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 2 : EASTERN PART : VOLUME 2
(SC. NO 5, 6, E1, 7, 8, 16)

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

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 2 : EASTERN PART : VOLUME 2
(SC. NO 5, 6, E1, 7, 8, 16)

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

TANGAIL CPP INTERIM REPORT

ANNEX 1.3 : MULTI-DISCIPLINARY SUB-COMPARTMENTAL SURVEY
APPENDIX 2 : EASTERN PART : VOLUME 2

TABLE OF CONTENTS

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.

5 SUB-COMPARTMENT

5.1 INTRODUCTION

Sub-compartment 5 is on the north-eastern periphery of the *Tangail* CPP. The *Tangail-Jamalpur* paved road forms the western boundary and the earthen embankment along the *Pungli* river is the eastern boundary of this sub-compartment. On the North is the *Sibpur - Pasbetur* earthen road and on the South by the *Tangail - Garinda* paved road extending upto the *Pungli* river beyond survey bazar. The total area of this sub-compartment is about 750 ha. The north eastern area long the *Pungli* river embankment is high sloping southward.

5.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

River water enters the area in late June. The two branches of the *Gala khal* are the main entry routes. One branch, *Boilla khal*, flows through *Sadullapur* and *Enayetpur* bazar, an other one through *Rasulpur* and along the borrowpit of *Tangail-Jamalpur* road. The *Boilla khal* again divides into two branches at *Kandilla*. One branch flows south and ends at *beel Garinda*. Thereafter the flood water enters SC-3 by overland flow through the culverts and bridges on the *Tangail-Garinda* road.

The other branch of the *Boilla khal* at *Kandilla* flows north to *Bamankushia* upto the southern end of the *Burai beel* and is connected with the *beel*.

From there this *khal* flows south to *Garinda* bazar and enters SC-3 through a culvert on the road. A branch of this *khal* flows east along the borrowpit of the road to *Suruj* bazar. Through this borrowpit *khal* the *Parkushia chak* is flooded. This *khal* enters SC-2 through *Gugudao* bridge and is connected to *Suruj khal*.

The *Gala khal* branch through *Rasulpur* flowing along the borrowpit of *Tangail-Jamalpur* road enters SC-5 through SC-6. One branch flows through *Sibpur* to *Barshilla beel* and the other through *Agbetur* to *Burai beel*.

The *Bertha khal* from the *Pungli* river was closed in 1989 since the flood water carried sand and damaged cropland and heavy onrush of flood water damaged homesteads beside the *khal*.

About 50% of the farm land in *Agbetur, Barshilla, Kandilla, beel* Garinda, Bamankushia and *Parkushia* of SC-5 is low and suffers due to drainage congestion. *Khalatbari, Bertha* and *Bararia* in the North are high and drainage congestion problem is less severe except in southern parts.

To relieve drainage congestion in this area, the following *khals* are to be re-excavated:

i) *Boilla khal* from *Sibpur to beel* Garinda.

ii) *Boilla khal* branch from *Kandilla* to *Garinda* bazar through *Bamankushia*.

iii) *Gala khal* branch from *Pasbikramhati to Burai beel* through *Agbetur.*

iv) *Gala khal* branch through *Sibpur to Barshilla beel.*

v) *Gala khal* branch through *Sibpur to Boilla khal* along borrowpit of *Sibpur* road and beside *Food for All* primary school.

It may be noted here that the drainage congestion of SC-5 will be properly relieved by excavating channels upto the *Lohajang* river thorough SC-2 and SC-3.

The entrance of *Bertha khal* to the *Pungli* river has been closed by local people as the inflowing water contained too much sand, destroying avuable agricultural land. For that reason the local people want to keep the *khal* closed, even if it means they forgo the possibility of drainage and flushing.

There is strong demand for two bridges - one at *Kandilla* on the *Boilla khal* and one at *Bamankushia* on the *Garinda khal.*

Boats are scarcely used in monsoon due to existence of good roads and absence of entrance route from the river. Water hyacinth problem exists in the low lying areas.

The 1988 flood had the same devastating effect in this area as in other areas. *Bertha khal* was re-excavated in 1979. BWDB is known for construction of the embankment along the *Pungli* river.

Erosion

There is no erosion problem in this area.

