha, shaplapata, maad, machan, jhatka, tengra, chingri, pangas, boal, puti, rui, katla, koi, soal, taki, shing, magur etc.
People (fishermen/fry collectors/fishery business men and others)	Catch fish and collect fry	Land fish from boats, fixes fishing boats, sell fish and fry, count fry, dry fish, buy fish and fry from fishermen and fry collectors, play football, gossip and spend leisure time etc.	Sell fish and fry to the small fish depots and dadandars; gossip, formulate business and fishing plan staying in the depots, shops and stalls; take tea, breakfast in the stalls, buy daily commodities from the shops and stalls etc. Set small bakery, tea stall, grocery shops, souvenir shops, etc. to support the tourists and local people.	Work in the afforestation project as day laborer; people (transport workers, tourists, local people) urinate on the embankment due to absence of public toilet.	Establish and run small hotels, restaurants, laundry, medicine and drug houses, souvenir shops, cosmetics and ornamental shops, grocery shops, temporary market and bazar, van, micro and bus stands etc. Constructed mosque, excavated ponds etc.
Tourists	Dive and bath with surf/ waves.	Walk along and seat, enjoy sunrise and sunset, enjoy the natural greenery, fishing and fry collection pattern.	Take tea, snacks and breakfast in the stalls, buy souvenirs from the souvenir shops, observe the culture, custom and livelihood pattern of the local community people while staying in the shops and stalls.	Observe and enjoy the afforestation by BWDB.	Breakfast in the morning, afternoon and evening (at times) in the restaurants; Take lunch and dinner in the restaurants; buy necessary items namely soaps, cosmetics, medicine etc. from the grocery shops; buy souvenirs from the souvenir shops, observe the culture, custom and livelihood pattern of the local community people while staying in the shops and stalls.  Stay in hotels at night, read newspapers and magazines, sometimes take food, breakfast, tea, coffee, watch television, gossip with other tourists.
Problems	Robbery and forcibly occupation of boats, nets, money, fishes and all the resources from the fishermen. The fishermen are injured and get lost.	Erosion and deterioration of beauty of the beach; dirty and unhygienic environment created by adjacent shop and stall owners and fishermen community with disposal of solid wastes and fishery wastes; disturbance of tourists by outside and local terrorists,	Gradual depletion of trees and vegetation by beach erosion and man made cutting; declining beauty of the natural greenery; haphazard development of varieties of shops and stalls; absence of control on haphazard shops and stalls development.	Not properly and effectively utilized for fish culture; remains dry for about six months of the year which creates problem for fish culture; the burrow pits are not entitled for fish culture to the landless people; buses, vans and other vehicles are haphazardly parked on the embankment that creates inconvenience to traffic movement; people pollutes the embankment by using it as urinals.	Main road is narrow due to unplanned and uncontrolled development of shops and stalls at both the sides; market/bazar sits in the road side space; subject to vehicular accidents; inconveniences to traffic movement; no separate space for market development; unavailability of fresh fruits and vegetables; wastes are frequent on road sides and bazar; the similar types of shops and stalls are not agglomerated harmoniously separately; food quality in the hotels and restaurants is not good; prices of food items are uneven; inadequacy of lodging facility and uneven hotel fare; inadequacy of recreation facilities i. e. television, newspaper, magazines etc. in most of the hotels.
Solution	Provision of adequate naval security measures for safety of the fishermen community both in the sea and Kuakata. Provision of financial help for those who are injured and get lost by robbery and accidents while fishing.	Government initiative to control and protect sea beach erosion and preserve its beauty; environmental and sanitation improvement education to the shop and stall owners and fishermen community, security measures to protect the unwanted interventions of outside and local terrorists.	Preservation of beach adjacent trees and vegetation by controlling beach erosion and prohibiting cutting of trees; development control on haphazard development of shops and stalls.	Action for ensuring availability and presence of adequate water for the whole year for fish culture; the burrow pits to be entitled to the landless fishermen for fish culture and income generation; separate parking lots and garages to be provided at Kuakata; public toilets to be established at places of public gathering to stop urinate on embankment.	Main road to be made wider by clearing and replacing the unplanned and uncontrolled shops and stalls established on both sides of the road; provision of adequate and separate space for establishment of daily commodity market and bazar; farmers to be made aware to grow more vegetables and fruits to sell to the hotels and restaurants for consumption of tourists; environmental and sanitation awareness building and education of the hotel/restaurants workers not to frequently dispose wastes on road sides and market for healthy and sound environment; steps for separate zones and markets for agglomerating similar type of shops and stalls in each; steps for control on hotels and restaurants to supply good quality foods and fixing prices of foods; steps for providing more lodging facility with fixed and even hotel fare; provision of more recreation facilities i. e. television, newspaper, magazines etc. in most of the hotels.

