Government of the People's Republic of Bangladesh

Ministry of Irrigation, Water Development and Flood Control
Flood Plan Coordination Organization

BANGLADESH ACTION PLAN FOR FLOOD CONTROL

# COMPARTMENTALIZATION PILOT PROJECT (FAP 20)



# TANGAIL CPP INTERIM REPORT

## ANNEX 1.3 : MULTI-DISCIPLINARY SUB-COMPARTMENTAL SURVEY
## APPENDIX 5 : ADJACENT PART : VOLUME 1 (SC. NO. E2, E3, E4, PUNGLI FLOODPLAIN)



September 1992

**Euroconsult/Lahmeyer International/Bangladesh Engineering & Technological Services/House of Consultants**

under assignment to

**DIRECTORAAT GENERAAL INTERNATIONALE SAMENWERKING**
Government of the Netherlands

and

**KREDITANSTALT FÜR WIEDERAUFBAU**
Federal Republic of Germany

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## GENERALLY RELEVANT DATA

### Rainfall and Drought

Sporadic rainfall begins in April, usually associated with North-Wester storms. Normal monsoon rainfall starts in June, continuing through July and August. Rainfall gradually becomes less and less frequent in September and October. There are variations from this usual pattern: sometimes heavy downpours early in May-June inundate the low lying farm land. Due to poor drainage condition this rainfall damages the standing crops e.g., mature Irri/Boro (sown late) and new B. Aman (*Chamara)* seedlings. This actually happened in 1991.

Once every few years there is heavy late monsoon rainfall in September and October, as was the case in 1991. This aggravates the drainage congestion problem in low lying areas, and T. Aman is damaged. Due to slow drainage, Rabi crops cultivation is delayed thereby delaying the subsequent Irri/Boro, which in turn is caught by the early monsoon flooding. In some low areas no Rabi crops can be cultivated due to unusual delay in the drainage, sometimes unto January and February, and thus non-availability of the land for sowing/planting. However late heavy showers in August-September are helpful for T. Aman in higher farm land. The rainfall in late December 1991 damaged some Rabi crops e.g. mustard, due to spoiled flowers and new planted potato due to compacted earth. But this rainfall was beneficial to wheat, cina and vegetables cultivation due to increased soil moisture.

Once every 3-4 years there is a drought problem. Drought in April, May causes damage to the Irri. These days the effect of drought is partly compensated for through the availability of water from DTW's and STW's, which are widespread in the Tangail CPP area.

However, in the higher farm land Aus and Jute are grown, where there are no irrigation facility available. In drought years there is widespread damage of these crops.

# PUNGLI FLOODPLAIN SUB-COMPARTMENT

## PU.1. INTRODUCTION

The *Pungli* Plood Plain is outside the north-eastern boundary of the sub-compartments 6, 5 and 1 and extends from *Salina* in the North-West under *Tangail Sadar Upazila* to *Natkhola* under *Basail* upazila in the South-East where the river flows away from the compartment. The flood plain is on either sides of the *Pungli* river bounded by the embankment cum road constructed by BWDB on right side and the embankment cum road constructed by the Union Council under the FFW programme on left side of *Pungli* river.

## PU.2. HYDROLOGICAL SITUATION

### Riverflow: Flooding and Drainage

Riverflow in the Pungli river starts in June and enters the low areas in the flood plain in July. Average land level is high in the flood plain comprising about 70% of the area and the rest is medium low land. The river bank is usually high and river water enters in July-August by overspilling the banks during the high stage of the river and spreads through the by overland flow. The flood water usually do not pose only serious problem in normal flood years. Most of the homesteads are above normal flood level. Sudden rise of flood water damages crops in low areas. In high flood such as 1987 and 1988, there was considerable loss of property. In July 1991, there was sudden on rush of flood damaging Jute, Aus and Aman seedlings and in September 1991, the late flood damaged T. Aman. Gradual increases in water level do not cause any problem, but crops cannot cope with a sudden rise in water level.

Rainfall does not cause any flooding or drainage congestion since the run-off flows out to the river unobstructed. In some cases the rain water accumulates in the nearby low land e.g. in *Khalatbari, Pach Bathur, Salina* in the northern part.

Flood water remains for a short period and quickly drain out during the receding period. The flood plain remains under water till September and flood water starts receding in late September. Most of the area is drained out by late October and land is available for Rabi crops. Excavation of new ponds and re-excavation of the old ponds will partly solve the water scarcity problems in high areas. During the monsoon flooding, large quantities of sand flow over the land and damage the farm land and the strong flow causes erosion problem of the homesteads along the bank.

Water hyacinth does not pose any problem in the flood plain. Plenty of boats of all sizes ply in the Pungli river during the monsoon. Mechanised boats are used for transporting passengers and freight.

### Erosion

The public reported that erosion by the Pungli at *Birnali* river has been going on for about 4-5 years and the problem is now serious. The river reportedly shifted about 100m westward. Last year land of about 15m width and about 600m in length, was washed away. At present the river bank is 3 - 20m away from the existing embankment over a length of about 600m. *Birnali* primary school is only 3m away from the river bank. The

existing embankment and the primary school are threatened and if no necessary measure is taken immediately, these are likely to be completely eroded in the next monsoon.

Erosion by the *Pungli* river is also taking place at *Pach Bathur* and at *Salina*. In these areas also, public reported that erosion started about 15 years back and the river has shifted about 300m westward during this period. Maximum erosion is taking place for about 4-5 years and homesteads are shifted every 3-4 years. The present rate of erosion is reported to be about 15m per year. Erosion is most serious in the early and late monsoon periods. The local public requested to take the necessary measures immediately for protection of homesteads.

### Ground Water

HTWs are usually used for drinking water, but their numbers are not adequate. Water from open-wells are generally used for cooking and washing. There is no appreciable discharge problem from the tubewells excepting drought years. The iron contents in the ground water does not pose any problem for drinking purpose.

### Conclusion

The flood plain is unprotected against the flooding from the *Pungli* river and as such some benefits of flood are found in these areas, e.g. free-navigation, free fish migration and absence of drainage congestion problems.

Average land level is rising due to continued siltation. However sudden rise of flood water damage crops. In high flood years, e.g. in 1987 and in 1988 there was considerable loss of property. Underground water is adequately exploited.

## PU.3. AGRICULTURE

### Cropping Pattern

The Flood Plain of *Pungli* river includes the area on both sides of *Pungli* river outside the embankment on both sides. It extended from the village *Salina* in the North West upto the village *Nathkhola* in the South-East. The visited villages in the flood plain from South to North are *Karatia, Deli, Hakimpur, Joshihati, Panch Betur and Salina*. Little agricultural lands are available on the flood plain on both sides from south east upto the village *Suruj* and gradually increases towards the village *Salina*. In southern part the land on both sides ofthe river Pungli is mostly sandy and affected sand deposition every year. On these lands mainly sugarcane with little Aus/Jute are grown. In Rabi season some vegetables and wheat is grown along the village periphery. The agricultural land on both sides of the river from the village *Suruj* to *Sanila* the following cropping patterns are in practice. No Irri/Boro (HYV) is grown in the area except a few acres on the dried up river bed.

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| Crop Patterns | | | | |
|---|---|---|---|---|
| Land Type | *Kharif-1* | *Kharif-2* | Rabi Annual | % of NCA |
| (0-3')F0-F1 | Aus/Jute | T.Aman(L | Wheat/Mustard/Potato | 10% |
| (0-3')F0-F1 | Aus/Jute | - | Wheat/Mustard/Pulse/Potato/ | 30% |
| (3-6')F2 | Aus+B.Aman/ | - | Wheat/Veg/S. Potato | 20% |
| | Jute | - | | |
| (0-3')F0-F1 | - | - | - Sugarcane +Pulse | 10% |
| (0-3')F0-F1 | - | - | - Sugarcane | 10% |
| (0-3')F0-F1 | - | - | Veg/Sweet Potato etc. | 10% |
| (0-3')F0-F1 | F | F | F F | 10% |

## Average Crop Yield and Price

| Crops | Av. yield/ha. | Price/MT |
|---|---|---|
| Aus | 1.5 | 5360-6030/- |
| Aus+B.Aman | 1.9 | 5360-6030/- |
| Jute | 1.4 | 4020-5360/- |
| T.Aman | 1.9 | 536-6030/- |
| Wheat | 1.8 | 6030-6700/- |
| Mustard | 0.8 | 5360-6700/- |
| Pulses | 0.6 | 14,740/- |
| Sweet Potato | 9.0 | 2680-3200/- |
| | | 2144-2400/- |
| Potato | 8.5 | 13500-14740/- |
| Sugarcane | 25.0 | 640-670/- |
| Groundnut | 1.9 | 10720-11250/- |

The price of products gradually increases with the increase in demand in the lean season.

## Use of Fertilizer

Farmers in the flood plain use less quantity of fertilizers as they believe the land is fertile due to siltation by river flood every year. The following doses of fertilizers are applied in the flood on different crops are as follows:

| Crops | Urea(kg/ha) | TSP(kg/ha) | MP(kg/ha) | CD/Manure(Kg) |
|---|---|---|---|---|
| B. Aus | 110-130 | - | - | 2000-2500(CD) |
| | | | | 800-1000(Ash) |
| B.Aus+B.Aman(mixed) | 110-130 | - | - | 2000-2500(CD) |
| | | | | 800-1000(Ash) |
| T. Aman | 120-150 | 60-70 | 40-50 | |
| Jute | 90-110 | 60-70 | 40-50 | |
| Wheat | 180-220 | 80-90 | 40-50 | |
| Mustard | 90-110 | 70-90 | 40-50 | |
| Potato | 110-130 | 80-100 | 50-60 | |
| Sweet Potato | - | - | - | |
| Pulse | - | - | - | |
| Sugarcane | 190-210 | 90-110 | 70-80 | |

Farmers reported that they do not get any advise from agricultural extension regarding improved agriculture and fertilizer application. They decide the doses of application from their own experience.

### Irrigated Crops

In the flood plain almost all the crops are grown under rainfed condition. No Irri/Boro (HYV) is grown in the flood plain. A few acres of land were found under Irri/Boro (HYV) in the river bed with irrigation by indigenous methods.

### Crop Damage

In the floodplain the flood water usually does not cause any heavy damage. About 70-75% of the area is high to medium high. This land is not susceptible to damage in normal floods. The rest of the area is medium low land, where mostly Aus + B. Aman (mixed) is grown. In some area deep water Aman is also grown. Occasionally sudden rise of flood water damage mostly the Aus and Aman crops, overspilling the river banks. In 1987 and 1988 considerable loss of crops and properties occured. In 1991 sudden on rush of flood water damaged Jute, Aus and Aman seedlings. In September in the same year late flooding again damaged the B. Aman and T. Aman. In *Khalabari, Panch Betur, Salina* rainwater causes water congestion and some damage to deep water Aman crops in low pockets.

Deposition of sands on agricultural land has changed the cropping patterns in the area. Some double cropped area like Aus/Jute Rabi crops have been converted to single cropped where sugarcane is grown.

### Livestock and Poultry

Livestock and poultry is not so prominent in the area as there is no households available in major part of the floodplain. Only some households of village *Kumuli Namder, Suruj, Panch Betur and Salina* fall in the floodplain. Low numbers of livestock and poultry are found in those households. The livestock and poultry situation in the area is similar to those of SC-6, 5 and 1 situated at the north-western border of the compartment.

### Physical Observation and Views

About 70-75% of the floodplain is high to medium high land and the rest of the area belongs to medium low land. Land type of medium high to high is F0-F1 while that of medium low land is F2 type. The major part of the area on both sides of the Pungli river is levee soils with FSL to SICL in texture. Topography of the area is nearly level to gently undulating. The average land level is raising due to siltation every year. The land generally slopes towards the East and West away from the river bed. Occasional sudden onrush of flood water affects the crops on both the sides of the river. River erosion at *Birnahali, Panch Bethur and Salina* was observed which threaten the embankment at the wester part of the river along with the homesteads, school etc.

## PU.4. FISHERIES

### Water Bodies

The available waterbody under *Pungli* flood plain includes 3 *pagars* covering an average area of 6-10 decimal. These *pagars* are very resourceful from the fishery point of view as the villagers get fish from this *pagars* during post monsoon period. These *pagars* belong to individuals and about 5-10 mts of different kinds of fish are caught annually from these

*pagars*. The available kinds of fish in the *pagars* include *Koi, Magur, Sing, Gulsha, Tengra, Pabda, Foli, Puti, Baim, Rupchanda, Chela, Bele, Shrimps* etc. All these pagars are naturally stocked with the onset of the dry season. Fish are caught mainly by draining out water by LLP, handpicking and sometimes by *Jhakijal*. The leftover fish in the *pagars* spawn in the *pagars* themselves with the early rainfall in the month of *Baishak*. As soon as the surrounding active floodplain is inundated with water the *pagar* fish (both adult + juvenile) spread over the floodplain for nourishment.

**Pungli River**

From the capture fishery point of view this river is very resourceful and from the navigation point of view this river is very useful too. Many river fish spieces like *Boal, Nura, Feka* (very few), *Gulsha, Tengra, Foli, Shrimps, Aoir, Rita, Khalla, Gharo, Belle* etc. are present in the river during the full monsoon period and many professional fishermen from neighbouring as well as remote areas and local subsistence fishermen go fishing in this river. Their catch is reported to be satisfactory. Fishing in the Pungli river is reported to go on up to *Falgoon*.

**Professional Fishermen**

There is no report of professional fishermen in the area.

**Subsistence Fishermen**

About 3-4 households of subsistence fishermen to live in the *Pungli* floodplain (*Pachbetur*) and they are very poor Muslim people. They catch fish in *pagars*, ditches, neighbouring *beels* and sometimes in the *Pungli* river. They are so poor that cannot afford to purchase the necessary inputs for capture fishery in the rivers. During the peak fishing period, i.e. the months of *Sravan, Bhadra, Ashwin, Kartik, Agrahayan, Poush and Magh* they get good fish catch and manage their family well but during the lean period, i.e. the other months they find much difficulties to manage their family.