Ground water

Underground water is exploited adequately. Enough STWs and DTWs are operating for irrigation of Irri paddy. HTWs are used for drinking water. There is demand for more HTWs at *Bararia (Paschim para), Bertha, Parkushia* and *Khalatbari.* There is no complain of any appreciable discharge problem from the tube wells except during the late dry season in drought years.

Conclusion

Sub-compartment 5 is affected by drainage congestion problem due to the silted up channels in this sub-compartment and the downstream sub-compartments 2 and 3. Early monsoon rainfall initiates the early flood which is aggravated by the river flood entry through the branches of the *Gala khal* from the North and East. The *Bertha khal* may be opened to the *Pungli* river providing a regulator at the outfall. However, this should be verified through further detail field study about the all possible consequences.

Ground water is adequately exploited and its quality and quantity is satisfactory.

Local people appear to be motivated to cooperate with the development works in the area if they are convinced that the works will really benefit them.

5.3 AGRICULTURE

Cropping pattern

The gross area of the sub-compartment 5 is approximately 750 ha of which about 500 ha are net cultivated area. The villages and surrounding area of *Baroria, Bartha, Parkushia, Kandila, Bashalia, Pauchbetur* and *Khalatbari* etc. were surveyed. In the villages *Bartha, Parkushia, Kandila, Pauch Betur* Irri is grown on approximately 40% of the area, in other villages like *Bararia, Barsila, Khalatbari* Irri is grown on less than 25% of the area. Deep water Aman is grown on medium low to low land and Aus, Jute and some T. Aman is grown mainly on medium high to high land. Among the Rabi crops wheat and mustard are prominant. The following cropping patterns are at present practised in the area.

Crop Patterns

Land Type	*Kharif-1*	*Kharif-2*	Rabi	Annual	% of NCA
F0-F1	Aus/Jute	T.Aman(L	-		20%
F0-F1	Jute	T. Aman	-		10%
F0-F1	Jute	-	Wheat/Paira/Pulse		10%
F0-F1	Aus	T. Aman	Mustard/Vegetable		10%
F2-F3	TDW Aman	-	Irri/Boro (HYV)		25%
F3-F3+	-	-	Irri/Boro (HYV)		20%
F1		T. Aman	Irri/Boro (HYV)		5%

The above cropping pattern is estimated in the sub-compartment on the basis of information from the farmers in the sub-compartment during the MDSC-survey.

Average crop yield and price

The average yield per ha and price of per tons of different crops at the farmgate level during harvesting period is as follows:

Crops	Av. yield t/ha.	Price/MT
B. Aus	1.10	5090-5360/-
T. Aman	2.20	5360-6030/-
TDW Aman	1.25	5360-6030/-
Boro (HYV)	4.80	5360-6030/-
Braus (late Boro)	4.20	5360-6030/-
Jute	1.80	4550-5360/-
Mustard	0.80	13400/-
Wheat	2.50	5360/-
Pulse	1.20	12060/(Lentil) 8040-9380/-(Khesari)
Paira	2.70	5090/-
Mustard	0.70	14740/-
Veg (Cabbage/Cauliflower)	12.00	3220/-

It is reported that the price of the above commodities increases gradually with the increase of the demand in off season.

Use of fertilizers

Like the other studied sub-compartment the use fertilizers by farmers in the sub-compartment is traditional. In most cases it is applied below the optimal doses. In case of HYV crops and wheat the doses of fertilizers are comparatively higher than for other crops. Financial problems and lack of credit facility along with a poor agricultural extension service, lead to such low fertilizer application. Fertilizers are applied by the farmers on basis of their own judgement. Scientific cultivation is completely absent in the area. Farmers also use some manure like cow dung, ashes etc. in their fields during land preparation, specially at the time of broadcasting Aus and Jute. The following doses fertilizers are estimated to be used in different crops in the sub-compartment.

Crops	Urea(kg)	TSP(kg)	MP(kg)	CD/Manure(Kg)
B. Aus	80-100	40-60	-	350-400
T. Aman	120-150	60-80	30-50	-
TDW Aman	110-120	-	-	-
Boro (HYV)/Braus	160-180	90-110	60-80	-
Jute	120-130	50-70	50-60	300-400
Mustard	90-110	40-60	-	-
Wheat	150-170	70-90	-	-
Pulse	-	-	-	-
Paira	90-110	40-60	-	-
Vegetable	130-150	60-800	-	-

Share cropping

The share-cropping system is in terms of 50:50 of the production as soon as the crop is harvested in the field. In most cases owners do not supply any inputs to share-cropper but in some cases 50% of the inputs are supplied by owners.