## 2. Transect at northern side of teak garden



Land Type	Sea	Beach	Teak garden	Paddy field, burrow pit & embankment	Homestead, pond and vegetation	Paddy land, crop field and canal
Soil	-	Sand	Sandy, clay	Sandy, clay	Clay, Sandy	Clay, Sandy
Trees & vegetation	-	-	Teak trees.	Coconut, betel nut, mahogany, rain tree, pathari korai, sisoo, jilapi (khai) etc.	Coconut, palm, betel nut, jack fruit, mango, guava, sisoo, lichu, boroi, nim, mango, rain tree, jilapi (khai), simul, etc.	-
Crops & vegetables	-	-	-	Paddy, sweet potato, palangsak, lalsak, white gourd etc.	Banana, brinjal, papaya, cucumber, tomato, cauliflower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, etc.	Aus, aman and boro paddy; banana, brinjal, papaya, water and musk melon, cucumber, cauliflower, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Bushes & shrubs	-	-	-	Thantani, dheshkash, vhat gach, vanna gach, telakucha, zarmani lata, etc.	Thantani, telakucha, zarmani lata, etc.	Katha dawanga, vanna gach, telakucha, thantani, zarmani lata, buno kachu, kachur boi, lajjabati, kumari lata, laitha, dheshkash, aithoiy, vhat gach, tulshi gach etc.
Fish	Hilsa, rupchanda, bhol, lakkha, laitha, shaplapata, maad, machan, jhatka, tular dadi etc.	-	-	Tengra, chingri, pangas, boal, puti, rui, katla etc.	Rui, katla, mrigel, puti, taki, silver carp, grass carp etc.	Puti, koi, soal, taki, shing, magur etc.
Fishermen, fry collectors, fishery business men	Catch fish and collect fry	Land fish from boats, fixes fishing boats, sell fish and fry, count fry, dry fish, buy fish and fry from fishermen and fry collectors, play football, gossip and spend leisure time etc.	-	-	Fishery businessmen buy common carps and local fish species from ponds to sell in the market.	-
Farmers	-	-	-	Cultivate paddy in the paddy land, work as day laborer in the afforestation program on embankment.	Produce vegetables, plant fruit and timber trees in the homestead land, culture common carps in the ponds for household consumption.	Cultivate aus, aman and boro paddy; cultivate and produce banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauliflower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Tourists	Dive and bath with surf/ waves.	Walk along and seat, enjoy sunrise and sunset, enjoy the natural greenery, fishing and fry collection pattern.	Take the garden as picnic spot; arrange picnics, take advantage of its shadow.	Observe and enjoy the beach adjacent paddy field and afforestation by BWDB on embankment.	-	Enjoy the greenery of the paddy and crops field.
Problems	Robbery and forcible occupation of boats, nets, money, fishes and all the resources from the fishermen. The fishermen are injured and get lost.	Erosion and deterioration of beauty of the beach; dirty and unhygienic environment created by fishermen community with disposal of fishery wastes; disturbance of tourists by outside and local terrorists,	Not suitable for picnic spot as the garden is not well facilitated with lighting, toilet, water supply and furnace etc.	Sandy soil is not suitable for paddy cultivation and so paddy production is unsatisfactory; not yet been developed for tourism; the burrow pit is not effectively utilized for fish culture and remains dry for about six months of the year which creates problem for fish culture; the burrow pits are not entitled for fish culture to the landless people.	The homestead land is not effectively utilized for vegetable gardening and tree plantation due to lack of awareness of the people; most of the ponds remain dry for about six months of the year and so fish culture is not done for the whole year period.	Farmers can not cultivate paddy and other crops for the period of whole year due to absence of irrigation facilities. Most of the water bodies i.e. canals, ponds, ditches etc. remain dry for a period of six months and so these are not suitable for fish culture and irrigation in the paddy and crop fields.
Solution	Provision of adequate naval security measures for safety of the fishermen community both in the sea and Kuakata. Provision of financial help for those who are injured and get lost by robbery and accidents while fishing.	Government initiative to control and protect sea beach erosion and preserve its beauty; environmental and sanitation improvement education to fishermen community, security measures to protect the unwanted interventions of outside and local terrorists.	The garden to be well facilitated with lighting, toilet, water supply and furnace etc. so that the tourists and picnic parties can conveniently celebrate the picnics.	The crops produced well on sandy soil to be cultivated than paddy; the land to be developed for tourism activities; action for ensuring availability and presence of adequate water for the whole year for fish culture; the burrow pits to be entitled to the landless fishermen for fish culture and income generation.	The people to be made aware about vegetable gardening and more tree plantation in the homestead land; steps to be taken to store water in the ponds for the whole year for fish culture.	Government and non-government organizations may take necessary steps to provide irrigation facilities such as shallow pumps to the farmers so that they can cultivate paddy and other crops for the period of whole year. Steps also to be taken to remain most of the water bodies i.e. canals, ponds, ditches etc. watered for the whole year for fish culture and irrigation in the paddy and crop fields.