**Fishing Periods**

Capture fishery goes on in the *Pungli* river from *Ashar to Magh. Pagar* fishing goes on in the months of *Falgoon, Chaitra* and floodplain fishing is of very short duration i.e. only in the month of *Bhadra*. The peak fishing period is reported to be in the month of *Bhadra* and *Ashwin* in the *Pungli* floodplain.

**Fishing Methods**

Different fishing methods are in practice. About 80-90% floodplain fishing is done by *Shibjal, Jhakijal* and about 10% is done by harpoons like *Aro and Tenta*. About 80-90% of *pagar* fishing is done by pumping out all water and handpicking. About 70-80% of capture fishing in the river is done by Berjal, angling and sometimes traps are used.

**Floodplain Fishery**

Floodplain fishery is not so developed in the areas due to lack of sufficient areas in the floodplain. In the month of *Ashar* and *Sraban* the river water overspills the area near the village *Pachbetor and Salina* (upper catchment) and inundates the available small area

between different houses. The duration of floodplain is very short *Bhadra*. Many riverine fishes like *Tengra, Gulsha, Foli, Boal, Bacha, Batashi, Chingri, belle* etc. come to the floodplain alongwith the water and spawn there. Meanwhile the already present fish in the *pagars* spreadover the floodplain for nourishment.

At this time only the casual fishermen catch fish from the floodplain. After one month the water goes back to the river. This time some of the available floodplain fishes migrate to *pagars* while others go back to the river.

**Fishing Practices**

The capture fishery is reported and is well practised in the river and floodplain during monsoon. The culture fishery is totally absent.

**Institutional Facility**

The institutional facilities are reported to be completely absent in the area.

**Fish Predation and Fish Disease**

Both are reported but its intensity is very less. Some fish disease is found in the month of *Kartik and Agrahayan* both in the river and the *Pagars*. Fish predation is also reported.

**Fish Migration**

Fish migration takes place in the area. During full monsoon the riverine fishes migrate to the floodplain when *Pungli* river water enters the floodplain.

**Own Observation and Views**

There is no ponds or *beels* and the only water bodies are a few *Pagars* and the *Pungli* river. The *Pungli* river was found completely dried up with the exception of shallow water in some depression. Children were found fishing in the shallow water of the river by scoopnets. Villagers were found bathing themselves and their cattle in the river depressions.

About 70/80 households have settled recently on the western side of the *Pungli* river, moving from eastern side because of serious river erosion. Almost all their farming land is in the river bed due to erosion.

**Views**
The pond culture fishery has little scope for development.

**PU.5. ENVIRONMENT - MALE**

**Biological**

**Arthropods**

Destructive insects like *Pamri, mazra, letha, chenga, pathra* etc. are reported in the area. They damage crops like Irri, Boro, Jute, Pulses, Sugarcane, Wheat etc. As per report these insects are resistant to insecticide.

**Mollusca**

Unio (bivalve) and pila (snails) of different sizes are reported to present in the Pungli river, of which pila out number the unio population.

**Annelids**

*Nerries, Leech, and Earthworms* are reported but in reduced number. Leeches are found in the bushes.

**Fish**

People are concerned about fish disease and they requested to control fish disease.

**Amphibian**

Toads, frogs and *hyla* are reported, but in reduced number. People reported that toad catching practice goes on in the areas in the rainy season.

**Reptiles**

Tortoise are completely absent. As per public report a group of people from Pabna district visit the *Pungli* river in the month of *Poush* and *Magh* to catch tortoise. They catch many tortoise from the *Pungli* river and sell them. The other reptiles like *Guishap, Anjan,* poisonous and non-poisonous snakes are also present in the areas but in reduced number.

**Birds**

Common varieties of birds like *crow, cuckoos, shalik, panikauri, kora, herons, kite kingfishers and tuntuni, boi* etc. are present in the area but in reduced number. As per public report after the flood of 1988 this bird population has significantly decreased in the area. There is a report of vultures visiting the area when cattle die. But the vulture population is also reduced.

**Mammals**

**Terrestrial Wild Animals**

Wild animals are reported but in reduced number. The available wild animals in the area includes Nangar, Jungle cats, Moles, Rats, mongoose, jackle etc. People reported that after the flood of 1988 their population has significantly decreased. Rats are abundantly present in the area and crop damage by rats is also reported.

**Domestic Land Animals**

As per public report there is an acute shortage of domestic animals in the area. Horses and Buffalos are completely absent. Dry cows, milch cow are very reduced in number. Due to cattle disease every year about 5-10 cows die in the area being attacked with cattle disease. Institutional facility from the concerned department is reported to be nil.

### Others

### Afforestation

No afforestation programme from Govt or NGO is reported. People plant areas their respective homesteads.

### Deforestation

Deforestation is relevant and goes on round the year. There is no brick field in the area.

### Kitchen Gardening

Kitchen gardening is well developed in the area and about 80-90% of villagers do kitchen gardening. They grow common varieties of vegetables.

### Human Activities

### Human Habitation

There is a report of new human habitation growth in the area but is very negligible. As per report about 1-2 new houses covering about 5-10 decimal of land in average have been constructed in the over the last 2 years.

### Pollution

Open sanitation, throwing away of dead animals *kacha* latrines, are reported to be the source of environmental pollution from which many diseases develop.

### Own Observation and Views

The main environmental hazards came into sight is the dangerous *Pungli* river erosion in the village *Pachbetur and Salina* along the bank of the *Pungli* river. The dwelling houses are under the threat of river erosion and at any time they may collapse. People in the area are afraid of the river erosion.

The Pungli river was seen completely dried up in most of its river bed with the exception of shallow water in the depression when children, and adults were found bathing. Villagers were also seen their bathing cattle in the Pungli river depression. Kitchen gardening is well developed in the area.

### Views

River erosion problem is a serious threat in the area and this needs to be checked on an priority basis. In this connection appropriate agencies may be approached to safeguard the human habitation of *Pachbetur* and *Salina* village. More hand pumps may be supplied to the areas to meet their drinking water demand. *Pagars* need to be re-excavated to provide the villagers for surface water facility.

## PU.6. ENVIRONMENT - FEMALE

### Homestead Forest

Homestead forest is reported to cover (.2-.3) acres in most of the homestead in the visited area. The homestead forest with most common varieties of trees herbs, shrubs, mango, hard fruit trees, coconut, battlenut, guava etc. are available in this floodplain area. Natural vegetation and kitchen gardens are also well developed here.

### Fuel

Fuel scarcity is very serious. Each year a good number of people become homeless due to *Pungli* erosion, damage to property including, cultivable land, livestock and homestead forest are also the source of fuel. Well-to-do family buy firewood from the market. Women think fuel is the most important item next to rice.

The main source of fuel is dry leafs, remains of paddy, mustard, pulses, dry bushes etc.

### Drinking Water

Most of the people drink tubewell water. In an average 25-30 number of tubewells are reported available in the visited *Pungli* flood plain area. People use river water for bathing washing, cleaning etc.

### Sanitation

Most of the people are using *kacha* latrines.

### Diseases

Use of *kacha* latrines is one of the major source of air and water pollution. Hens, chickens, cocks always wonder there and spread germs here and there. The diseases like diarrhoea, worms and dysentery mostly occur in the month of *Falgoon* and *Chaitra,* due to the use of *kacha* latrines.

### Rats and Wild Animals

Rats problem are reported present causes damage to crops outside and household belongings inside the homestead. Wild animals like jackle, *mongoose*, jungle cat, *bagdasha* etc. are present and the destroy poultry and baby goats.

### Water Related Situation

It is reported that about two thirds of *Panchbetur* village eroded away by *Pungli* river during the last fifteen years. Lots of people became shelterless and migrated to different places and districts due to the *Pungli* river erosion.

## PU.7. SOCIO-ECONOMIC SITUATION - MALE

### Major Non-Farm Activities

The major non-farm activities of the people of the area are agricultural work, transport work, earthcutting, sand collection from the river, service, seasonal and petty business.

From the non-farm activities about one third households are service holders, about one tenth are petty businessmen, about one eighth are transport workers, about one fourth are sand collectors and rest are different non-agricultural (including mason, construction worker, earthcutter etc.) and agricultural day labourers.

### Social and Institutional Aspects

### Employment Patterns

Family labour is mainly used in the farm households of the area. During the peak season of agriculture in the area (although for a short while about two weeks) in-migration of labours occurs there. A few labours (from 5/6 households) from *Pasbethair* part of the floodplain migrate to other areas during the lean agricultural season. The out-migrated labourers mainly engage in earth cutting. Some find work in transport and others in earth cutting, construction work, bidi making etc. A few are involved in seasonal business. in part of surveyed area, the poorer households including the landless families involve themselves in producing vegetables and management of the gardens, which actually reduces the number of out-migration of labourers. There are also 3/4 poorer families (subsistence fishermen) who depends on fishing during the monsoon (about 3-4 months).

### Wage Rates

The wage rate for agricultural day labourers in the area ranges from Tk.15-20 during the lean season and Tk.25-30 during the peak season. Sometime one meal is provided to the day labourers during the peak season. The working hours for the day labourers in the area is 8 a.m. to 2/3 p.m.

### Organized Groups

There are organized groups of SDS and SSS in the area. These groups are mainly of women and young children.

### Transport and Communication

The surveyed villages/areas in the flood plain are situated just alongside the embankment on the *Tangail-Mymensingh* high way. The embankment is well connected with other important roads. Therefore, the area on the northern side is provided with good road communication system to the people of the *Pungli* flood plain. The embankment and other connecting roads remain useable by rickshaw/van throughout the year.

### Markets

The people of the area to their marketing in the hats/bazars are shown in the following table alongwith other information:

| Sl. No. | Name of the Market (Hat/Bazar) | Hat/Bazar Day | | Attendance | |
|---|---|---|---|---|---|
| | | Hat | Bazar | Hat | Bazar |
| 1. | *Nigoir* | Thursday | - | 700/800 | - |
| | | & Sunday | - | 1000-1200 | - |
| 2. | *Kishtosaherhat* | Friday | - | 2000-2500 | - |
| 3. | *Suruj* | Monday | Everyday | 7000-8000 | 400/500 |
| 4. | *Bararia* | Friday | - | 3000-3500 | - |
| 5. | *Rasulpur* | | | | |
| 6. | *Elenga* | | | | |

## General Needs

The main need of the area is to be protected (the western side) from the erosion of the river Pungli. Other general needs includes drinking water facility, health service and extension service of livestock and poultry.

### Own Observation

### Socio-Economic Condition

The overall economic condition of households in the area in below average. Except that of *Salina* village households of other villages (*Pasbethair and Moila*) mainly depend on non-farm activities. The households (about 20/25) of part of *Moila*. There new settlers who are mainly landless families and their main profession is sand collection from the river. These families totally depend from their earnings on sand selling. In this procession 6/7 people work in a group and with a boat. Each of the member of the group can earn Tk.50-100 per day throughout the year.

The people of *Pasbethair* and part of *Salina* are living under the threat of erosion of the Pungli river. During the last few years lots of houses and agricultural lands have been eroded by the river. To save people from becoming homeless or landless the people of the area urged for an immediate solution to the problem.

Although the area is not covered by so many NGOs and their activities, even so people of the area think that the NGO activities are helpful and aimed at the welfare of the common people. They support more coverage of NGOs in the area.

### About Functioning of Union Parishad and Upazila

The people of the area are found not satisfied by the performance and functioning of the Union Parishad, but as a rural development institution they feel that the Union Parishads are the unique institutions. However, they stressed the need of its proper functioning and come out as an institution for the welfare of the rural masses.

About the activities and functioning of the upazila the people area have no clear idea but they think the upazila should have more control over the activities of Union Parishads in order to set priorities of the works of Union Parishads.

## PU.8. SOCIO-ECONOMIC SITUATION - FEMALE

### Employment Patterns and Activities of Women

The visited villages under the *Pungli* active floodplain are the part of *Panchbatur* and *Salina* villages. Women of the visited areas are mainly doing household work. Besides their household work, a few women are engage with income generating activities.

Some women are involve with *Biri thonga* making, 3-4 women working as maid servant, 3-4 women working at a Bidi factory and one women is involve in sewing. One literate woman is holds a service job.

### Wage Rates

The daily wage rate for non-household activities are as follows; Biri thonga making earn Tk.5-6/-, Bidi factory worker Tk.30/-, tailor Tk. 20-25/-, maid servant and post harvesting worker Tk. 3-5/- (with 3 meals daily). Women engage with post harvesting work earn their wages in kind.

### Organized Groups

Presence of NGO and organized groups are very limited number according to the need of the locality. The following NGO and structured groups are reported present in the visited area:

| Sl. No. | Village | Name of Organization/Samity | # of Groups | # of member invol. | | Remarks |
|---|---|---|---|---|---|---|
| | | | | Male | Female | |
| 1. | Puch Batur | 1. SDS<br>2. Paribar Parikolpona Samity<br>3. Local Mohila Samity | -<br>- | 150<br>-<br>- | 100<br>110<br>60 | |
| 2. | Salina | 1. SSS (Society for Social Service)<br>2. Grameen Bank(Bhumihin Samity<br>3. Local Mohila Samity<br>4. Local Boys Club | -<br>- | -<br>5<br><br>10-12 | 25<br>6<br>10-15 | (No longer functioning |

### Education and Literacy Rate

The literacy rate of *Puchbatur* is as 50%, attendency rate 75-80%, % of girls among all students is 30%. While literacy rate in *Salina* is 40%, attendency rate 60-70% and % of girls among all students is 30-32%.

### Public Facilities

Public facilities like Union Council office, post office, F.P clinic, health clinic etc. are available either in the villages or bordering villages within 1/2 and 1 mile distance. Women complained that the poultry and livestock services are very not available three of cost. Some people rent out their draft animals on hire basis to other farmers for ploughing their land. Reduction of draft animals affects to the fuel situation as it reduces. The availability of cowdung for rich and middle class families.

## General Needs

The main need of this area is to stop the Pungli river erosion as soon as possible. Although no effective suggestion could be made by the women, they strongly demanded protect from erosion.