Irrigated crops

In the sub-compartment only Irri/Boro(HYV) is grown under irrigated condition. The main source of irrigation is ground water by DTW and STWs. In the village *Pauch Betur* one LLP is used to irrigate Boro (HYV)/Braus with water from the *Pungli* river. The following DTW, STW & LLPs are available in the surveyed area and around the surveyed villages.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Remarks
Bararia	DTW 0	-	No Irri is grown
	STW 0		one to sandy soils
Bartha	STW 6 Nos.(1/2 cusec)	30 ha.	Run by Elec.
Parkushia	DTW 2 Nos.(2 cusec)	30 ha.	Run by Elec.
	STW 0		
Kandila	DTW 1 No. (2 cusec)	20 ha.	Run by Elec.
	STW 0		
Akbetar	DTW 2 Nos. (2 cusec)	30 ha.	Run by Elec.
	STW 6 Nos. (1/2 cusec)	25 ha.	3 Elec.,3 diesel
Barsila	DTW 2 Nos. (2 cusec)	35 ha.	1 by Elec.,
	STW 0		1 by Diesel
Pauch Betur	DTW 1 No.	20 ha.	Run by Elec.
	STW 8 Nos.	30 ha.	Run by Elec.
	LLP 1 No.	20 ha.	Run by Elec.
Khalatbari	DTW 0		
	STW 4 Nos.(1/2 cusec)	16 ha.	Run by Elec.
	33	Total : 258 ha.	

Farmers in the area pay 1/4 of the crop produced with straw as the cost of irrigation of their crops.

Crop damage

Crop damage by hail storms and insects/pests is reported by farmers. Hail storms damaged some wheat, mustard and vegetables while insects and pests have considerably damaged their Irri/Boro (HYV). The insecticides used to control the insects were not so effective. They reported that they receive no advice from agricultural extension workers to use proper insecticides or pesticides to control the insects/pests like *pumripoka*, *mazra poka*, grasshopper etc. They are to depend on sellers advise to control such damage.

Flood mainly affects TDW Aman and Aus and Jute seedlings. Both rain and river water from *Pungli* cause flood in medium low to low lands. Water enter into the area through the *Gala* and *Bailla khal* in *Ashar* and *Sraban* causing damage to Aus and TDW Aman seedlings. Farmers are less interested to grow deep water Aman due to this damage. Due to poor drainage, water recedes from the area slowly. In the village *Parkushia* people requested one bridge at *Brahmin Kushia* for navigation and proper drainage.

Livestock

The livestock situation in the area is not well developed. The health situation of livestock is average to poor. Cattle in the area mainly graze on road sides and fallow land in the dry season. The fodder situation is not satisfactory. The draft animal shortage in the area compells farmers to hire a pair at the cost of Tk.30-40/- for once ploughing 1/2 bigha of land.

The A.I centre in Tangail gives artificial incemination at the cost of Tk.20/- per cow. Farmers say A.I. is ineffective in most cases. Power tillers are rarely used in the area. About 75-80 cattle have died this year due to an unknown disease or food poisoning. Farmers blame cobbers for poisoning their cattle. As evidence they reported that they caught a cobber red-handed during the poisoning of cattle at a peasants house.

Beside this cow-pox, gastritities, rinderpest etc. are common disease in the area. The medicare is reported to be poor.

Poultry

Poultry in the area is mostly of local varieties. They are mainly chickens. Very few ducks are available in the households near water sources. Poultry are mainly domisticated by women which give some financial benefit to them by selling eggs and chickens. Pegeons are also important, they are sold in the market @ Tk.45-50/- per pair. Poultry mostly live on scavenging. The medicare provided by the livestock department is poor. No programme has been taken for poultry development in the area. Ranikhet, tape worm, electroparacities are common diseases among the poultry in the sub-compartment.