### 3. Transect across Kuakata Adarsha Village and Islampur village



Land Type	Sea	Beach	Trees and paddy field	Adarsha Gram, burrow pit, embankment	Homestead, pond and vegetation of Islampur village	Paddy and crop field
Soil	-	Sand	Sandy, clay	Sandy, clay	Clay, Sandy	Clay, Sandy
Trees & vegetation	-	-	Coconut, palm.	Coconut, betel nut, mahogany, rain tree, pathari korai, sisoo, jilapi (khai) etc.	Coconut, palm, betel nut, jack fruit, mango, guava, sisoo, lichu, boroi, nim, mango, rain tree, jilapi (khai), simul, etc.	Coconut, palm.
Crops & vegetables	-	-	Paddy.	Paddy, sweet potato, palangshak, lalsak, white gourd etc.	Banana, brinjal, papaya, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, etc.	Aus, aman and boro paddy; banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Bushes & shrubs	-	-	Thantani, zarmani lata, etc.	Thantani, telakucha, zarmani lata, etc.	Thantani, dhekishak, vhat gach, vanna gach, telakucha, zarmani lata, etc.	Katha dawanga, vanna gach, telakucha, thantani, zarmani lata, buno kachu, kachur boi, lajabati, kumari lata, laittha, dhekishak, aitholy, vhat gach, tulshi gach etc.
Fish	Hilsa, rupchanda, bhol, lakha, laittha, shaplapata, maad, machan, jhatka, tular dadi etc.	-	Puti, telapia, taki.	Tengra, chingri, pangas, boal, puti, rui, katla etc.	Rui, katla, mrigel, puti, taki, silver carp, grass carp etc.	Puti, telapia, taki.
Fishermen, fry collectors, fishery business men	Catch fish and collect fry	Land fish from boats, fixes fishing boats, sell fish and fry, count fry, dry fish, buy fish and fry from fishermen and fry collectors, play football, gossip and spend leisure time etc.	-	Live in the Adarsha Gram.	Fishermen, fry collectors, fishery business men live in the village Islampur; fishery businessmen buy common carps and local fish species from ponds to sell in the market.	-
Farmers	-	-	Cultivate paddy in the paddy land.	Farmers of Adarsha Gram cultivate other farmers' land as sharecropper. They also work as day laborer in others field.	Produce vegetables, plant fruit and timber trees in the homestead land, culture common carps in the ponds for household consumption.	Cultivate aus, aman and boro paddy; cultivate and produce banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalsak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Tourists	Dive and bath with surf/ waves.	Walk along and seat, enjoy sunrise and sunset, enjoy the natural greenery, fishing and fry collection pattern.	Observe and enjoy the beach adjacent paddy field.	Observe and enjoy the life style and livelihood pattern of the fishermen community of the Adarsha Gram; observe and enjoy the afforestation by BWDB on embankment.	Sometimes visit the village to observe and enjoy the life style and livelihood pattern of the fishermen community of the Islampur village.	Enjoy the greenery of the paddy and crops field.
Problems	Robbery and forcibly occupation of boats, nets, money, fishes and all the resources from the fishermen. The fishermen are injured and get lost.	Erosion and deterioration of beauty of the beach; dirty and unhygienic environment created by fishermen community with disposal of fishery wastes; disturbance of tourists by outside and local terrorists,	Beach erosion and lack of proper care and maintenance by concerned authority are depleting trees. Sandy soil is not suitable for paddy cultivation and so paddy production is unsatisfactory; the land has not yet been developed for tourism.	There is no govt. or NGO operated formal and non-formal primary school; no big mosque and madrasa, absence of electricity, inadequacy of homestead land for homestead gardening and tree plantation, no cyclone shelter, affect of sand particles on health and daily life, lack of capital for fishing and fishery business, unemployment of women labor, no health care centers etc. The burrow pit is not effectively utilized for fish culture and remains dry for about six months of the year which creates problem for fish culture; the burrow pits are not entitled for fish culture to the landless people.	The homestead land is not effectively utilized for vegetable gardening and tree plantation due to lack of awareness of the people; most of the ponds remain dry for about six months of the year and so fish culture is not done for the whole year period.	Farmers can not cultivate paddy and other crops for the period of whole year due to absence of irrigation facilities. Most of the water bodies i.e. canals, ponds, ditches etc. remain dry for a period of six months and so these are not suitable for fish culture and irrigation in the paddy and crop fields.
Solution	Provision of adequate naval security measures for safety of the fishermen community both in the sea and Kuakata. Provision of financial help for those who are injured and get lost by robbery and accidents while fishing.	Government initiative to control and protect sea beach erosion and preserve its beauty; environmental and sanitation improvement education to fishermen community, security measures to protect the unwanted interventions of outside and local terrorists.	Government initiative to control and protect sea beach erosion and preserve the trees; proper care and maintenance for preservation of the trees; crops produced well on sandy soil to be cultivated than paddy; the land to be developed for tourism activities.	Government or NGO can establish schools, mosque, madrasa, health care centre, cyclone shelter etc. Govt. and NGO can provide the fishermen with loans and micro-credit for fishing, fry collecting and running IGAs both for men and women. Action for ensuring availability and presence of adequate water for the whole year for fish culture; the burrow pits to be entitled to the landless fishermen for fish culture and income generation.	The people to be made aware about vegetable gardening and more tree plantation in the homestead land; steps to be taken to store water in the ponds for the whole year for fish culture.	Government and non-government organizations may take necessary steps to provide irrigation facilities such as shallow pumps to the farmers so that they can cultivate paddy and other crops for the period of whole year. Steps also to be taken to remain most of the water bodies i.e. canals, ponds, ditches etc. watered for the whole year for fish culture and irrigation in the paddy and crop fields.