Women requested for sinking of tubewells for drinking purpose and construction of at least a few *pucca* latrines.

Coverage of NGO activities and an wide basis generation of employment opportunity was also urged by women in the visited area.

## Own Observation

Pungli river erosion posses a serious problem on the rainy season causing much damage to human property. Places near the *Pungli* river are now under serious threat. The major agricultural crops observed was sugarcane. The homestead forest and kitchen garden observed were developed.

## Peoples Opinion

### About Union and Upazila Parishad

Women could not pass any comment regarding Upazila Parishad but they cited about Union Parishad, plays a role to settle village conflicts and provide wheat or rice to the poor people. Some women of *Salina* stated that the *Union Parishad* does good for the common people by settling village conflict only.

### NGO

While asked women said the Grameen Bank provides inputs for housing, latrines and loans to the poor people.

## List of Villagewise Influential Leaders

| Village | Name of Leaders | Profession |
|---|---|---|
| *Panch Batur* | Rasmat | Shopkeeper |
| | Panna Baparri | Member |
| *Salina* | Atahar Ali | Businessmen |
| | Aynul Hoque | Member |

## SUB-COMPARTMENT E2

### E2.1 INTRODUCTION

Sub-compartment E2 is to the North of the *Tangail* CPP (FAP-20) and is stretched on either side of the northbound *Gala-Kujbari* road, on the West the *Bara Basalia-Nandabala* road, on the East the *Pungli river* and the *Gala khal* intake through *Bara Basalia* and *Rasulpur,* on the South is the *Gala khal* which flows from the *Lohajang* river to *Rasulpur* village and on the West is the road from *Senergagarjan* to *Bilbakhar*. About 70% of the farm land on the West of the *Gala-Kujbari* road is medium high while to the East about 80% land is low. The total area of this sub-compartment is about 900 ha.

### E2.2 HYDROLOGICAL SITUATION

**Riverflow: Flooding and Drainage**

The river flow usually begins early June. This sometimes coincides with heavy rainfall and due to lack of adequate drainage, causes drainage congestion and early flood. Mature Irri paddy and new B. Aman seedlings in low areas are thus damaged due to inundation.

In the early monsoon surface flood flow enters this sub-compartment from the *Pungli* river on the East through the canals in *Bara Basalia* and *Rasulpur*. Later in the peak monsoon, flood waters from the *Dhaleswari* on the West reach this area through the canals in *Nandabala* and *Khidir,* flowing South-East. The land slopes towards the East to the *Pungli* river. The western half of the sub-compartment is higher except a few low pockets, e.g. around *Kandapara beel* and *bil bakhar*. The eastern part is low and as such experiences drainage congestion problems. The southern part is also relatively high. A pocket of low farm land to the South of *Gala* village is flooded from *Gala khal* on the South through a breach on the *khal* bank. But the area can not be drained out completely through the same route due to its higher elevation. The main drainage is towards *Pungli* river on the East. There are two main flooding and drainage channels in the area: (i) the *khal* through *Bhaita, Dighibil* and *Bara Basalia* to *Pungli* and (ii) the *khal* from *Kandapara beel* to *Pungli* through *Choto Basalia* and *Gazaria beel*. The *Rasulpur* area on the South-East is fed and emptied through a separate channel to *Pungli* river.

Re-excavation of channels will help relieve the drainage congestion in the low areas. The *Pungli* river bed is higher than the inland low areas. As such to ensure proper drainage re-excavation of that river bed is necessary. People of *Bara Basalia* are against the idea of *khal* re-excavation out of fear that due to high river bed there will not be enough drainage to the river but the upland flow through the *khal* will aggravate the drainage congestion in the area. However, the people of inland villages, e.g. *Choto Basalia, Bilbakhar, Bhaita and Kujbari*, want re-excavation of *khals* for efficient drainage of their farm land. They are also agreeable to co-operate in all possible ways for such initiative. Re-excavation of *Kandapara beel* and *Gazaria beel* will case the drainage congestion to some extent by additional storage and will also help fish culture and irrigation.

People of *Rasulpur beel* say that a regulator on the *khal* from the *beel* to the river will solve their problem. But the area is open to flooding from the North-West through *khals* from *Bara Basalia* and *Choto Basalia*. Re-excavation of about 1 km *khal* from *Rasulpur* to the *Pungli* along with a regulator of proper size may help by controlling untimely flood and ensuring timely drainage. About 1.5 km of the *khal* from *Kandapara beel* to *Gazaria beel* through *Choto Basalia* and about 1 km of the *khal* through *Bhaita* and *Dighibil* will help to ease the drainage congestion of these areas.

There was no *khal* re-excavation programme in this area in the recent past.

Small country boats are used during the peak monsoon period from June to September for local communication of people and freight. Weekly village markets command the major boat routes. Bigger boats can not enter the area since the *khals* are narrow and shallow.

**Erosion**



There is no erosion problem from *Pungli* river in the North-East.

**Ground Water**

In the low and medium low areas Irri/Boro cultivation is practised and irrigation is done by DTW's and STW's. But in higher areas irrigation is rare due to the higher cost involved. There are some areas suitable for irri-cultivation through irrigation but very few tube wells were found. Poverty was cited as the main reason. Ground water resources are not adequately exploited. There are 2 LLP's at *Bara Basalia* at deeper parts of *Pungli* river used for irrigation.

For drinking purposed HTW's are used, but their numbers are not enough. People are reported to go quite far to collect drinking water. Discharge from tube wells in low areas are reported to adequate at all times. But in higher areas the discharge becomes less in the late dry season.

The quality of ground water is reported to be acceptable and the variable iron content does not pose any problem for irrigation, drinking and/or other uses.

**Conclusion**

This sub-compartment consists of high and low areas and as such the problems related to water resources varies. High river bed level of *Pungli* is a major obstacle to efficient drainage of the area. The inland people want re-excavation of *khals* for proper drainage but the people near the outfall of the *khals* are against any re-excavation. There is demand for re-excavation of the *Pungli* river and *Gala khal*. The village *Bara Basalia* is along the *Pungli* river bank. Any embankment through this village will be extremely difficult as a large number of homesteads will be affected. A few years back the *Magra-Gala* small scheme project in this area was rejected due to this reason. There is demand for re-excavation of the perennial *beels* which will improve fish culture, surface water irrigation and also relieve drainage congestion by increased storage capacity. Ground water quality and quantity are satisfactory but not adequately exploited.

## E2.3 AGRICULTURE

### Crop Pattern

The survey was carried out in the SC-E2 covering the villages *Kuijbari, Bara Basalia, Choto Basalia, Gala* and *Rasulpur*. The gross area is 915 ha out of which the net cultivated area is approximately 732 ha. The area is nearly level, very gently sloping towards the basin sides. In the area mustard and wheat dominate the Rabi season. The major crops are Boro (HYV)/ Braus (late Boro), B. Aus, Jute and Aus and Aman mixed and TDW Aman. The cropping patterns are as follows:

### Cropping Patterns

| *Kharif-1* | *Kharif-2* | Rabi | Annual | Approx.% of cultivated area (ha.) |
|---|---|---|---|---|
| B. Aus/Jute | - | Mustard/Potato/Pulse/ Wheat | | 10% |
| B. Aus/Jute | T. Aman | Mustard/Wheat/Potato /Vegetable | | 20% |
| - | - | Mustard-Braus (late Boro) | | 20% |
| TDW Aman | - | Boro (HYV) | | 20% |
| Aus+B. Aman(Mixed) | - | Mustard/Wheat/Pulse | | 20% |
| TDW Aman | - | Mustard-Braus | | 10% |

Irri-8, BR-3 and 4 and *paijum* is popular as Boro (HYV) and Braus. There is no other HYV paddy other than Boro in the area.

### Average yield and price

The average yield and the sale price in the harvesting period of different crops are given below:

| Crops | Av.yield MT/ha | Price/MT |
|---|---|---|
| B. Aus | 1.4 | 5360/- |
| T. Aman | 2.2 | 6030/- |
| B. Aman | 1.7 | 6030 |
| TDW Aman | 1.8 | 6030/- |
| Boro (HYV) | 4.2 | 6030-6700/- |
| Braus | 3.4 | 6700/- |
| Jute | 1.7 | 5360/- |
| Wheat | 2.0 | 4830/- |
| Mustard | 1.1 | 10720/- |
| Potato | 8.0 | 3216/- |
| Pulse | 1.2 | 12060/-(lentil) |
| | | 8040/-(khesari) |
| Vegetables | 5.0 | 3200/-(cabbage) |

### Use of Fertilizers

Farmers use fertilizers for different crops below the optimal doses. They usually apply fertilizers in higher doses in Boro (HYV), wheats and mustard in comparison with others.

The lack of knowledge about the optimum doses of fertilizer and lack of credit are the main reasons for such low application. Agriculture extension is poor in the area as farmers rarely see an agricultural worker in their area. Occasionally they make use of insecticides. Farmers use *Basudin* mixed with fertilizers during top dressing.

## Irrigated Crops

Farmers in the area irrigated the Boro (HYV) and Braus (late Boro). Other crops are mostly grown without any irrigation and under rainfed conditions. Vegetables are occasionally irrigated by indigenous methods like pouring water by pitches from ponds and ditches where available. In the dry season there are few available water sources. Farmers mainly depend on deep tube wells and shallow tube wells to irrigate the Boro (HYV) in the Rabi season. In the studied villages and some adjacent villagers of the sub-compartment 10 DTWs and 32 STWs are available.

| Village | DTW/STW (cusec) | Irrigated area(ha) |
|---|---|---|
| *Kuijbari* | DTW 1 No. (2 cusec) | 20 |
| | STW 5 Nos.(1/2 cusec) | 25 |
| *Bhaota* | DTW 1 No. (2 cusec) | 20 |
| | STW 3 Nos.(1/2 cusec) | 15 |
| *Hatibari* | DTW 1 No. (2 cusec) | 20 |
| | STW 2 Nos.(1/2 cusec) | 10 |
| *Bara Basalia* | DTW 4 Nos.(2 cusec) | 80 |
| | STW 8 Nos.(1/2 cusec) | 40 |
| *Chota Basalia* | DTW 1 No. (2 cusec) | 20 |
| | STW 3 Nos.(1/2 cusec) | 15 |
| *Gala* | DTW 1 No. (2 cusec) | 20 |
| | STW 8 Nos.(1/2 cusec) | 40 |
| *Rasulpur* | DTW 1 No. (2 cusec) | 20 |
| | STW 3 Nos.(1/2 cusec) | 15 |
| | Total : | 370 |

The only DTW in the village *Chota Basalia* (eastern part) is now functioning as the connecting electric wire of DTW has been stolen. The wire has not yet been replaced by the rural electrification board in spite of informing the concerned authority. So the farmers are uncertain about the cultivation of Boro (HYV) in this season.

Usually the irrigation cost unto the last year was to pay 1/4 (25%) of the crop produced. But this year, due to rise in price of diesel, the owners of the tube wells are demanding 3/8 or 35% of the production alternatively 25% of the crops and in addition Tk.100/- to 150/- per bigha.

## Crop Damage

When flood water enters the area in the month of May to June it causes damage to young seedlings of Aus and Aman. This water remains in the area for about 3 months. Although water in the area fluctuates in depth in different times it damages deep water Aman about 70-75%. Due to uncertainty of harvesting the deep water Aman farmers are now loosing their interest to grow this crops and a vast area remains fallow in the rainy season.

## Livestock

The livestock in the area is not well developed. Farmers suffer from the shortage of draft animals and during the peak period they plough their land with power tillers at a high cost. Very few power tillers are available in the area and they cost Tk.130/- for 1st ploughing per *bigha* and 2nd and 3rd ploughing costs Tk.100/- per bigha. The livestock mostly suffer from the diseases rinderpest and mastitis. The medium from the livestock department is poor. Farmers treat their livestock mostly by private practitioners.

## Poultry

Poultry in the area mostly belong to local varieties. There is no poultry farm in the area except one in *Anayetpur* about 3-4 km away from the area. In the village *Gala* farmers have HYV poultry. Farmers get 30-35 eggs from each hen of this varieties (compared to 15-20 eggs from local variety poultry). All poultry live on scavenging with some additional food supplied like rice brans, left over food, wheat etc. In the area *Ranikhet* is the common disease which is causing decline of the poultry population. Medicare is not enough in the area.

## Physical Observation

In the area major part of the F0 and F1 land is found in the village *Chota Basalia* and *Gala.* Most F0 land (about 10-15%) is situated along the village periphery and F1 lands (about 20-25%) are situated adjacent to the F0 land. This land is mostly used to grow B. Aus and T. Aman along with some Rabi crops like potato, vegetables, mustard, pulse etc. The rest of the area is under F2 and F3 land, mostly used for HYV Boro and Deep Water Aman. Soils are mostly medium textured in basin edge and heavy textured in the basin. Light textured soils occur in the village periphery. About 60% of the area is potential for growing Rabi crops and HYV Boro.

## Conclusion

Comparatively the area seems to be rich in growing Rabi crops. HYV Boro is cultivated extensively in the area. Farmers are interested to grow this crop in other areas but lack of irrigation facilities limits the growing of HYV Boro. The major part of cultivated land is F2 and F3 while about 30% are F0 and F1 land where B. Aus and T. Aman are grown.

Proper water management to check the damage of deep water aman and provision of irrigation, could be boost up the agricultural production in area.