Own observation

Almost 55% of the area belong to F0 and F1 type land, i.e. high to medium high land. The rest of the land belongs to F2-F3 (25%) and F3 to F3+ (20%). Soils in the village *Bararia* are mostly fine sandy loam (FSL) and high to medium high land. No Irri/Boro

(HYV) is grown in this village. In other area soils are medium to fine textured Sicl-Sic. The topography in the major area is nearby level with some gently slope towards the basins. The general slope is towards the South covering the major part while locally some land slopes both to the North and South and some high land to the East and West in the village *Parkushia*.

Aus, Jute, T. Amans are the main crops grown on F0-F1 type land, and F2 to F3+ land is mostly used for growing Irri/Boro (HYV) and TDW Aman. Wheat/Paira (Millet) is extensively grown as Rabi crops. It is essential to detect the cause of death of some cattle due to unknown disease in the sub-compartment.

Improved drainage and flood control in the sub-compartment would encourage farmers to grow TDW Aman and HYV T. Aman in the area and timely transplanting of HYV Boro paddy for obtaining higher yields.

5.4 FISHERIES

Water bodies

The available water bodies under sub-compartment 5 with their number, type, area and 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: i. Berthabeel	01	Approx 13 acres	Perineal	Taki, Shol, Boal, Tengra, Baim Sing, Bele, Calisha, Gnjar, Koi, Mngur, Nura, Feka, Chela, Fresh water muscles-unio, pila, shrimps, crabs.	Approxi-mately 200-215mts	Individual	The beelis most re-sourceful waterbody.
	ii. Chakharbeel	01	Approx 20 acres	Perineal	Koi, Magur, Pabda, Sing, Calisa, Chat, Chela, Puti, Shol, Boal, Tengra, Nura, Feka etc. Fresh water muscles-unio, pila, shrimps, crabs.	230-250mts approx.	Individual	Very useful waterbodies in the area
2.	Lake: i.Borailake (Bertha)	01	Approx 85 acres	Perineal	Different kinds of fish, fresh water muscles, crustances etc.	Approxi-mately 1000 mts	Govt.khash	Very big waterbody and most resourceful There are2 lakes but connected with small construction
3.	Ponds i. Bararia ii. Bertha iii.Kandila iv.Barsila v. Khalatbari	02 02 01 01 01	1.5 1 acre .5acre 1 acre 1 acre	Derilicts cultur-able and cultured	In cultured ponds Nura, Feka,	Very poor	Individual	Pond fish culture is very poor. the area.
4.	Pagars: i. Baroria ii. Bertha iii.Parkushia iv. Karolla v. Barsila	02 30 50 5 20	350 acres	cultur-able and cultured	Sing, Magur, Koi, Shol, Taki, Puti, Shrimps etc.	4000 mts approxi-mately	Individual	Very useful waterbodies though smaller in size.

Borai lake

The lake is situated in the village *Bertha*, Union *Gala* under *Tangail Sadar Upazila*. The lake is popularly known as *BORAI RIVER* in the locality and it covers approximately 85 acres of land. It is a perineal water body and is Govt. khas but the local people have taken lease of the lake. Actually there are two lakes but they are connected with each other by a narrow connection and they appear as a single lake. The lake was re-excavated to make it deeper 2-3 years ago by public initiative. Two to three neighbouring villages depend on this lake for various purposes such as bathing, fishing, surface water irrigation etc. During the post monsoon period when there is an acute scarcity of water and people from remote areas visit the lake for bathing and for bathing their cattle.

From a fishery point of view the lake is a very suitable water body. The villagers release carp fingerlings in the lake every year to boost up culture fishery. A good number of fish species are available in the lakes including *Nura, Feka, Shol, Boal, Koi, Taki, Pabda, Tengra,Sing, Shrimps, Puti*. The villagers meet their fish consumption demand from this lake and fishing goes on in the lake round the year. The months of *Poush, Mag* and *Falgoon* is reported to be the peak period for fishing. As per report, in addition to their own fish consumption, they sell out fish of the lake two times a year and earn a good amount of money and is shared among the people who has leased in people in the area requested to re-excavate the lakes with a view to increase the water body for more fish stocking. They also urged to train up the villagers in respect of fish culture.