### 4. Transect across Kuakata Rakhain Palli



Land Type	Sea	Beach	Coconut garden, burrow pit and embankment	Establishments of Rakhain heritage ( Pagoda, Kua, cultural academy)	Rakhain Palli	Paddy and crop field
Soil	-	Sand	Sandy, clay	Sandy, clay	Clay, Sandy	Clay, Sandy
Trees & vegetation	-	-	Coconut, palm.	Coconut, palm, banyan.	Coconut, palm, betel nut, jack fruit, mango, guava, sisoo, lichu, boro, nim, mango, rain tree, jilapi (khai), simul, etc.	Coconut, palm.
Crops & vegetables	-	-	-	-	Banana, brinjal, papaya, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalshak, pumpkin, palangshak, etc.	Aus, aman and boro paddy; banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalshak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Bushes & shrubs	-	-	Thantani, dhekishak, vhat gach, vanna gach, zarmani lata, etc.	-	Thantani, dhekishak, vhat gach, vanna gach, telakucha, zarmani lata, etc.	Kaltha dawanga, vanna gach, telakucha, thantani, zarmani lata, buno kachu, kachur boi, lajjabati, kumari lata, laittha, dhekishak, aithoiy, vhat gach, tulshi gach etc.
Fish	Hilsa, rupchanda, bhol, lakha, laittha, shaplapata, maad, machan, jhatka, tular dadi etc.	-	Tengra, chingri, pangas, boal, puti, rui, katla etc.	-	Rui, katla, mrigel, puti, taki, silver carp, grass carp etc. are found in the ponds of Rakhain Palli.	Puti, telapia, taki.
Fishermen	Catch fish and collect fry	Land fish from boats, fixes fishing boats, sell fish and fry, count fry, dry fish, buy fish and fry from fishermen and fry collectors, play football, gossip and spend leisure time etc.	Have built temporary huts/houses as places for counting fry and taking rest.	-	Only a little number of Rakhain community people are fishermen live in the Rakhain Palli.	-
Farmers	-	-	-	-	Most of the Rakhain community people are farmers; they produce vegetables, plant fruit and timber trees in the homestead land, culture common carps in the ponds for household consumption.	Cultivate aus, aman and boro paddy; cultivate and produce banana, brinjal, papaya, water and musk melon, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalshak, pumpkin, palangshak, garlic, onion, turmeric, mustard etc.
Tourists	Dive and bath with surf/ waves.	Walk along and seat, enjoy sunrise and sunset, enjoy the natural greenery, fishing and fry collection pattern.	Take the garden as picnic spot; arrange picnics, take advantage of its shadow; observe and enjoy the natural greenery of the garden and afforestation by BWDB on the burrow pit.	The tourists frequently visit the Buddhist statue, well (kua), Pagoda, Rakhain Market and Rakhain Cultural Academy	The tourists frequently visit the Rakhain Palli to observe and enjoy the life style and livelihood pattern of the Rakhain community of the Rakhain Palli.	Enjoy the greenery of the paddy and crops field.
Problems	Robbery and forcibly occupation of boats, nets, money, fishes and all the resources from the fishermen. The fishermen are injured and get lost.	Erosion and deterioration of beauty of the beach; dirty and unhygienic environment created by fishermen community with disposal of fishery wastes; disturbance of tourists by outside and local terrorists,	The garden is not well facilitated with lighting, toilet, water supply and furnace etc. necessary for celebrating picnic; beach erosion and lack of proper care and maintenance by concerned authority are depleting trees.	There exists inadequate security measures to protect the Pagoda and the Buddhist statue (made of ten metals) from any accidental incidents; the Rakhain Cultural Academy is not used much for celebrating cultural festivals for tourists due to lack of fund and initiatives.	At times the Rakhain Community feels disturbed when the tourists frequently visit their Palli and ask them about their culture, heritage and life style; they are loosing their land property due to intervention of local musclemen and for being the minority group; the Rakhains are rapidly leaving Kuakata and migrating to Burma, their origin; Government has taken limited development initiative for their income generation and sustainability.	Farmers can not cultivate paddy and other crops for the period of whole year due to absence of irrigation facilities. Most of the water bodies i.e. canals, ponds, ditches etc. remain dry for a period of six months and so these are not suitable for fish culture and irrigation in the paddy and crop fields.
Solution	Provision of adequate naval security measures for safety of the fishermen community both in the sea and Kuakata. Provision of financial help for those who are injured and get lost by robbery and accidents while fishing.	Government initiative to control and protect sea beach erosion and preserve its beauty; environmental and sanitation improvement education to fishermen community, security measures to protect the unwanted interventions of outside and local terrorists.	The garden to be well facilitated with lighting, toilet, water supply and furnace etc. so that the tourists and picnic parties can conveniently celebrate the picnics; government initiative to control and protect sea beach erosion and preserve the trees; proper care and maintenance for preservation of the trees;	Government should take necessary action and step to provide strong and adequate security measures to protect the Pagoda and the Buddhist statue (made of ten metals) from any accidental incidents; Government fund and initiative to be urgent to use the Rakhain Cultural Academy for celebrating cultural festivals for the recreation of tourists.	A publication on the culture, heritage and life style of the Rakhain community can be published so that the tourists can easily get more information about Rakhain without frequently disturbing the community; steps to be taken so that the community do not loose their land property due to intervention and torture of local musclemen considering them as minority group; steps to be taken to prohibit the migration of the community to Burma, their origin; Government should take initiative for their income generation and sustainability through designing small projects related with tourism at Kuakata.	Government and non-government organizations may take necessary steps to provide irrigation facilities such as shallow pumps to the farmers so that they can cultivate paddy and other crops for the period of whole year. Steps also to be taken to remain most of the water bodies i.e. canals, ponds, ditches etc. watered for the whole year for fish culture and irrigation in the paddy and crop fields.