## E2.4 FISHERIES

### Fisheries Resources

### Water Bodies

The water bodies under the said sub-compartment with their number, type, area, available fish species and catch are shown below in the table:

| Sl. No. | Water bodies | Number | Area (Acre) | Type | Available fish species | Annual | Ownership | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1. | Beel<br>Birkushia<br>Rasulpur | <br>1<br>1 | <br>4<br>4 | <br>Perineal<br>Perineal | Common varieties of fish like major carps (Rui, katla, Mrigle, Calabous), Snake heads, Spinyeels | 3-4 mds. | Individual | The area seems qualitatively and quantitatively resourceful. |
| 2. | Ponds | 10 | 14 | cultured and culturable | In cultured pond (5 no.) fish like (cyprinus carpio, Talapia and silvercarp, rui) and in culturable ponds the fish like - Punti, Tilapia, Cyprinus, Carpia. (unscientifically) | Poor | Individual | Pond fish culture is poor. |

### Professional Fishermen

Out of the 5 visited villages (*Bara Basalia, Chatta Basalia, Gala, Kuizbari and Rasulpur* under Tangail Sadar Upazila) 35 professional fishermen are present in *Bara Basalia* and *Chatta Basalia*. They are reported to have lived there since long and fishery is their only means of livelihood. They are low cast Hindus. These professional fishermen catch fish mainly in the surrounding *beels* (*Gajzria* and *Rasulpur*), rivers, canal and from ponds on contract basis. They are poor and due to lack of necessary inputs they cannot go to the Jamuna river for fishing. They reported that they do not get any loan facilities from any source to buy nets and boats. During the lean period they pass their time in acute economic hardship.

### Fisheries Practices

Both capture and culture fishery are reported in the area. Capture fisheries, i.e. in open water bodies such as rivers, canals and *beels*, is done mainly by professional fishermen. Culture, fishery i.e. in closed water bodies such as ponds and lakes is done by subsistence fishermen.

### Fishing Periods

Generally fishing in the area goes on almost round the year but the months of December and January are the peak period.

**Fishing Methods**

The main technique and gear used by fishermen are:

- Nets such as *Berjal, Kharjal, Dharmajal, Jhakijal, Fashal, Maijal* and *Karentjal.*
- Traps such as *Dhair, Darki, Ahuka, Hosa* and *Polo.*
- Harpoons such as *Kouch, Eko, Tenta* and *Tro.*
- Lines such as *chhip, chhara* and *barse.*

- Exclusive fishing of *beels* and ditches in the dry season sometimes using low lift irrigation pumps (LLP).
- Hand picking is practised in shallow water in the dry season.

**Flood Plain Fishery**

Since the area is of high land to medium level land flood plain fishery is practised. The road side land and periphery of the *beels* inundated with water. The areas in naturally stocked with different kinds of fish which migrated from the surrounding river in the monsoon period.

**Institutional Facility**

It is reported that no institutional facilities are available for fishery development in the area.

**Fish Predation and Diseases**

There is a report of fish predation in the water bodies of the sub-compartment. The predators are frogs, turtles, lizards, snakes, king-fishers, herons, cormorant, eagles and others. The major problem reported by both the general public as well as fishermen is the Ulceratic Syndrome Disease. Over the last 4 years, this has caused a loss of production.

**Other Problems**

The other problems to fishery are the possible negative affect of pesticides and pollution caused by jute ratting. The main cause of low fish production in the area is the scarcity of brood fishes due to exclusive fishing in the dry season.

**Fish Migration**

Fish migration is relevant in the area. In the monsoon the fish from the nearby river migrate and spread over the *beels* and flood plain. The fish spawn in the flood plain in the month of May - June.

**Sources of Fish Fry**

It is reported that for culture fishery peoples get fish fry from:

- Surrounding flood plain water by fishing.

- From the professional fishermen during monsoon.
- From *Bhuapur ghat.*
- From *Delduar Hatchery.*
- From *Ashekpur (Tangail* town) fish seed production farm.

**View of the Public**

People in and around the sub-compartment have expressed the need for:

- Controlling fish disease.
- Providing institutional facilities.
- Re-excavating migratory routes of fish from river to *beels* and flood plain.

**Own Observation**

*Beel, pagar,* pond and flood plain fishery are found practised in the area. There are many road side ditches and derelict ponds which are a potential resources for fishery. The nets used for fishing is a great hazard for fishery in the area. Mesh size of these nets, particularly of the *Scine net, Berjal* is very high and the fishermen catch even very small fishes violating fisheries regulation.

Fish diseases has been extensively noticed in the area.

**Conclusion**

The existing perineal water bodies like *beel* and *pagars* be re-excavated to so as to make suitable habitat for spawning of brood fish as well as to accommodate more fish species. Fish migratory routes from river to the *beel* and other open water bodies should be re-excavated to facilitate fish migration. Fish disease is a serious threat which should be immediately controlled (if possible by supplying medicines and counselling).

## E2.5 ENVIRONMENT

**Introduction**

The following report has been prepared after surveying the area of village - *Kuizbari, Bara Basalia, Chatta Basalia* (Union - *Mogra*) and *Gala Rasulpur (Gala* Union) under *Tangail* Sadar Upazila (Sub-Compartment E2).

**Field Findings**

**Significant Natural Vegetation**

The natural vegetation is not so developed. Almost all the houses of the visited area do have homestead forest, but there is no natural forest in the area. Homestead forest is reported to cover approximately .3 acres of land in average. Some wild plants can be found along

roadsides, field margins and under the often rather dense canopy of the trees of the homesteads. At least some of these few wild plants appear to be used for food or medicine.

Other economic plants include Mango, Jackfruit, Bamboo-bushes (well developed), Banana, Coconut, Palm, Hard fruit trees, Guava etc. Some wild animals find their habitat in these bushes.

**Aquatic Vegetation**

They can be found in permanent water bodies and deep inundated fields sometimes mixed with B. Aman. The floating water hyacinth is abundant and if not checked it can interface with B. Aman and fish life. The other aquatic vegetation includes water lily, hydrilla and many other unidentified plants. Of course these aquatic vegetation is a source of food for fish.

**Biological**

The visited area was reported to once have been rich in population of both fauna and flora. But people are of opinion that due to devastating flood of 1988, and also due to human interference their population has significantly declined.

**Fish**

Fishes are available in the water bodies of the area though not to the satisfactory extent. The very high fishing intensity does not give much fish the chance to become fully grown up. Fish diseases reportedly caused decline in the fish population in the area.

**Amphibian**

Toads and frogs are reported to exist in the nearby homestead forest and water bodies. The amphibian population has also considerably decreased in the area.

**Reptiles**

Tortoise, snake both poisonous and non-poisonous, are reported to exist in the area. But the tortoise population under the sub-compartment is extinct.

**Birds**

The bird population apparently has considerably decreased over the last few years although no consensus exist about this point. Reasons are unknown but the considerable extension of agriculture both area and intensity wise, may have something to do with it. The migratory birds (Guest bird) do not visit the area. The available birds are - Crow (very few), King fishers, heroon, cuckoo, owls, kite, shalik, tun-tuni and some other small birds.

## Mammals

### Domestic Land Animals

Domestic animals like cows, goats, horses, sheep and cats exist in the area. Their population has also considerably decreased. Buffalos are almost absent in the area. The reasons of significant reduction of domestic land animals are unknown but lack of fodder may be one of the reasons.

### Wild Animals

The homestead reported to serve as important habitats or refuges for several wild life animals. It is reported that bigger mammals like *Mongoose,* Jackles and bats are present.

### Rats

Rats (Bandicota-bengalensis, and B. Indics) are abundant both in the house and outside the homesteads. They cause considerable damage to rice, other standing crops and also household belongings. The rat problem is a great problem in the area.

### Others

#### Public Sanitation

Public sanitation is reported to be poor. *Pucca* latrines are rare but *kacha* (traditional) latrines are there and are used by women only. The majority of the male population uses open space for sanitation.

### Drinking Water

There is not much of a problem with the drinking water. A good number of hand pump are available which ensures drinking water. Some people drink from open wells and surface water bodies.

### Fuel

The lack of wood, notably for fuel, is reported to be very serious in the area. People's main source of fuel is cow-dung, jute stick, dried leaves of trees, and other garbages. Cow-dung is extensively used. Only very peoples use fire-wood for cooking because it is very costly and beyond the means of the general public.

### Vegetables

Vegetables like radish, cauliflowers, beef, potato, tomato, chili, gourd, peanuts, peas, pumpkin etc. are grown on homestead land. This is an important source of food for the people of the area. Vegetables are also a cash crop.

### Afforestation

No afforestation programme goes on in the area. People are however involved in planting trees at their homesteads.

### Deforestation

Deforestation prevails in the area. There is a brick-field in the study area. People sell trees to the middlemen, who in turn sell the same to brick fields as fire wood.

### Human Activities

### Agriculture

People's main occupation is agriculture. Almost 80% of the study area is under cultivation. (Boro) B. Aman, Jute etc. are the main agricultural crops. The growth of winter crops in the area is reported to be good. The fertility of the soil is reported not to be satisfactory which needs application of fertilizers.

### Human Habitation

Notably *Gala Char* village under Gala Union is reported to have a high intensity of human habitation growth. At least 10 new houses (covering an average area of 15-20 decimal) have been built in the area over the last three years, thereby decreasing the agricultural land in the area.

### Use of Insecticides and Pesticides

In the agricultural land farmers are using insecticides like *Bushudin, Furadon* etc. to save the crops from insect and pest attack. Some people are also using ashes and powdered jute seed as substitute for insecticides.

### Pollution

Both water and air pollution is there. The main sources of pollution are open sanitation, and stagnant water and the use of insecticides.

### Livestock Diseases

There is a report of cattle disease in the area. Diseases like rinderpest cow pox, mastitis etc. are found amongst the cattle and as a result a good number of cattle die. This is the main reason for the significant reduction of cattle population. Seasonaly '*Ranikhat*' disease and chicken pox occure. They causing a decline in the poultry population in the area. Medical facilities for their treatment is reported not to be available in the area.

### Own Observation

There are perineal water bodies in the area. Homestead forest with common varieties of plants are found. Many wild animals are found in the area. Kitchen gardens are common. The vast areas were found with Rabi crops like mustard, wheat etc. Domestic animals were found, though in reduced number. The sanitation system is very poor. Water scarcity seems to be keenly felt by the people (except drinking water).

### Conclusion

Road side ditches and homestead ponds should be re-excavated to stock rain and flood water for domestic consumption. This is very important during the dry season.

## E2.6 SOCIO-ECONOMIC SITUATION

### Survey Area

The report has been prepared surveying *Kaijbari* village in the northern part, *Bara Basalia* village in the North-eastern part, *Choto Basalia* village in the central part, *Galar Char* village in the South central part and *Rasulpur* village in the South-eastern part of the sub-compartment E2.

### Major Non-Farm Activities

About two thirds of the households in the survey area are engaged in different non-farm activities like agricultural work (as daily labourer), petty and seasonal businesses, service, construction work, transportation (rickshaw, van etc.), rural industry (in rice and flour husking mills, saw mills etc.). There is a group of 10/15 fisherman in *Bara Basalia*, 20/25 in *Choto Basalia (Purbo para)*, about 100 oilman households in *Bara Basalia* and 20/25 potter households in *Choto Basalia (Purbo para)*. Three to four households in *Bara Basalia* are gold smiths.

### Social and Institutional Aspects

### Employment Pattern

Mainly family labourers are used in the farm households except in 40/45 households in *Bara Basalia* village. These keep regular (yearly basis) wage labourers in their houses and mostly depend on hired labourers for their farm activities. These households are mainly farmers and service holders. Hired labourers (wage labourers) are also used by the farmers during harvesting of HYV Boro.

Both out-migration and in-migration of labourers is found in the survey area except that there is no in-migration in *Kaijbari* and *Chargala* village as the number of daily labourers in these villages are more than in other villages.

There are 20/25 female service holders in *Bara Basalia* and 5/6 in *Choto Basalia (Pashim para)* villages. The women from poor households work in rich peoples houses as maid

servants (20/25) in *Bara Basalia* village. Some women in these villages also work in post harvesting activities in others homes. Women (from poor households) in *Choto Basalia* find their earnings by working in kitchen gardens of other households. These women labourers are mainly paid in kind. There are 20/25 women working in the maintenance programme of CARE in *Bara Basalia.*

The women from fishermen families, potter families and oilman *(kula)* families are full time engaged with their (traditional) family profession mainly at home.

**Wage Rates**

Wage rates vary considerably from one village to another. During the lean season the wage rate in *Bara Basalia* is Tk.20 with two meals and Tk. 30 without a meal. During the peak season the wage rate there is Tk.40 with one meal and Tk.45-50 without meal. *Kaijbari* day labourers get Tk.15-20 without a meal during the lean season and Tk.25-30 with one meal during pick season. In *Choto Basalia* village the wage rate during lean season is Tk.20 without a meal and in the peak season it is Tk.20-25 with one time meal and Tk.30 in the lean season and Tk.25 with one meal during the peak season. In *Rasulpur* village the wage rate is Tk.15-20 without meal in the lean season and Tk.25-30 in the peak season.

The working hours in all these villages is from 7:00 a.m. to 3:00 pm for the local labourers. But for the outsiders the working time is from early morning to late evening. For the extra hours work the outsider gets 10 to 15 Tk. more than the local labourers and also 2/3 meals, depending on local market need and intensity of work.

**Education and Literacy**

In respect of literacy *Kaijbari* people lag for behind with 10-12% while *Bara Basalia* stands at the top with 20+%. *Chargala* has the 2nd lowest literacy rate with 10-15% and *Choto Basalia* and *Rasulpur* has the same rate of literacy with 15-20%. The educational institutions and facilities available in these villages are almost equal and appear sufficient as per their need. The literacy rate in *Kaijbari* and *Chargala* are less than other villages because of their poorer economic condition.

The rate of present enrolment of children in schools is almost equal except in *Bara Basalia*, where the rate is a bit higher. The ratio of school going boys and girls is 6:4.

**Organized Groups**

The area has a few organized groups mainly formed by local NGO's. There are also BRDB and Krishi Bank groups, but the coverage is not sufficient. The Krishi Bank has a few groups in *Bara Basalia* village. The Grameen Bank has just started its activities in *Choto Basalia* and *Chargala* villages with 3 female groups. *Choto Basalia* also has a few female groups of BURO and UST. BURO and UST also have programmes in *Kaijbari* village. BRDB's male and female groups are only found in *Chargala* village while *Rasulpur* has only SSS's activities. BURO, UST and SSS's activities are mainly group formation, primary health care, savings habits creation and disbursement of loan. The Grameen Bank, BRDB and Krishi

Bank mainly provide small loans to their group members. The Grameen Bank also regularly organizes group meetings.