Professional fishermen

There are about 4 households of professional fishermen in the village *Baroria* and *Bertha*. They catch fish in the beel, *pagars*, lakes and river in the area and sometimes they also go to the different waterbodies of the neighbouring villages. During the full monsoon period their fishing business flourishes. But during lean fishing period i.e. the month of *Chaitra, Baishak, Jaistha* they are to face a lot of problems due to lack of waterbodies. These professional fishermen are reported to adopt other business like making *Biris* during the lean fishing period. They do not have sufficient inputs for fishing and that is why they cannot take part in capture fishery in the big rivers. They do not get any bank loan facilities. The women of professional fishermen are engaged in preparing fishing materials. These professional fishermen are low caste Hindus and illetarate.

Subsistence fishermen

There are about 8/10 households of subsistence fishermen in the village *Barsila*, *Gala* Union. They are poor Muslims. About six months of the year they engage in fishing and the rest of the year they do other work such as day labour, Biri making etc. The months *Ashar - Agrhan* are the good period of the year for them as they get maximum fish catch from the waterbodies. These subsistence fishermen do not have necessary inputs for fishing. They requested to provide them necessary bank loan to facilitate their fishing business.

Fishing periods

Fishing goes on in the area round the whole year but the months of *Ashar*, *Sraban*, *Kartik*, Agrahan and Poush are the peak period for fishing. The months of *Chaitra*, *Baishak* is the lean period for fishing due to lack of waterbodies.

Fishing methods

Different fishing methods are followed at different times of the year under the sub-compartment. During the early monsoon i.e. in the months of *Jaistha* and *Ashar* about 80% fishing is done by traps such as *Dhair*, *Darki*, *Ahuka* and *Hosa* and about 15 to 20% fishing is done by *Jakijhal* and *Harpoons* engaged in fishing and fishing is done mainly in the *khal*. During full monsoon (*Bhadra - Ashshin*) about 70-80% fishing is done by *Dharmajal (Shibjal)*; *Berjal*, *Kharjal*, *Karentjal* by both professional subsistence and occasional fishermen in the flood plain. About 20% floodplain fishery is done by Harpoons, Castnet and angling.

During the post monsoon period *(Kartik - Magh)* about 60-80% fishing is done by *Jhakijal*, *Scoopnet*, *Jali*, *Hosajal*, *Berjal* etc. and about 20% fishing is done by lowlift pump (LLP) and hand picking in shallow water. Besides that capture fishery in the river is done by *Berjal*, *Kharjal* and lining by professional fishermen.

Flood plain fishery

Floodplain fishery is well developed in the area. The floodplain is connected with the river *Pungli* by small canals. Floodplain fishery starts in the month of *Ashar* and continue upto *Kartik*.

In the month of *Ashar* the river water starts entering into floodplains through *Gala khal*, district *khal* and gradually the floodplain is inundated. Different kinds of riverine fish, festilized eggs of carps enter the floodplain. Also the already available *pagars* and *beel* fish spread into the floodplain. As per report from local people the fertilized carps eggs hatch out into spawn fingerlings into the floodplain water and starts growing up. The *beel* fish and *pagars* fishes spawn in the *beel* and *pagars* respectively in early *Ashar*. The floodplain is reported to be the good source of fish multiplication and nursing grounds.

As soon as the flood water starts receding some fish species go back to the river. Other species move into the deep water bodies like perineal *beel* and *pagars* and these are thus naturally stocked.

Institutional facility

As per report the institutional facility is completely absent in the area and fisheries extension services from Govt. agencies are nil.

Fish predation and fish diseases

Both fish predation and fish disease are reported. This problem has caused significant decrease of fish population. Fish disease is reported to be serious in the month of *Kartik* and Agrahan in the waterbodies of the surveyed area. A lot of fishes died due to the fish disease and this causes water pollution. People in the area are very worried, specially the fishermen community, over this issue.

Fish migration

Fish from the surrounding rivers *(Lohajang, Pungli*, Dhaleswari) start migrating to the floodplain through the *khals* in the month of *Jaistha* and Ashar. Migration continues upto the month of *Bhadra*. The gravid riverine female fishes spawn in the floodplain after migration. People reported that most of riverine fishes migrate to the floodplain during early monsoon.

The migratory *khals* connecting the floodplain with the surrounding rivers have silted up. The people requested to re-excavate these silted up *khals* to facilitate fish migration.