## 5. Transect across Keranipara and Panjupara Village



Land Type	Sea	Beach	Coconut garden, bushes, burrow pit, embankment	Keranipara an Panjupara village ( homestead, ponds, trees, vegetation, crops)	Paddy land
Soil	-	Sand	Sandy, clay	Clay, Sandy	Clay, Sandy
Trees & vegetation	-	-	Coconut, palm, betel nut etc.	Coconut, palm, betel nut, jack fruit, mango, guava, sisoo, lichu, boroi, nim, mango, rain tree, jilapi (khal), simul, etc.	Coconut, palm.
Crops & vegetables	-	-	-	Banana, brinjal, papaya, cucumber, tomato, cauli flower, cabbage, beet, reddish, karala, ladies finger, white gourd, sweet gourd, puishak, lalshak, pumpkin, palangshak, etc.	Aus, aman and boro paddy.
Bushes & shrubs	-	-	Thantani, dhekishak, vhat gach, vanna gach, zarmani lata, etc.	Thantani, dhekishak, vhat gach, vanna gach, telakucha, zarmani lata, etc.	Thantani, vanna gach etc.
Fish	Hilsa, rupchanda, bhola, laksha, laittha, shaplapata, maad, machan, jhalka, tular dadi etc.	-	Tengra, chingri, pangas, boal, puti, rui, katla etc.	Rui, katla, mrigel, puti, taki, koi, shing, magur, silver carp, grass carp etc.	Puti, telapia, taki.
Fishermen, fry collectors, fishery businessmen	Catch fish and collect fry	Land fish from boats, fixes fishing boats, sell fish and fry, count fry, dry fish, buy fish and fry from fishermen and fry collectors, play football, gossip and spend leisure time etc.	Have built temporary huts/houses and sheds as places for counting fry and taking rest.	Fishermen, fry collectors, fishery businessmen live in the village Keranipara and Panjupara; fishery businessmen buy common carps and local fish species from ponds to sell in the market.	-
Farmers	-	-	-	Farmers live in the village Keranipara and Panjupara; they produce vegetables, plant fruit and timber trees in the homestead land, culture common carps in the ponds for household consumption; sell common carps and local fishes to the fishery businessmen and market.	Cultivate aus, aman and boro paddy.
Tourists	Dive and bath with surf/waves.	Walk along and seat, enjoy sunrise and sunset, enjoy the natural greenery, fishing and fry collection pattern.	Take the coconut garden as picnic spot; arrange picnics, take advantage of its shadow; observe and enjoy the natural greenery of the garden and afforestation by BWDB on the burrow pit.	Sometimes visit the villages to observe and enjoy the life style and livelihood pattern of the fishermen community and farmers.	Enjoy the greenery of the paddy field.
Problems	Robbery and forcibly occupation of boats, nets, money, fishes and all the resources from the fishermen. The fishermen are injured and get lost.	Erosion and deterioration of beauty of the beach; dirty and unhygienic environment created by fishermen community with disposal of fishery wastes; disturbance of tourists by outside and local terrorists.	The garden is not well facilitated with lighting, toilet, water supply and furnace etc. necessary for celebrating picnic; beach erosion and lack of proper care and maintenance by concerned authority are depleting trees; the burrow pit is not effectively utilized for fish culture and remains dry for about six months of the year which creates problem for fish culture; the burrow pits are not entitled for the landless people.	The homestead land is not effectively utilized for vegetable gardening and tree plantation due to lack of awareness of the people; most of the ponds remain dry for about six months of the year and so fish culture is not done for the whole year period; landless and marginal farmers can not produce vegetables and plant timber and fruit trees due to having no or little land.	Farmers can not cultivate paddy for the period of whole year due to absence of irrigation facilities.
Solution	Provision of adequate naval security measures for safety of the fishermen community both in the sea and Kuakata. Provision of financial help for those who are injured and get lost by robbery and accidents while fishing.	Government initiative to control and protect sea beach erosion and preserve its beauty; environmental and sanitation improvement education to fishermen community, security measures to protect the unwanted interventions of outside and local terrorists.	The garden to be well facilitated with lighting, toilet, water supply and furnace etc. so that the tourists and picnic parties can conveniently celebrate the picnics; government initiative to control and protect sea beach erosion and preserve the trees; proper care and maintenance for preservation of the trees; action for ensuring availability and presence of adequate water for the whole year for fish culture; the burrow pits to be entitled to the landless fishermen for fish culture and income generation.	The people to be made aware about vegetable gardening and more tree plantation in the homestead land; steps to be taken to store water in the ponds for the whole year for fish culture; steps to be taken for the socio-economic development of the landless and marginal farmers so that they can buy minimum land to produce vegetables and plant timber and fruit trees.	Government and non-government organizations may take necessary steps to provide irrigation facilities such as shallow pumps to the farmers so that they can cultivate paddy for the period of whole year. Steps also to be taken to remain most of the water bodies i.e. canals, ponds, and ditches etc. watered for the whole year for irrigation in the paddy fields.