**Public Facilities**

Availability of public facilities in the surveyed area are minimum distance and villagers seemed reasonably happy in getting those facilities, but their expectation are higher still.

**Transport and Communication**

All the villages in the surveyed area have good road communication system and are communicable throughout the year. Rickshaw, van can always use the roads. During the rainy season the *Choto Basalia* (particularly *purbo para*) and *Bara Basalia* people use boats to go to their agricultural fields. Some also uses a boot for a short-cut to go to the markets.

**Markets**

The people of *Kaijbari, Bara Basalia* and *Choto Basalia* go to *Bara Basalia, Kaijbari, Aynapur* and *Elenga* hat while *Chargala* people go to hats in *Jugini, Gala* and *Bailla.* The *Rasulpur* people preferred to go to *Rasulpur* hat and also *Elenga.*

The following table shows the hat days with attendance:

| Sl.No. | Markets | Hat day | Attendance | Remarks |
|---|---|---|---|---|
| 1. | *Kaijbari* | Saturday | 1200-1500 | |
| 2. | *Aynapur* | Tuesday & Friday | 10000-12000<br>3000-4000 | This hat has a bazar day every day |
| 3. | *Elenga* | Wednesday & Saturday | 12000-15000<br>4000-5000 | - do - |
| 4. | *Bara Basalia* | Friday | 3000-4000 | - do - |
| 5. | *Gala* | Sunday & Thursday | 1500-2000 | - do - |
| 6. | *Bailla* | Saturday & Wednesday | 3000-4000 | - do - |
| 7. | *Jugni* | Monday | 6000-7000 | - do - |

**General Needs**

In respect of education, health communication and marketing the people of the area face no problems. But the people of the area suffer from sanitation problems. Health care awareness is lacking mainly in *Chargala, Choto Basalia* and *Kaijbari* villages. Drinking water facilities in *Kaijbari* and *Choto Basalia* villages is also not sufficient.

Extension services for poultry, agriculture, livestock etc. and NGO activities (more coverage) is very much needed by the people of the whole area.



**Own Observation**

**Existing Water Related Situation**

The water related situation in the area is of two types. *Choto Basalia* (mainly *Paschim para* - the larger part of the village) and *Chargala* village having high agricultural land which runs

short of water even in the monsoon. Therefore they cannot grow Aman paddy in their *chaks*. In *Bara Basalia, Kaijbari* and *Rasulpur* villages. Aman cultivation remains uncertainty due to fluctuating water levels in the *Pungli* and overtopping in to the *chaks* several times during the time of sowing of Aman seedlings. As a result Aman crop usually fails.

**Socio-Economic Situation**

The overall socio-economic condition of the people of the area is poor except of a few households in *Bara Basalia* village, which are service holders but also land owners. The *Kaijbari* and *Chargala* people's economic condition is the worst. The number of landless families are most in these villages. The fisherman community and the potters in *Choto Basalia (Purba Para)* are living from hand to mouth. Particularly the potters are in a very bad situation.

**Peoples Opinion** (about solving water related problem)

An embankment on the right side of the river *Pungli* and a sluice gate at the out fall of *Bara Basalia khal* will help the people of *Kaijbari, Paschim Para* of *Choto Basalia* and *Rasulpur* to grow Aman in their *chaks*. This might help the socio-economic development of the area. Though people of *Bara Basalia* will also be benefitted (as some people of *Bara Basalia* said) they will not support construction of an embankment alongside the river, as the houses alongside the river will fall in the embankment alignment. It may be mentioned here, that a plan to construct an embankment by WDB has failed (in the past) due to the protest of local people for the same reason.

People of *Chargala* expressed the need to excavate a *khal* from *Lohajang* river connecting their *chak* (which is silted up now) to solve their water shortage problems. The people of the area have shown their interest to participate in solving water related problems, some of them requested to hold a general discussion meeting between the people and the authorities.

**Conclusion**

The main problem of one part of the area is water logging in the *chaks* of the area during Aman crop cultivation while the other part suffers from shortage of water at the same time.

Where water is a problem, the problem may be solved compensating the people who will be affected by construction of the embankment. Secondly, the river bed excavation is also needed there to reduce overtopping of water from Pungli into the *chaks*.

For the *Chargala* people, the silted up *khal* needs to be re-excavate. The solutions sought by the people of the area seems well justified. Without this work their economic development is hampered.

As the area has less coverage of established NGO's like the Grameen Bank and other Govt. and Autonomous Organizations, to motivate and organize people in development work, water related issues may need extra efforts for the concerned authority.

## SUB-COMPARTMENT E3

### E3.1 INTRODUCTION

Sub-compartment E3 is to the North of *Tangail* CPP. It is bounded by *Bara Basalia - Nandabala* road on the North, *Gazarian - Basalia* road on the East, *Mirpur - Chitkibari* road on the West and the *Lohajang* river on the South. The total area of this sub-compartment is about 600 ha. Most of this area is medium high land and only about 25% area is low around the *beels* and affected by drainage congestion.

### E3.2 HYDROLOGY

**Riverflow: Flooding & Drainage**

River flow usually begins in early June. This sometimes coincides with heavy downpours causing early flood. Due to poor drainage the low areas are inundated causing damage to the mature Irri/Boro crops and B. Aman seedlings.

Early monsoon surface flood flow is from the *Lohajang* river in the South through *Baitkamara khal* to *Gazarian beel*. Flood entry from the *Dhaleswari* on the North through the *Nandabala khal* and *Khidri khal* through *Bamanpara* to *Kutibri beel* and *Kandapara beel* comes later. This flow moves east to the *Pungli* through *Bhaita, Dighibil* and *Bara Basalia* of SC-E2. Since land is on average high, the early flood does not pose any major problem except in some pockets of low areas around the *Gagarjan, Kutibai* and *Kandapara beels,* which suffer drainage congestion. Late monsoon flooding is more severe and cause more damage of crops due to lack of drainage from the low areas.

All the existing *khals* are silted up and need re-excavation to ensure proper drainage and flooding. About 1.5 km length of *khal* from *Gagarjan khal* to *Lohajang* through *Chakta* and *Baitkamara* and about 500m length of *khal* from *Gagarjan* to *Kutibari beel* and 500m from *Kutibari* to *Kandapara beels* need to be excavated. The *khal* connecting *Kandapara beel* to Pungli in SC-E2 will also be needed to relieved the drainage congestion of this area. No re-excavation of any major length of *khal* was done in recent times.

Water hyacinth in the perennial *beels* multiplies during the monsoon and spreads out. People do not appear to be alarmed about water hyacinth. They use the hyacinth by burning it in the dry season and the use it as fertilizer. Small country boats are used in peak monsoon period for movement of people and freight.

**Erosion**

There is no erosion problem from the *Lohajang* river in the South.

### Ground Water

There are very few DTW's and a few STW's in the area implying that irrigation is not widespread. The tube-wells present do not have any appreciable discharge problem.

HTW's are used for drinking water but their number is not adequate. Iron content of ground water does not pose any problem for drinking or irrigation. Open wells are used for washing and cooking.

### Conclusion

Adverse effects of flood and drainage congestion is absent in most of the areas of this sub-compartment since the average land level is high. Some low pockets around the *beels,* comprising about 25% of the farm land are affected by drainage congestion. Re-excavation of *khals* from *Gagarjan beel* to *Lohajang* and from *Gagarjan* to *Kandapara beel* through *Kutibari beel* will ease the drainage congestion problem. Re-excavation of the *beels* will also enabling fish culture, surface water irrigation and providing bathing pools for people and cattle. Due to high elevation of land, irrigation is not widespread. Ground water is not exploited fully and there is demand and scope for expansion.

## E3.3 AGRICULTURE

### Crop Production

Sub-compartment E3 is mostly high to medium high land and some medium low land. The gross area of the compartment is approximately 600 ha out of which the net cultivated area is about 500 ha. The major part of the area is high and medium high land (F0 and F1 land types). The major crops grown in the area are Aus, Jute and Transplanted Aman. Boro (HYV) and a little TDW Aman are grown on some medium low land. Among the Rabi crops, wheat dominates the area. The area is gently undulating to gently slopy towards the East and South. The major cropping patterns now in practice in the area are as follows:

| Crop Patterns | | | |
|---|---|---|---|
| *Kharif-1* | *Kharif-2* | Rabi | Approx. % of cultivated area |
| F1 Aus | T.Aman | Wheat/Potato/Pulse/Mustard | 35% |
| F1 Aus/Jute | T.Aman | Wheat/Pulse/Veg | 20% |
| F0 Aus/Jute | - | Wheat/Pulse/Mustard | 10% |
| F2 TDW Aman | - | Boro (HYV) | 15% |
| F2 TDW Aman | - | Pulse/Wheat | 10% |
| F2 - | - | Mustard-Braus(late Boro) | 10% |

### Average Yield and Price

The average yield of the major crops relevant in the MDSC survey in the villages *Chowdhury Malancha, Gupter Gagarjan, Saya Snprabat* and *Chakta* are given below along with their sale price at farmgate.

| Crops | MT/ha | Price/MT |
|---|---|---|
| B. Aus | 1.4 | 6030/- |
| T. Aman (L) | 1.9 | 6700/- |
| TDW Aman | 1.4 | 6030/- |
| Boro (HYV) | 4.2 | 6030/- |
| Braus (late Boro) | 3.5 | 6030/- |
| Jute | 1.6 | 4550/- |
| Wheat | 1.8 | 5360/- |
| Mustard | 0.80 | 12060/- |
| Potato | 12.0 | 3200/- |
| Pulse (letil) | 1.2 | 7236/-(khesari)<br>10720/-(Lentil) |
| Veg (cabbage) | 4.0 | 2680/- |



## Use of Fertilizers

The use of fertilizers in the area is below the optimal doses. Due to light textured soil must of the nutrients are lost by leaching. The average use of fertilizers is 60-70 kg of urea, 50-60 kg of TSP and 10-15 kg of MP for Aus and T. Aman and 250-300 kg of urea, 180-200 kg of TSP and 70-80 kg of MP is applied in Boro (HYV) or Braus. In other crops, including the Rabi crops, lesser quantities are used. Among the Rabi crops, wheat is supplied with comparatively higher doses than other crops. Insecticides are used occasionally and mostly Basudin is used during top dressing of area.

## Irrigated Crops

Crops are grown in the area mostly under rainfed condition. About 25% of the area where Boro (HYV) or Braus are grown are irrigated by tube wells. In some areas adjacent to the *beels* of *Gagarjan* and *Kutibari* local Boro is grown irrigating by local indigenous method from the *beel*. The following DTWs and STWs and their irrigated area were reported during the survey.

| Villages | DTW/STW (cusec) | Total ha |
|---|---|---|
| *Chowdhury Malancha* | DTW 1 No (2 cusec) | 18 ha. |
| | STW 2 Nos (1/2 cusec) | 10 ha. |
| *Gupter Ghagajan* | STW 2 Nos (1/2 cusec) | 12 ha. |
| *Saya Supravat* | DTW 1 No. (1 cusec) | 20 ha. |
| | STW 2 Nos.(1/2 cusec) | 15 ha. |
| *Chakata* | STW 3 Nos (1/2 cusec) | 15 ha. |
| | Total : 90 ha. | |

## Crop Damage

The crop damage reported was mostly caused by lack of water in the uplands and by insect damage. Aus and T. Aman are occasionally affected by flood. About 40-50% of the TDW Aman are damaged in the low lying areas. Boro (HYV) and Braus are not affected by flood. In the monsoon season when TDW Aman is affected in the eastern part of *Gagarjan*, the

land at the north-western part remain mostly above flood level. Heavy showers in June and July occasionally delays the transplanting of T. Aman because of slow drainage from the medium high land.

**Livestock**

The livestock in the area are of local varieties with average health situation. The area is reported to be deficient in draft animals. Farmers grow leguminous green fodder, locally called *shome* to feed their cattle. Cattle generally graze on fallow land and oil cakes are supplied to supplement their feed. Two to three litres of milk are obtained from each milch cow per day. Milch cows are also used as draft animals due to shortage of bullocks in the area. Rinderpest and cow pox is common among cattle. Livestock assistants give injection to the livestock once or twice a year.

**Poultry**

Local varieties of poultry, mostly chickens, are available in the area. Ducks are rare in the area due to shortage of water sources. Some farmers keep some HYV chicken but these are reported to be expensive as they are susceptible to disease and major part of these chicken die for want of feed and proper treatment. Apprehending this loss the farmers are inclined to keep local varieties. *Ranikhet* is a common disease among the poultry. Farmers arrange to inject their poultry from the livestock centre once or twice a year on their own initiative.

**Physical Observation**

F0 land occupies about 20% and medium high land (F1)- 35%). The rest of the land is of the F2 type. The overall topography is gently undulating to gently slopy towards the East and South. Soils on the uplands are mostly light textured SIL to FSL and the medium high to medium low land are medium to fare textured SICL to SIC (estimated by finger test). Almost all the F0 and F1 land are under wheat cultivation along with some other Rabi crops. Mustard was seen to grow on a minor part of the land.

**Conclusion**

Due to availability of F0 and F1 type of land there is much scope of growing transplanted Aman followed by Rabi crops. These lands are mostly triple cropped. Draught in higher lands is a vital problem limiting production in the area. Lack of irrigation in the area is the bottleneck to cultivate HYV crops. If irrigation could be provided in the area two wet land crops and a good Rabi crops would be obtained from the land. Drainage of water congestion from the low lying area will be beneficial for the farmers to save their deep water Aman. Increase of cattle, specially draft animals, is essential to solve the draft animal.