Own observation

The area has a lot of *pagars* which are very useful for fish stocking and to facilitate household activities. People and children were found draining out the *pagars* water completely and catching fish. As a result of this complete draining out of *pagars* water all matured and immatured fishes were caught and which is very dangerous as it has a negative impact on the fish population. This practice of overfishing needs to be checked to allow the fish population to survive.

The *beel* fish caught did not indicate the fish disease. Apparently during the post monsoon period the fish population is free from the fish disease. The number of excavated ponds were very few in the area and the practice of culture fishery is very poor. The derilict ponds in the area should be re-excavated and brought under fish culture.

5.5 ENVIRONMENT

Biological

Arthropods

Many arthropods are reported in the sub-compartment which includes destructive as well as useful insects. Crabs are present in the waterbodies but in reduced numbers. Crabs are eaten by Hindus. Other crustacean, including shrimps, are present in waterbodies and are eaten by people. People are very much worried about severe attack of their agricultural crops like Boro, Irri by insects like *pamri*, *mazra*, *letha* and grasshopper. They told that the extent of damage of Irri/Boro at present by insects is severe. They requested to check this insect attack

in order to save their valuable crops. People also reported that these destructive insects is resistant to insecticides. The useful insects includes honey-bee, butterfly.

Mollusca

Fresh water muscle including *unio* and *pila* are reported to present in the *pagars* and *beel*. Both these animals are eaten by birds and ducks. People reported that these snails (pila) are eaten by ducks in the *pagars* and sometimes children collect them from *beels* and supply them to ducklings. Small snails outnumber the bivalves and big snails.

Annelids

People reported that with the begining of rainfall in the area annelids like earthworm become abundantly available in the damp places. The vertebrate blood suckers Hirudinea (Leech) are also reported to present in the water bodies as well as in the bushes.

Fish

Different varieties of fish are available in the waterbodies though their population has significantly decreasing in the area due to disease and over-fishing. People requested to check the fish disease.

Amphibians

The amphibian population like toad/frog, hyla, etc. is gradually decreasing in the area. A group of people is engaged in frog catching at night in *Bertha* village during the rainy season. This way the frog populations declines.

Reptiles

Reptiles are available but in reduced number. Tortoise are completely absent. *Guishap* is present in the homestead bushes. Both poisonous and non-poisonous snakes were reported. Lizard population is also considerably decreasing in the area. A small group of reptile like *Anjan* is reported.

Birds

The bird population in the area has significantly decreasing due to unknown reasons. But some people reported that public interference like hunting by guns and traps as well as the flood havoc of 1988 are responsible for bird declination. The present bird population in the area include - *Shalik, Crow, Herons, Kingfishers, Raven, Owl, Cuckoo, Boi* etc. The guest bird visit the *beel* area in the winter season.

Mammals

Terrestorial wild animals

Wild animals are very scarce in the area. People reported that due to lack of bushes and the flood of 1988 there has been a significant decrease in the number of wild animals in the area. They told that *jackle, mongoose, bagdasha, khatash* etc. are present but in reduced numbers.

Rat problems

Rats are a serious problem in the area and they are present both in dwelling houses as well as in the agricultural fields. During harvesting period of wheat, rats caused serious damage to the crops. Sugarcane is also reported to be damaged by rats. People urged to control rat menace in the area.

Domestic land animals

The number of domestic land animals is declining considerably due to cattle disease and fodder scarcity. People complained about the cattle disease as 2/3 cows are dying everyday in the visited villages. Farmers of *Khaladbari* village reported that the cattle disease is severe in their villagers and once an animal falls ill it dies within 1 to 2 hours. The livestock medicare facilities in the area are reported to be nil.

People are concerned about the acute shortage of draft animals due to cattle disease. The farmers requested to help them by providing livestock medicare facilities.

Others

Afforestation

People plant trees at their homestead. There is no natural forest in the area but homestead gardening is developed. No Govt. or NGO is working to develop this sector. People requested to provide them sapplings of economically important plants to boost up this sector.

Deforestation

Deforestation goes on in the area. Owners sell their trees to wood traders as the need arises. There is no brick-fields in the area.