### Villages and Communities in which PRA and PRO were conducted

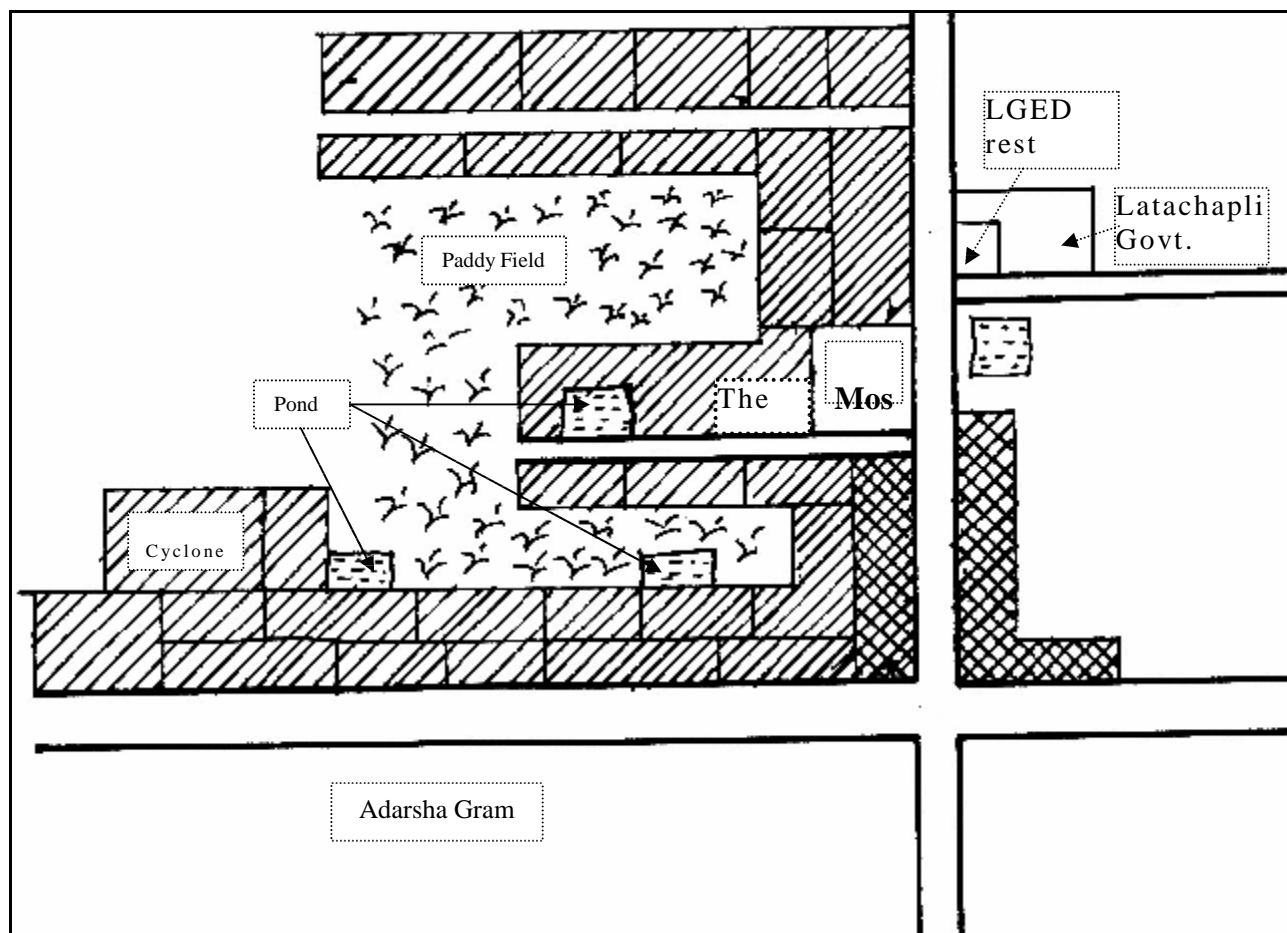


Fig: Sketch Map of Islampur Village

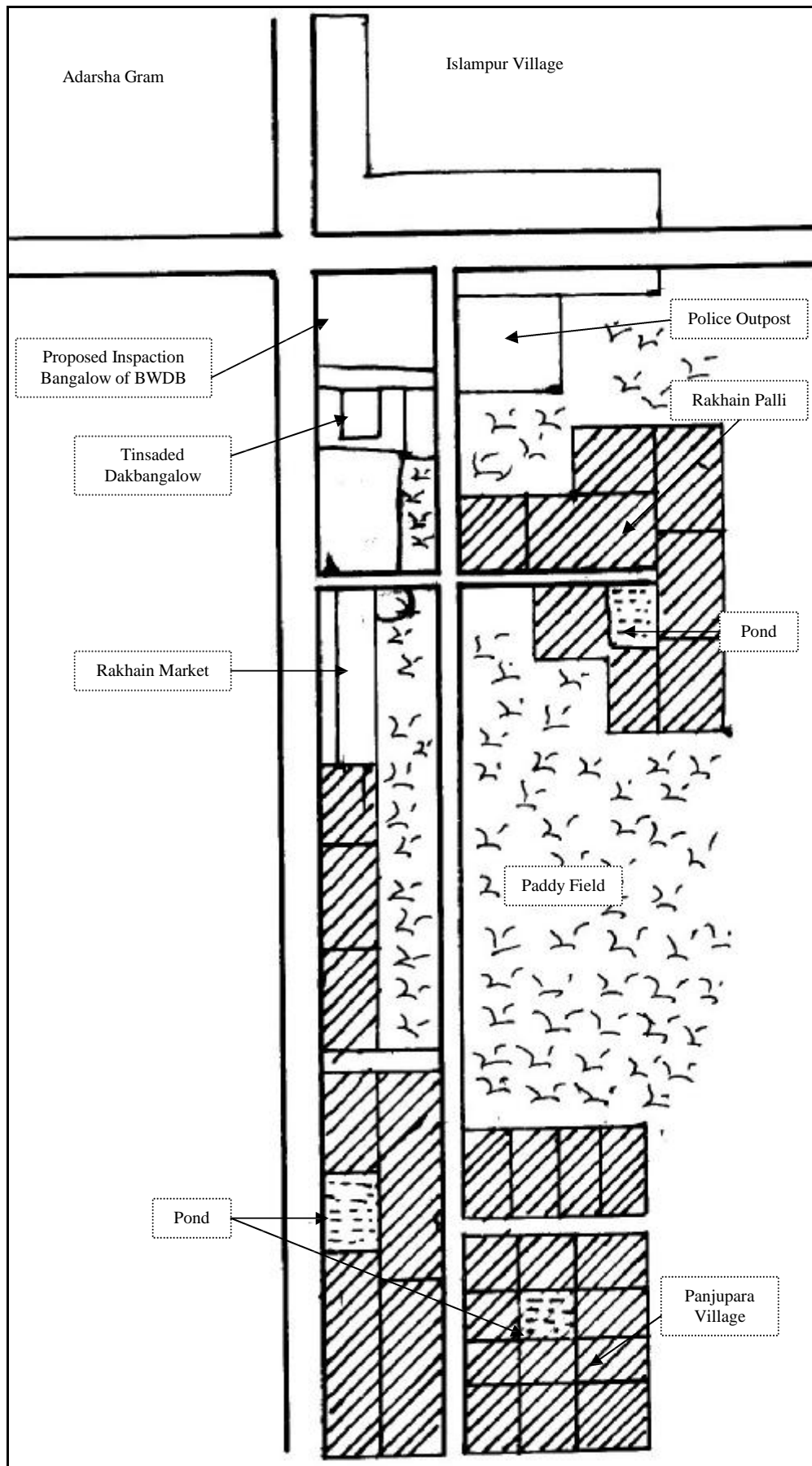


Fig: Sketch Map of Rakhain Palli and Pangupara Village



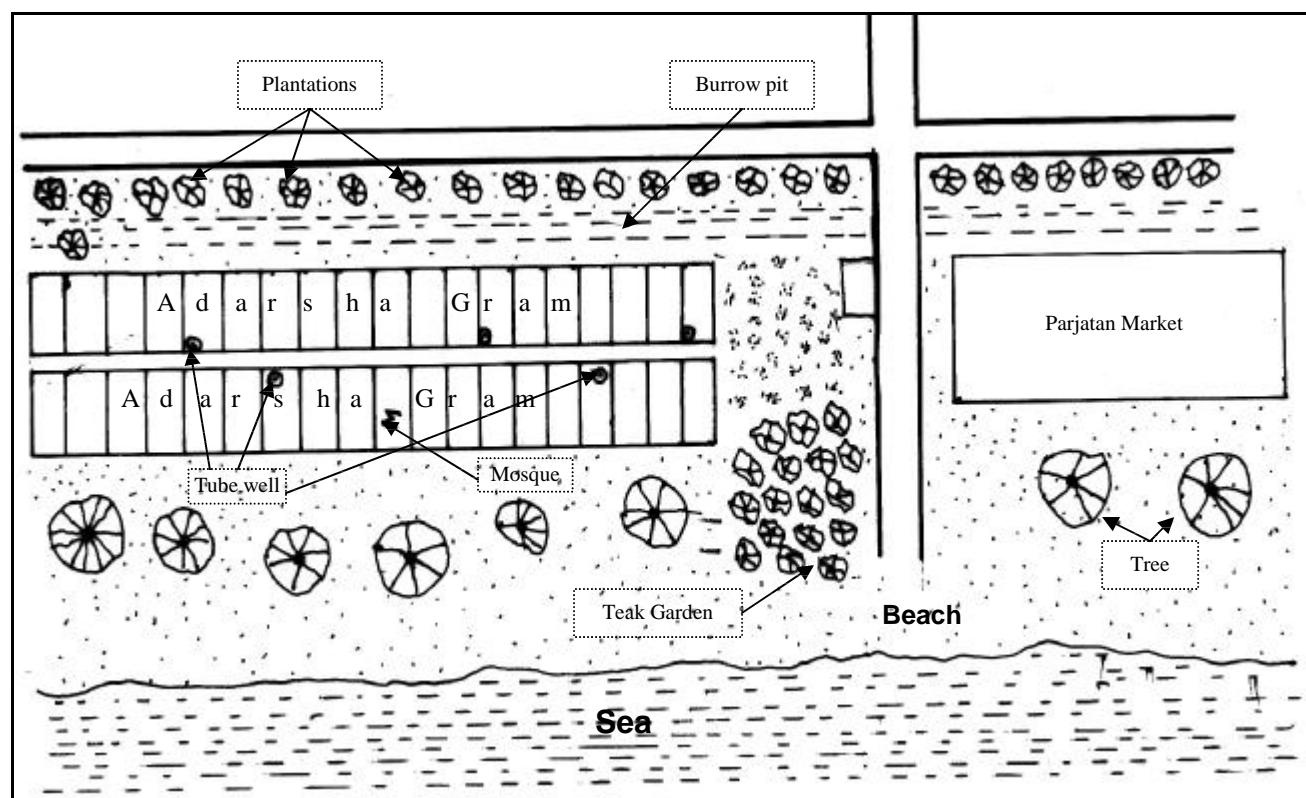


Fig: Sketch Map of Adarsha Gram, Kuakata

#### 5.4 Conclusion

If the fishermen and farmers are provided with government and non-government soft loans and micro-credit, they would conveniently run their fishing, fry collection, fishery business and agricultural activities. The women would participate in rearing cattle, goats and poultry birds in addition to their regular household works. The women would also participate in vegetable production, fruit and timber tree planting and nursing etc. Government, NGOs should take all necessary steps to explore the potential of the villagers through proper interventions for their socio-economic development.

**Participants:** V.D.P. Ruhol Amin, Md. Hanif Mallick, Abdus Sobhan, Mujibur Haldar, Sah Alam Sarif, Abdul joyal Khan, Sobhan Mallick, Sultan Ahmed, Sohrab Mirdah, Jahangir Gharami,