## E3.4 FISHERIES

### Fisheries Resources

### Water Bodies

The water bodies under sub-compartment E3 with their number, type, area, available fish species and catch are shown below in the table:

| Sl. No. | Water bodies | Number | Area (Acre) | Type | Available fish species | Annual | Ownership | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1. | Ghagarjan beel | 1 | 5 | Perineal | Common varieties of fish like major carps, minor carp catfish, snake heads, spinyeel climbing perch, small shrimps boats, pabda, punti etc. Fresh water muscles-hamelli-diens and snails including pila-globossa. | Approxi-mately 700-800 mds. | Individual ownership | The waterbodies seem qualita-tively and quantitatively resourceful. The Kuthibari beel is almost seasonal but only a small portion of the said beel in the middle region (approx. 1 acre) is al-ways underwater (about 2 feet depth). |
| 2. | Kuthibari beel | 1 | 20 | Seasonal | | | | |
| 2. | Pond | - | - | - | - | - | - | There is no pond in said sub-compartment poor. |

### Professional Fishermen

About 15 households of professional fishermen live in the area since long. They catch fish in *Ghagarjan* and *Kuthibari beel* round the whole year. Moreover they catch fish from the surrounding perineal water bodies and they also go to the *Dhaleswari* and *Jamuna* river for capture fishery. The fishermen go fishing in the neighbouring *Jugini beel* (*khash jalmahal*) but they are deprived of the total catch. As they are allowed to catch fish in the *Jogini beel* only on a hire basis and they are paid on daily basis like ordinary labourers. It is further reported that they have a *Matsayajibi* samiti formed by many members of the surrounding villages and the representative of the samity (like secretary etc.) deprives the fishermen of the samity from the benefit of *jalmahal*. As per the rules all the members of the samity deserve the right to share the whole benefit of the *Jalmahal*. Instead the poor fishermen of *Chakta village* get the labour charge only when fishing in the *Jalmahal*.

### Fishing Period

Generally fishing goes on round the year by the professional fishermen but subsistence fishermen catch fish seasonally. December and January are the peak period for fishing in the area.

### Fishery Practices

Capture fisheries, i.e. in open water bodies such as rivers canals and *beels*, is done mainly by professional fishermen. Culture fishery, i.e. in closed water bodies such as ponds, is absent in the area because there are no ponds in the area.

### Fishing Methods

The main techniques and gear used by fishermen in the area are:

- Nets such as *Berjal, Kharjal, Dharmajal, Jhakijal, Fashal, Maijal* and *Karentjal.*
- Traps such as *Dhair, Hosa, Polo, Ahuka* and *Darki.*
- Harpoons such as *Eko, Aro, Tenta* and *Konch.*
- Exclusive fishing of *beels* and road side *pagars* and ditches in the dry season sometimes using low lift irrigation pumps (LLP).
- Hand picking is practised in shallow water in the dry season.

### Flood Plain Fishery

The area is high land to medium level land and the duration of seasonally flooded area is very short. For about 1-2 months part of the sub-compartment remains under water and different varieties of fish are available in the area. During the monsoon the flood plain is naturally stocked with fish. Both professional and subsistence fishermen catch fish during this period. Since the area remains under water for a very short time - the people in and around area have little opportunity to enjoy flood plain fishery. In the post monsoon period the available flood plain fish go down stream and gathered in the *beels* and *pagars.* With the receding of flood plain water some fishes also to migrate to the river *Lohajang.*

### Institutional Facility

It is reported that no institutional facility is available for the professional as well as subsistence fishermen in the area.

### Fish Predation and Fish Diseases

### Fish Predation

The predators are frogs, turtles, lizards, snakes, king-fishers, kite, herons, cormorant and otters. It is reported that *shole, boal* also take part in predation and shallow other small fish fry.

### Diseases

Fish disease is a serious problem in the area and majority of fish are infected. The disease Epizootic Ulcerative Syndrome disease is the main disease. This has caused a loss of production.

**Other Problems**

The other problems are reported in the area is the possible negative affect of pesticides, jute retting etc.

**Fish Migration**

In the monsoon different kinds of fish from the nearby river migrate to the flood plain and *beels* via the canal. The migratory brood fishes spawn in the flood plain in the month of May - June.

**Views of the Public**

People in the sub-compartment expressed the need for permanent water bodies in the area to be re-excavated to increase water area and also to make some *pagars* in the *beel* for the better production of fish. They also requested the fish diseases be controlled.

**Own Observation**

Two permanent water bodies, perineal *beels,* are found in the area. Always a good number of road side ditches and *pagars*. There are no ponds and so no culture fishery. In the *beels* people were found having their baths and using the water for domestic uses. A good number of ducks, different variety of birds were found grazing in the water. Many people were found fishing in the *beels* for their own consumption. Cattle were being bathed by their owners in the *beels*. Many aquatic plants were found inside the *beel.*

Fish diseases were found to be severe in the area. The migratory route of fish from river to *beel* via canals was found to be silted up. Violation of fishing regulations were also found in the area like the nets they use for fishing having vary minute mesh-size and fishermen catch even very small fish. The *taki, pabda, tengra* spieces were found less in number than other spieces.

**Conclusion**

The perineal water bodies like *beel* and *pagars* within the sub-compartment may be re-excavated so as to make suitable habitat for spawning of brood fish and more fish stock. During dry season the *beel* water can be utilized for household consumption other than drinking.

Fish migratory routes from river to *beels* and flood plain should be channelized and well maintained. Flood plain fishery may be developed by retention of water for period of three months during monsoon.

## E3.5 ENVIRONMENT

### Significant Natural Vegetation

Natural vegetation is more or less developed in the area. The homestead forest is present in almost all homesteads covering an average area of .3 acres. A lot of different trees and plants are present along the road side. Vegetation in the area provides shelter for a considerable number of wild animals.

### Aquatic Vegetation

Aquatic vegetation is reported to exist in the water bodies of the area which comprises water hyacinth, water lily, hydrilla and B. Aman. The water hyacinth is a problem in the area as it causes a lot of damage to the surrounding standing crops during the monsoon though its importance can be ignored. As it serves as fodder for cattle and in dried form is used as fertilizer.

### Biological

### Fish

There are important potential water bodies in the area and is reported to be inhabited by different varieties of fish.

### Amphibian

Toads, frogs, *hyla* are reported to be present in the homestead forest and nearby ditches. This population is declining in the area but the cause of the reduction is unknown.

### Mollusca

*Unio* and *pila* are abundantly present in the *beels*. *Pila (Snails)* is a great source of quick-lime and also serves as food for ducks.

### Arthropod

There is a report of abundance of destructive insect and pest in the fields which cause a lot of damage to the crops.

### Reptiles

Snakes, *varasurs*, tortoise lizard, are reported to exist in the area. It is reported that a particular group of peoples kill *varasus* and sell the skin.

### Birds

Common varieties of birds are reported to live in the area but in reduced number. The reasons of reduction of the bird population in the area are unknown. Guest bird like *Bele duck, Kaldighiri* visits the nearby shallow water during winter.

### Mammals

### Terrestrial wild Animals

Wild animals like *mongoose,* jungle cats, *bagdasha* etc. are reported to live in the homestead bushes. The Jackle population has significantly decreased.

### Rats

Rats are abundantly present both in the houses and field and cause a lot of damage to the crops and domestic property. Moles are also present in the area.

### Domestic Land Animals

Domestic cows, horses, goats, sheep etc. are present but in reduced numbers. Horses are reported to use for transportation purpose and bulls are used for ploughing the agricultural land.

### Others

### Public Sanitation

Sanitation is reported to be poor in the area. There are few *pucca* latrines in the area and traditional *kacha* latrines are generally used by the women. Children and adult men use open space for sanitation and the causes a health hazard.

### Drinking Water

Drinking water facilities is more or less developed in the area. People are reported to drink hand pump water and there are about 40 hand pumps. But there is also a report of water drinking from open-wells. In the dry season the water supply by the hand pump decreases because most of the area is high land.

### Fuel

There is a report of general fuel scarcity for cooking in the area. People in the area use jute stick, dried leaves, cow-dung and garbage for cooking. Most people can not afford to use fire-wood since their the socio-economic condition is not good.

### Homestead Vegetables

Kitchen gardens common in the area. Vegetables like pumkin, gourd, raddish, cauliflowers, beet, potato, sweet potato, tomato etc. are grown on land close to the houses. Some people, after meeting their own vegetables consumption needs, sell the rest and earn a little cash.

### Afforestation

An afforestation programme is reported to be absent in the area. People of their initiation plant trees at their homesteads.

### Deforestation

Deforestation is reported to exist in the area. People sell trees to the middlemen in order to cope with their financial problems. In this way deforestation is going on in the area. The trees are used in the brick-fields and also sold in the market as firewood.

## Human Activities

### Use of Insecticide and Pesticides

To protect agricultural crops from all attack of pest and destructive insect, people in the area are using insecticides like *Bashudin, Dimacron, Faradin, Diazin* and *Bashudin*. There is also a report of use of jute seeds in powder form and burned ashes in the agricultural field as substitute of insecticides and they get good results for this.

### Pollution

Both air and water pollution is reported as a cause of pollution. Indiscriminate open sanitation, use of insecticide, leaving of dead animal bodies (like dogs, cats, cows, rats, birds etc.) here and there are the major source of air and water pollution. Many air and water borne diseases are reported in the area.

### Views of the Public

Different categories of people expressed the need for proper medical facility for cattle and poultry be provided in order to save their valuable cattle from disease. Fodder scarcity problem should be solved by all possible helpness. For domestic use like bathing for animals and washing purpose there should more permanent be water resource in the area. Public sanitation sector be improved by supplying inputs for construction of *pucca* latrines.

### Own Observation

Many timber yielding fruit bearing, cash crops and medicinal plant were found in the homestead forest of the sub-compartment.

The transportation system is more or less well developed. Many dry road side ditches and pools were found in the area. Cattle and poultry disease is found in the area. Ducks were found in almost every houses but there is no suitable water bodies for their grazing. People seem to face an acute water shortage problem. A few hand pump are found in the visited area. The canal connecting the *beel* was found completely dried up. A group of hunters were seen hunting birds in the homestead forest with air-gun. There are no ponds in the area. In a few places water stagnation is found and this seems to facilitate mosquito growth.

**Conclusion**

In order to improve the present environmental problems the institutional help may be sought.

## E3.6 SOCIO-ECONOMIC SITUATION

### Major Non-Farm Activities

The people are engaged in different non-farm activities in the surveyed area (*Gupta Gagarjan, Saya Suprorat* and *Chakta village*) such as agriculture 40%, weaving 25%, service, 5%, transport 3%, petty and seasonal business 5%, carpentry 2%, mobile saw mill (manually operated) worker 3%, fishery 5%, pottery 1% and misc. activities 11%.

### Social and Institutional Aspects

#### Employment Patterns

In the farm households mainly family labour is used. Hired labourers are used only in the peak season for agriculture in the area, i.e. during the time of harvesting HYV Boro. Except sowing and harvesting time of HYV Boro in the area the daily labourers (who are mainly land less and are marginal farmers) out-migrate to other distant places distant to find work. The majority of them engage in farm activities and earth cutting work, but some find employment in the weaving industry particularly in *Kalihati* Upazila and *Belkuchi* Upazila. Others earn their living through driving rickshaws and vans in *Tangail* Town.

The young women (20-25 years old) (mainly unmarried) particularly from the poorer families (but not from professional communities like fisherman, potter, carpenter etc.) in the area earn for their families by working in *Bidi* factories in the adjacent area. The women from the fishermen community, potters families etc. mainly do supportive professional work like net making/ repairing, pottery activities etc. at their houses.

### Wage Rates

The wage rate in the area during the lean season is Tk.15 without meals and during the peak season Tk.20 with one meal. The female bidi factory workers earn Tk.10-12 per day for a half days work and they work not more than 3/4 days per week. A bidi worker cannot get a full day or a full weeks work because the demand for the work is more than the available work. The workers from the area engaged in weaving can earn Tk.50-60 (for a whole day work) without meal. The fishermen assistants wage rate per day is Tk.25, while a saw mill

worker gets Tk.25-30 per day. Carpenters and pottery households can earn on an average Tk.30-40 per day.

**Education and Literacy**

The majority of the people of the area being economically poor, cannot afford schooling of their children and as a result the literacy rate is only about 12-15%. The educational institution and facilities are not inadequate, so enrolment in the schools is not encouraging. Moreover, dropout of students also in the high schools is quite high. These all indicates the poverty of the people of the area. The present ratio of school going children for boys and girls is 7:3.

**Organized Groups**

The area has two to three Grameen Bank centres with 30 female in each centre for the male with 28 members. BURO - A *Tangail* based NGO, also has some small groups of both male and female in the area. The main activities of the organizations are: (a) group formation, b) organizing group meetings, c) motivational works, d) savings habit creation, c) disbursement of loans to the members for different I.G. activities etc.

**Public Facilities**

Public facilities, other than the post office, are at a close distance for the people of the area and are approachable through out the year. Beside being situated at a far distance the road to the post office provides much trouble to the people of the area during the rainy season.

**Transport and Communication**

The villages of the area have a good road system with *Tangail* town via *Gala* Union. But the road to *Tangail* town via *Jugini* hat, which is a short-cut way to Tangail town, is not that good. Rickshaws and vans cannot use the road year round.

**Markets**

*Jugini* and *Aynapur hats* are the major markets for the people of the area. The hat day for *Jugini* and *Aynapur* is Monday and Tuesday and Friday respectively. The attendance at *Jugini* hat on hat day ranges from 6-7000 and 10-12000 at *Aynapur* hat. The hats also have every day bazars.

**General Needs**

The people of the area do not suffer much in respect of education, health communications and marketing problems. Due to the acute shortage of medicines in the Govt. run centre(s) around, the majority of the people in the area cannot enjoy health facilities according to their need. NGOs such as the Grameen Bank and other agencies with development programme needs to cover more families in the area according to the local people. The people of the area consider unemployment problems as the main problems. The extension services for poultry, livestock, fishery and agriculture are very poor in the area. People of the area feel the need for these extension services badly.