Kitchen gardening

Kitchen gardening is well developed in the area. Almost every household has a kitchen garden and meets its own vegetable consumption demand. In addition the farmers also earn money by selling the surplus vegetable in the market. Some farmers are engaged in kitchen gardening on a commercial basis.

Human activities

Human habitation

There is a report of growth of new human habitation in the area. Approximately 2-3 new houses, covering an average area of 10-15 decimal of land, are being constructed every year. the area.

Pollution

Both air and water pollution are reported. Dumping of household garbage, dead animals bodies, open sanitation and stagnant water in homestead ditches are the great sources of pollution.

Own observation

Homestead forest and kitchen gardening are well developed. The homestead forest comprises a wide variety of timber yielding and fruit yielding trees. *Mongoose* are found in the bushes. The road side ditches, *pagars* and derilicts ponds were found completely dried up. People of the area suffer from acute water scarcity problems. Ducks were found to move on the road due to lack of surface water. The number of handpumps seem to be insufficient. The communication system is not good.

The road side ditches, derilicts ponds, homestead *pagars* need to be re-excavated to increase waterbodies in the area which will facilitate publics household activities.

5.6 ENVIRONMENT - FEMALE

Natural vegetation and homestead forest

The natural vegetation in *Barolia, Bertha and Parkushia* is medium but very poorly developed in *Kandila, Borshila & Khalatbari*. Kitchen gardens include *Brinjal, Pumpkin, Chilli, Bittergourd, Stem, Shajna* etc.

Homestead forest comprises with herbs, shrubs and trees. Timber yielding trees like *koroi,* mango, jackfruit, *jam, palm, tamarini* and hard fruit trees like dates, *goyava* etc. are available there. Banana, papaya, coconut, battlenut, *jambura,* pomegranate, everrhoa carambola etc. are also present.

Fuel

There is severe fuel scarcity in the area. The main sources of fuel are dry leaves and remains of paddy. Only a few people use firewood and cowdung.

Drinking water

Although the main source of drinking water are tube wells, in a few people drink open-well water to avoid carrying tube well water from a long distance from another household, particularly in the rainy season. The number of tube wells is insufficient, except in *Kandila* village.

Sanitation

Sanitation is very poorly developed in this sub-compartment. In an average only approximately 35-45 *pucca* latrines are reported.

Diseases

Diseases like diarrhoea, dysentry, itching, scabies, fever, cough and pox are mainly prevails in this area. Women stated most of the diseases occur in the months of *Ashwin, Kartik, Falgoon* and Chaitra and these are due to the use of kacha latrines and dirty water in the dry season.

Rats

Rats were reported abundant both inside and outside of the homesteads, damaging many household goods, rice, wheat, fruits etc.

Women also added that mosquitos creat severe problem for human life and livestock. They think the main source of mosquito are the *pagars*. Because the surrounding area of *pagars* are mainly used as dustbin and filled with lot of water hyacinth. They think open sanitation is also a source of growing mosquito.

Other animals

The homestead forest is reported to have wild animals like jungle cats, jackle, bagdasha, mongoose, bats etc. causes damage to fruits and poultry. But the women on *Khaladbari* told that the number of foxes has decrease greately due to the high flood in 1988.

5.7. SOCIO-ECONOMIC SITUATION - MALE

Major non-farm activities

The major non-farm activities of the households in the surveyed villages are: Transport works, *bidi* making, Agricultural works, Service, Weaving, Fishing etc.

From the total households (in the surveyed villages) about 60-70% households are engaged in different non-farm activities. From the total non-farm activities about 10% occupied by service holders and 10% by weavers and fishermen. About 5% are businessmen and people engaged with other activities, the remaining 75% are day labourers, who are mainly *bidi*

makers (about 50%) rickshaw pullers (about 20%) and agricultural and non-agricultural workers (about 30%).

Social and institutional aspects

Employment patterns

Family labour is mainly used in the farm households of the area. Hired labour is rarely used and then only during harvesting of HYV Boro paddy.