## Own Observation

### Existing Water Related Situation

The area being of higher elevation, pages is a shortage of water for agriculture. Irrigation facilities through deep and shallow tube wells is inadequate. Due to this the yield of HYV Boro is less in the area than in other areas. At the same time early rain water also causes some damage to the HYV Boro particularly in low lying *chaks* in the area, where drainage congestion is a problem and where it is not possible to grow T. Aman. A *khal* from *Gagarjan Chak* to the *Lohajang* via *Bhaitkamara* which is silted up, needs re-excavation to remove the drainage congestion of the said *chak*. It is learnt from the people of the area that the said *khal* now is under re-excavation programme of *khal* also has the support of people from the locality.

### Socio-Economic Situation

The socio-economic condition of the people of the whole surveyed area is very poor. Landless families and marginal farmers cover almost two third of the households in the area. Except harvesting time of HYV paddy in the area and its surroundings most of the daily labourers of the area migrate to other places or move to nearby towns to earn their livelihood. Being economically poor, the majority of the people do not care about education of their children and also about other social aspects like health, sanitation etc. The socio-economic condition of the fisherman community (15/20 H.H.) and the potters (03 H.H) in *Chakta* village is as bad as that of the people of the other two villages (*Gupter Gagarjan* and *Soya Suprovat*).

The fishermen community in *Chakta* village, members of *PASCHIM TANGAIL MATSOJIVI SAMABAYA SAMITY*, reported that although lease of *Jugni Daha* has been granted to their samity, they have been deprived with no share or rights of fish catch to that *Dhala* which they consider a threat to their existence. The samity secretary and the upazila fisheries department is responsible for this situation.

**Peoples Opinion** (about solving water related problem).

To have a solution to the water congestion problem in the low lying areas, the people of the area feel that the *khal* from the *Gagarjan Chak* to its out fall in *Lohajang* in the South should be re-excavated. To bring the high lands under optimum cultivation they need irrigation facilities through supply of more deep and shallow tube wells in the area.

### Conclusion

As stated by the people, the number one problem in the area is un-employment. To solve or minimize the problem people of the area suggested to have setting up a industry there by the Govt. Since this will take a long process to follow, different NGO's can come forward with their development program to this area. The NGO's already working in the area may include more families under their development program.

The poor agriculture production (as against land) in the area which is also a factor to the economic development of the area needs proper attention and solution as suggested by the local people by solving their water related problems.

## SUB-COMPARTMENT E4

### E4.1 INTRODUCTION

The sub-compartment E4 is to the North-West of the *Tangail* CPP. This area is bounded by the river *Dhaleswari* on the West, the *Lohajang* river on the South, *Mirpur-Bilmuril* road on the East and *Kujbari-Nandabala* road on the North. The total area of this sub-compartment is about 400 ha. Most of this area is medium high land and only about 30% of the farm land is low and partly affected by drainage congestion. Average land slope is South ward and the only *khal* from the *Dhaleswari* at *Nandabala* to the *Lohajang* always flows south during the monsoon.

### E4.2 HYDROLOGICAL SITUATION

**Riverflow: Flooding and Drainage**

River water enters this sub-compartment through the *Nandabala khal* from the *Dhaleswari.* This *khal* has two branches: one flows east to the *Pungli* through SC-E5 and the other flows south to the *Lohajang* river through *Chowdhury Malancha, Chakta* and *Bilmuril.*

Usually river flow entry begins in early June and with the monsoon showers causes the early flood. The river bank of the *Dhaleswari* in the West is high, which is overtopped only during high flood, which happened in 1988 and in the early flood of 1991. There is complain of sand entry through the *Nandabala khal* which is detrimental to the farm land.

The *Chitkibari beel* in the South is a big perennial *beel* fed from the *Lohajang* river on the South. Only during peak monsoon, overland flow from the North enters this *beel.* This *beel* drains out to the *Lohajang* in late monsoon.

During the monsoon small and medium boats move through the *Nandabala khal* carrying people and freight. Big boats can not enter from the river since the *khal* is narrow and shallow. The weekly village markets usually determines the normal navigation routes.

Since the average land is of higher elevation, drainage congestion is not so pronounced in this sub-compartment. About 15% of the farm land is affected by drainage congestion, which lies in the middle of the farm land.

The *Nandabala khal* unto the *Lohajang* river (about 3km) is to be re-excavated for proper drainage of the area. The low pockets can be connected with this *khal* for efficient drainage. The *Chitkibari beel* and the *khal* from the *beel* unto the *Lohajang* river is also to be re-excavated. There is a very strong demand for the re-excavation of *Chitkibari beel,* since this is the only perennial source of surface water around the area. There is demand for construction of regulators at the intake of *Nandabala khal* from the *Dhaleswari* and *Chitkibari khal* at the *Lohajang.*

In 1980, the *Nandabala khal* from the *Dhaleswari* unto the *Lohajang* river about 3km, was re-excavated under the FFW programme through the Union Parishad. Since then it has silted up again.

**Erosion**

There is history of erosion from the *Dhaleswari* river. About 4-5 years back severe erosion started and since then the river has shifted eastward about 4km. In 1991 about 400m was eroded away. The affected area are *Nandabala, Delda* and *Maisha*. Usually erosion start in June and continues unto September.

**Ground Water**

There are DTWs in this sub-compartment. Privately owned STWs cover about 70% of the irrigated area. There is scope for more STWs or DTWs for bringing more land under Irri cultivation. There is no electric supply and as such cost of running the pumps by diesel is high. In April - May the STW owners do not want to supply water since the demand is too high and expenses do not balance income. As such Irri production is lower than expected due to reduced irrigation.

For drinking purposed HTWs are mostly used, but their numbers not adequate in proportion to demand. Open-wells are also used for drinking. People have adapted to the high iron content of HTW water. There is no complain of any appreciable discharge problem from the tube wells.

**Conclusion**

Average land level of this sub-compartment is high and medium high and as such there is no pronounced problem of flood and drainage congestion. Re-excavation of the *Nandabala khal* from *Dhaleswari* to *Lohajang* and of the *Chitkibari beel* will generally solve the drainage congestion of this area. Re-excavation of the *Chitkibari khal* will enable fish culture, surface irrigation and bathing of people and cattle. There is scope for further exploitation of ground water resource. People are apparently motivated and cooperative for development work in the area.



## E4.3 AGRICULTURE

**Cropping Pattern**

The gross area of the sub-compartment E4 is about 400 ha out of which approximately 300 ha are net cultivated area. The major crops extensively grown in the area are Aus, T. Aman and some Boro (HYV) Braus where irrigation facilities are available. The major part of the area is high to medium high land with gently slops to nearly level topography. There is some medium low land at the southern part of the sub-compartment where mainly Boro (HYV) is grown along with some Rabi crops. The cropping patterns presently practised by farmers are as follows:

Crop Patterns

| *Kharif-1* | *Kharif-2* | Rabi | Approx. % of cultivated area |
|---|---|---|---|
| F0-F1 B.Aus/Jute | T.Aman(L) | Mustard/Wheat/Potato/Millet | 30% |
| F1 T. Aus (HYV) | T.Aman(L) | Wheat/Pulse/Veg | 10% |
| F2 - | T.Aman(L) | Boro(HYV)/Braus | 30% |
| F1 - | T. Aman(HYV) | Mustard-Braus | 10% |
| F1 Aus/Jute | - | Wheat/Mustard/Pulse | 20% |

As most of the area is in the higher elevation like F0, F1 and F2 land, there is no scope of growing deep water Aman.

**Average Yield and Price**

The average yield of different crops obtained by the farmers and their sale price at farmgate during harvesting period are as follows:

| Crops | Yield MT/ha. | Price/MT |
|---|---|---|
| B. Aus | 1.5 | 5360/- |
| T. Aus (HYV) | 2.9 | 6030/- |
| T. Aman (L) | 2.6 | 6030/- |
| T. Aman (HYV) | 3.2 | 6030/- |
| Boro (HYV) | 4.5 | 6030/- |
| Braus | 3.5 | 6030/- |
| Jute | 1.8 | 5060/- |
| Wheat | 2.0 | 4824/- |
| Potato | 10.0 | 3200/- |
| Mustard | 1.6 | 12060/- |
| Pulse | 1.0 | 10720/-(Lentil) |
| Millet | 1.1 | 4290/- |
| Veg(Cabbage,Cauliflower) | 4.0 | 3200/- |

**Use of Fertilizers**

Use of fertilizers in the area is traditional. Application of fertilizers in different crops are not in optimal doses. Higher doses of fertilizers in comparison with others are applied in HYV crops and wheat. Fertilizers applied in Boro (HYV) and T. Aus (HYV) @ urea- 90 to 110 kg, TSP -70 to 80 kg and MP- 20 to 25 kg. In wheat urea 70 to 80 kg and TSP 35 to 40 kg. Only urea is applied in other crops. Farmers reported they receive no instruction from the agricultural block supervisors for improved agriculture.

**Irrigated Crops**

Boro and Braus (late Boro) is grown in the area on medium high lands under irrigated condition. Crops other than Boro (HYV) and Braus are grown under rainfed condition and Rabi crops on the basis of available moisture. There is no DTW available for irrigation. Farmers are eager to grow HYV Boro crop in their area but for the lack of irrigation facilities it is not possible. All the STWs are privately owned. Farmers used to pay 1/4 of crops to the owner of the STW unto the last year but this year they will have to pay 1/3 of

the production due to raise in price of fuel. The available STWs in the surveyed villages and area irrigated are given below:

| Village | STW (Cusec) | Irrigated Area (ha) |
|---|---|---|
| Mirpur | 10 Nos. (1/2 cusec) | 60 ha. |
| Bilmuril | 1 No. (1/2 cusec) | 6 ha. |
| Sitkibari | 2 Nos. (1/2 cusec) | 12 ha. |
| | Total : | 78 ha. |

**Crop Damage**

No large scale crop damage is reported in the area. Some damage occurs occasionally due to early flood from the *Dhaleswari* river at the western part of the sub-compartment and causes damage mostly to Aus seedlings. T. Aman is affected in the monsoon as well as in late monsoon if there is heavy shower in the area. No damage of HYV Boro and Braus is reported.

**Livestock**

In the sub-compartment the livestock graze only on fallow lands, road sides and river banks. No extra grazing facility is available in the area. Two diseases, rinderpest and throat sore are common disease among livestock. Farmers receive little free medical care for their livestock. Most of their livestock are treated by private practitioners. Mass injection is given only once in a year, occasionally twice, when requested by farmers after paying some incentives. The Livestock department did not arrange for artificial insemination in the area reported by farmers. Draft animals are insufficient. Farmers hire a pair of animals for ploughing a bigha of land once @ Tk.50/- per pair.

**Poultry**

Almost all the poultry are of local varieties. They mostly live on scavenging. Extra feed like rice bran, rice residue and other foods are supplied by the farmers depending on their ability. One hen of local variety lays 15 to 16 eggs in a month followed after 1-1/2 month with reduced number of eggs. Ducks are available in considerable number in the village *Silkibari* due to availability of a big beel which is about 1-1/2km long. Medicare for poultry is poor. The price of a average size of cock or hen varies from Tk.45 to 55/-. *Ranikhet* and *Fowlpox* are the common disease reported by the farmers.

**Own Observation**

The land is mostly of the F0 and F1 type. The land types F0 (10-15%) occupies the area along the village periphery and is suitable for growing Rabi crops and some Aus paddy. F1 type (50-60%) occupies the land on the basin edge. This land is suitable for growing Aus, Jute, T. Aman and Boro (HYV). The rest of the area is F2 type (about 25%) where T. Aman and Boro (HYV) of Braus are grown. On about 60% Rabi crops other than Boro are grown. Among the Rabi crops, wheat and mustard are prominent. Soil condition along the

river bank varies from FSL to SIL and in other area mostly SICL. The overall slope of the area is gently slops towards the South.

### Conclusion

The area is suitable for growing Aus, Jute and T. Aman in the *Kharif* season with less damage in comparison with other sub-compartments. The intensity of growing HYV Boro is reasonability high, but lack of irrigation facilities in the area limits farmers to grow other Rabi crops. If irrigation is provided through the Grameen Bank or any other agencies scope of growing HYV Boro or Braus would be increased.

## E4.4 FISHERIES

### Fisheries Resources

### Water Bodies

The water bodies under the said sub-compartment (E4) with their number, type, area, available fish species are shown below in the table:

| Sl. No. | Water bodies | Number | Area (Acre) | Type | Available fish species | Annual | Ownership | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1. | Beel: | | | | | | | |
| 2. | Chhitkibari beel | 1 | 15 | Perineal | Common varieties of fish like major carps, minor carp catfish, snake heads, spinyeel climbing perch, small shrimps shellfishes like Fresh water muscles-lamellidiens and snails including pila-globossa. | Approximately 500-600 mds. | Joint ownership | The beel is qualitatively most resourceful in the area |
| 2. | Pond | - | - | - | - | - | - | There is no pond in the area and so pond fish culture is absent in the area. |

### *Chitkibari Beel*

The *beel* is a perineal water body in the area and lies on the eastern side of the river *Dhaleswari*.It and is connected with the *Lohajang* river via a small canal. The canal by which the *beel* is connected with the *Lohajang* river is natural. It is a temporary connection which becomes functional only during the monsoon but in the post monsoon period the canal dries up. The *beel* is reported to be a very essential water body for the population of the two villages *Chhitkibari* and *Bilmuril (Baghil* Union, *Sadar Upazila Tangail*).

The *beel* covers a total area of 15 acres and runs through the two villages. People in and around go fishing both day and night for 7 months (June - December) in the *beel*, and they get a good catch. Even in the peak dry season the depth of water in the *beel* is approximately 10 feet. The *beel* is under joint ownership of the people of two villages. The *beel* has no definite bank but only sandy slope on both sides. Boro is grown on either side of the *beel*.

**Professional Fishermen**

It is reported that there are no professional fishermen in the sub-compartment. Many subsistence fishermen are present however.

**Fishing Periods**

Fishing goes on round the year but the months of June to December are reported to be the peak period for fishing.

**Fishing Methods**

- Apart from recreational fishing method such as angling it is reported that the main techniques and gear used by the subsistence fishermen in the area are:
- Nets such as *Berjal, Kharjal, Dharmajal, Jakhijal, Fashal, Maijal* and *Karentjal.*
- Traps such as *Dhair, Darki, Ahuka, Hosa* and *Polo.*
- Harpoons such as *Konch, Eko, Tenta* and *Aro.*
- Lines such as *Chhip, Chhara.*

**Flood Plain Fishery**

The area is of the high to medium label land type. So flood plain fishery, though practised in the area, is not much developed. For about 1-2 months the agricultural land remains under water and different varieties of fish are found in the area. During the monsoon the flood plain is naturally stocked with fish. The surrounding people catch fish to meet their own fish consumption needs. In the post monsoon period the available flood water fish go down stream and gathered in the *beel.* With the receding of flood plain water, some fish spieces migrate to the nearby *Lohajang* river.

**Fisheries Practices**

Capture fisheries i.e. in open water bodies such as river and *beel*, is done mainly by subsistence fishermen. Culture fishery i.e. in closed water bodies such as ponds and lakes, is absent in the area as there are no ponds and lakes in the area.

**Institutional Facility**

It is reported that no institutional facility is available in the area.

**Fish Predation and Fish Diseases**

It is reported that there is a problem of fish predation in the area. Fish disease is reported to be extensive in the area. Fish disease like *Epizootic Ulcerative Syndrome* is found among the fish over the last few years. This has caused a loss of production due to heavy fish mortality.

### Fish Migration

In the monsoon different fresh water types fish from the nearby *Lohajang* river migrate to the flood plain and *beel.* The brood fish spawn in the flood plain in the month of May - June.

### Views of the Public

Since maximum area of the sub-compartment is of high land type the people expressed interest in expanding water bodies in the area. The area is having water scarcity problem so the scarcity problem be solved by affording all possible helps. They (villagers) told to re-excavate the existing perineal water body (the *Chhitkabari beel)* to expand its area and to facilitate more water retention capacity and more fish stocking. They suggested to construct a sluice gate on the connection point of the *Lohajang* river with *Chhitkibari beel.* Some also suggested that fish diseases should be controlled and immediate steps be taken.

### Own Observation

The area is of high to medium level land. There is no pond in the area and so there is no pond fish culture. The only perineal water body, the *Chhitkibari beel*, is the source of fish, irrigation and serves other household needs. The *Dhaleswari* and *Lohajang* river are nearby. The *Lohajang* river appears to be connected with the said *beel* but the connection point is silted up. Many birds feed in the beel. There is no definite bank on either side of the beel. Small group of plants/shrubs are also found to grow on the sloping region of the beel. The nearby *Lohajang* river is found completely dry. New human habitation has been found on both sides of the beel.

### Conclusion

The majority of the area is high land type. The main fishery resource, the *Chhitkibari beel*, needs improvement like re-excavation to facilitate more fish production and irrigation. The canal connecting the *Chhitkabari beel* with *Lohajang* river to be re-excavated in-order to facilitate fish migration from river to beel. Flood plain fishery practice in the sub-compartment may be developed by retention of flood water for a period of three months during monsoon. Fish diseases should be controlled and in this connection immediate steps should be taken.

## E4.5 ENVIRONMENT

### Significant Natural Vegetation

Natural vegetation is more or less developed in the visited area. Homesteads have a patchy but dense tree cover from a distance looking like a forest. But practically there is no natural forest in the sub-compartment. Homestead forest is reported to cover an average area of .2 acres in each homestead. The most common varieties of trees like - Mango, jackfruit, jam, coconut, hard-fruit trees, banana, bamboo bush, kejur, palm, goava etc. are reported to be

available in the area. The vegetation in the area provides a good shelter for wild animals like - *mongoose, jackle, bagdasha, jungle cats, birds, rats, toad* etc.

**Aquatic Vegetation**

The perineal water body in the visited area is reported to have different variety of aquatic plants like water hyacinth, water lily, hydrilla and many other unknown aquatic vegetation.

**Fish**

Different species of freshwater fishes are present in the perineal water body. There is a report of fish disease.

**Mollusea**

The shellfishes which includes fresh water *muscle Lamellidiens marginalis* and snails, including *pila globosa*, are present in the water body. Both the species have food value for birds, duck and fishes.

**Arthropodal**

Crustacea like shrimps and insects, includes good number of destructive ones, are also present in the area.

**Amphibian**

Toads, frogs, hyla etc. are present in the area though their population is reducing gradually.

**Reptiles**

Snakes, tortoise, lizard, varanus (Guishap) are reported to exist in the area.

**Birds**

The common varieties of bird are decreasing in the area. Guest bird like *Bele hash, kal-dighiri* visit the perineal water body in the winter season.

**Mammals**

**Terrestrial Wild Animals**

*Fox, mongoose, jungle cats, bagdasha, rats* etc. are found in the homestead forest though in reduced number. Rats are said to be abundant in the area and cause a lost of damage to people's property.

### Domestic Land Animals

Domestic cows, goats, sheep, horses etc. are present in the area. Due to fodder scarcity their population is decreasing.

### Others

### Public Sanitation

Sanitation is poor in the area. A very few *pucca* latrines there are many traditional *kacha* latrine. Open sanitation is much practised by the children and man.

### Drinking Water

It is reported that there are about 40 tube wells in the visited area and the people drink tube well water, though some drink from open-wells too. Most of the tube wells are privately owned while only a few are public property.

### Fuel

There is a report of general fuel scarcity for cooking. People uses jute sticks, cow-dung, garbage, dried leaves of trees as fuel. Poor people find it difficult to cook due to fuel scarcity.

### Afforestation

An afforestation programme is reported in the area. In the rainy season (June - July) the local educational institution with the collaboration of forestry department performs a tree plantation programme on either side of the public road. Besides people at their own initiation do some small scale plantation in their homestead forest.

### Deforestation

Deforestation prevails in the area. People trees to the local wood traders. The work is used as fire-wood both for brick-fields and household use.

### Human Activities

### Agriculture

Agriculture is the main occupation in the area. Winter crops grow well and people in the area can earn part of their livelihood by selling winter crops.

### Human Habitation

There is a report of building up of new houses in the order of 2 to 3 houses covering an average area of 25 decimal per house in the study area last year.

### Use of Insecticide and Pesticides

Insecticides like *Furadon, Bashudin, Diazin* and *Dimacron* are reported to be used in the agricultural field to protect crops from the attack of pest and destructive insect.

### Pollution

Both air and water pollution is reported to prevail in the study area. Stagnant water, leaving around of dead animal bodies, insecticide use and open sanitation are the main sources of air and water pollution.

### Views of the Public

People are very concerned about the environmental. They suggested to readicate for the area. Public sanitation can be improved by supplying them the necessary inputs for construction of *pucca* latrines.

### Own Observation

Acute water scarcity (other than for drinking purposes) prevails in the area. Fuel is a problem and it is keenly felt by the poor people. Small ditches are found completely dry here and there in the area. Ducks are found very difficult to survive during dry season due to lack of water bodies. Sanitation problems are there and due to lack of latrines the majority people (other than women) uses open space for sanitation.

### Conclusion

In order to met the acute scarcity of water in the area action should be taken. Deforestation is a serious concern in the area which should be compensated by reforestation. Sanitation problem can be solved by seeking help from the concerned bodies and it will avoid water and air pollution in the area. Existing dried homestead ditches may be stocked with flood and rain water during monsoon by re-excavation.



## E4.6 SOCIO-ECONOMIC SITUATION

### Major Non-Farm Activities

The people of the surveyed area (*Mirpur, Bil Muril* and *Chitkabari villages*) in sub-compartment E4 are engaged in non-farm activities like transportation (rickshaw, van 40-45%, tempoo/baby taxi 5%), seasonal business 5%, service 5%, wage labourers (both agricultural and non-agricultural) including weaving industry workers 35-40%.

### Social and Institutional Aspects

### Employment Patterns

Of the farm households 90-95% are small and marginal farmers. In these mainly family labourers is used in the farms except for sowing and harvesting. The hired labourers used are

mainly from the locality. The female folk are not involved with any farm activities in the field. Women in the area mainly do household work. A few women from *Mirpur* village work in RMP program of CARE. They are mainly destitutes.

During the off season from agriculture about 50% of the daily labourers of the area migrate to other areas to find work. They mainly engage in agricultural work, weaving and in rickshaw pulling. Others engage themselves in seasonal and petty businesses like rice husking, vegetable setting etc.

**Wage Rates**

The wage rate in the area ranges from Tk.15-20 in the lean season and Tk.20-25 in the peak season with one meal. During the lean season one meal is provided to the labourers but only to those who are engaged in household work like house repairing etc. The labourers who are engaged weaving earn Tk.25-30 per day. The same amount is also earned by the rickshaw/van pullers. The working hours for the daily labourers in this area is from 7:00 a.m. to 5/6 p.m.

**Education and Literacy**

The literacy rate, as estimated by the people of the area, is 15-20% in *Mirpur* village, 25-30% in *Bil Muril* village and 20-25% in *Chitkabari* village. The educational facilities available to the villages (with 2 High Schools and 4 Primary Schools) are almost equal spread and quite sufficient. Enrolment of children in the educational institution are high but their continuity in the education line is quite disappointing. As most of the parents of the area cannot afford schooling of their children after the primary education (Primary Education in Govt. Schools in free), high school education is often missed by them. The ratio of schooling for boys and girls is 2:1.

**Organized Groups**

The area has organized groups of the Grameen Bank with one male and one female group (of 30 members in each group) in *Mirpur* village and one female group (of 30 members) in each *Chitkabari* and *Bil Muril* village. *Mirpur* village also have a *SWANIRVAR* group of 125 women. Recently *BURO* also have started their activities in *Mirpur* village, but details of that is not yet known.

**Public Facilities**

All the public facilities (as mentioned in the checklist) are available around the area with in one to one and half mile distance from the villages.

**Transport and Communication**

The villages in the surveyed and other parts of the sub-compartment have a good road communication system. But the roads places lack proper maintenance. In some points the roads have cuts/passages to drain water. This causes problems for rickshaws and vans during the rainy season.

## Markets

The area has a good number of markets with good road communication and they are approachable almost throughout the year. The following table shows the hat (marketing) days with attendance:

| Sl.No. | Markets | Hat day | Attendance | Remarks |
|---|---|---|---|---|
| 1. | *Aynapur* | Tuesday & Friday | 10000-12000 & 3000-4000 | The hat has a bazar day every day |
| 2. | *Jugni* | Monday | 6000-7000 | |
| 3. | *Chow.Malancha* | Sunday | 1000-1200 | - do - |
| 4. | *Nandobala* | Thursday | 800-1000 | - do - |
| 5. | *Chitkibari* | Wednesday | 800-1000 | - do - |
| 6. | *Delda* | Saturday | 1000-1500 | - do - |

## General Needs

The main needs of the people of the area is development of roads particularly the main road from the villages to *Tangail* via *Baghil Bazar*. The development of the *Baghil - Tangail* road will facilitate marketing of their goods of daily consumption like poultry items fish, milk, vegetables etc. in *Tangail* town. Plying of rickshaws and vans in this road (from *Tangail* town up to the area) will also be possible which the people of the area think will bring economic development to the people of the area. A health centre/clinic in the area is needed to provide health care service to the people of the area. At present the people of the area greatly depends on village doctors for their treatment. Extension service for poultry, livestock, agriculture etc. and more NGO coverage are needed in the area.

## Own Observation

## Existing Water Related Situation

Flooding (by over land flow of river water from the *Dhaleswari)* is a problem though not regular and severe, in the northern part of the area *(Mirpur* village and surroundings. It causes damage to jute and Aus crops and Aman seedlings (as happened this year). But there is no drainage congestion in the area. The southern part (*Bil Muril* and *Chitkabari* retention) people do not suffer from flood, rather flooding (normal) is necessary for them for their agricultural activities. The people in this part stated that during last 20/25 years period only this year an event of crop (Aus) damage happened. This would not even have happened if the Aus was not sowing late.

The northern part suffers from shortage of irrigation water mainly for their HYV Boro cultivation as there are no water bodies and the number of shallow and deep tube wells are also not unto the requirement. The southern part (*Bil Muril* and *Chitkabari*) does not suffer so much for want of water for irrigation and other purposes as the area has a permanent (perennial) water body, *Bil Muril*. The beel is now under threat of being filled up by sand intake from the *Dhaleswari*. This is an often heard comment of the local people.

## Socio-Economic Situation

The socio-economic condition of *Mirpur* and *Chitkabari* village people are almost equal while *Bil Muril* people are a bit more advanced both economically and socially than the people of other two villages.

**Peoples Opinion** (about solving water related problems)

Although not regular and severe, the riverine flooding sometimes causes damage to the crops of *Mirpur* village and its surrounding agricultural fields. To check the flooding and save their crops in the field they suggested to construct an embankment on the bank (left) of *Dhaleswari*, which would not only check un-wanted flooding but also stop sand entering from the *Dhaleswari* to their land. Secondly, to remove water scarcity during HYV Boro cultivation they appealed to have service of more STWs and one or two DTW in their area.

On the other hand, people of *Bilmuril* and *Chitkabari* village want to dig the bed of the beel and also to raise its bank unto 1 meter in order to protect the beel from siltation and to reserve more water in the beel. The people of the area also suggest the necessity of a sluice gate at the out fall of the *khal* that connects the beel with the *Lohajang* river to drain excess water of the beel to the river.

## Conclusion

The demand of an embankment (to check flooding and siltation of land) on the left bank of the *Dhaleswari* by the people of *Mirpur* needs further study. The irrigation problem in the area and their appeal for more STWs and DTWs is quite justified and required too. The area has mainly marginal and small farmers that cannot afford to buy more STWs.

As regards *Bil Muril's* digging and embankment around it, the people agree about this. The beel is the only water reservoir and source of water (for all shorts of use like in irrigation, in bathing of domestic animal in household works of people etc.) as well as a great fisheries source in the whole area. Therefore siltation of this beel or its damage through any other means should be allowed and therefore all-out efforts are needed for its survival.

The people of the area has been found very much interested to cooperate both with money and labour if the rehabilitation programme of the beel is under taken by any quarter.