Both out-migration and in-migration of labourers is reported in the area. Out-migration occurs from three villages while in-migration of labourers occurs in one village. But the influx of labourers from the *char* area and adjacent villages occurs almost in all the villages during the harvesting seasons and in other times too. At that time the local day labourers (from most of the villages) engage in *bidi* making. During the harvesting seasons the demand for *bidi* goes up and thereby demand of *bidi* workers also. On the otherhand, the day labourers of the area prefer to work in the *bidi* factories rather than in other fields. The other day labourers engage themselves in the Transport line (Rickshaw/van pulling) and other miscellaneous works (like construction works, earth cutting, seasonal business etc.). But *bidi* making in the area, as a whole, occupies the top position in all activity by day labourers of the area.

Wage rate

The wage rates for agricultural labourers in all the surveyed villages are similar. The rate ranges from Tk.15 to 20 in lean season and Tk.25-30 in peak season. Meals are generally not provided to the day labourers in the area. The working hours for the day labourers in the area is from 7-00 a.m. in the morning till 2-00 p.m. in the afternoon.

Organized groups

Different NGOs (both local and national) are working in the area and have their organized groups in almost all the villages. The NGOs which have most coverage in the area are the Grameen Bank, SDS and Food for All. There are more female groups (of the NGOs) in the area than the male groups and the number of female members in a group is also higher than that of male groups. The Grameen Bank has just began their program with group formation in the area disbursement of loan and other activities of the organization is yet to start. Two KSS group (60-70 member in total) are also there in the area. Also there are only 2/3 clubs of local people in the area.

Transport and communication

All the villages in the surveyed area are connected through a good road communication system and in most of the case, the internal village roads are also good. The roads through *Bertha, Khaladbari, Baruria* (alongside the embankment in *Pungli* side) and *Barshila* villages remains useable by rickshaw/van and vehicles throughout the year. Rickshaws and vans cannot use some roads to other villages due to a few breaches and the crossing of two *khals*

(one is *Gharinda khal* the other is *Kandilla khal)* through these roads. Village roads remain always useable for pedestrains.

Markets

The people of the sub-compartment do their marketing in the local hats and bazars with the hat and bazar days, with attendance, are as follows:

Sl. No.	Name of the Market (Hat/Bazar)	Hat/Bazar Day		Attendance	
		Hat	Bazar	Hat	Bazar
1.	*Bararia*	Friday	-	3000/4000	-
2.	*Suruj*	Monday	Everyday	7000/8000	400/500
3.	*Nigoir*	Sunday &	-	900/1000	-
		Thursday	-	400/500	-
4.	*Bailla*	Saturday &	Everyday	3000/4000	200/300
		Wednesday	-do-	2000/3000	-
5.	*Pasbetair*	Tuesday	-do-	600/800	100/200

Besides in the above mentioned hats and bazars, people of the area also do their marketing in Tangail town.

General needs

The main development needs of the area as requested by the local people are bridges and culverts, more drinking water facility, ponds and a school. People from *Parkushia* and *Kandilla* requested bridges over the *Gharinda* and *Kandilla khals* (the same *khal* crossed through the said villages) to improve their communication system, particularly during the monsoon. A few culverts on *Bertha*-Tangail road and on the road through *Parkushia* village are also requested to facilitate road communication and to remove drainage congestion problems. A school in *Bertha* village and more hand tubewells in *Barshila* village are asked for by the people. People of *Baruria* urged to excavate a few ponds in their area, as they suffer most without water (for their household use and bathing of their cattles) during the whole dry season.

Own observation

Socio-economic situation

The people in the area are found about 40% involved in farming and about 60% in different non-farm activities. About 80% of the total household work as day labourer, sometime or other in a whole year. The total labour force of the area is made up by about two thirds from the landless families and the rest from marginal and small farmers families.

Economically *Parkushia* village is more advanced than other villages, while the economic condition of *Barshilla* and *Baruria* village are the worst in the area. The number of landless families are also reported highest in *Barshila* and *Baruria* village respectively. The landless families and majority of marginal farmers of *Baruria* and *Bertha* villages are engaged

(mainly) in *bidi* making, and that of *Barshila* village with rickshaw and van pulling. The *bidi* industries in the area and Tangail town provided a cosniderable employment opportunity for the daily wage labourers of the area. The day labourers who do not find work in *bidi* factories or do not like *bidi* making (mainly the marginal farmers) out-migrate to distant places to find work in agriculture. This out-migration of labourers mainly occurs from *Barshila* (50-60 households), *Bertha* (30-40 households) and *Khaladbari* (15-20 households) villages.

Peoples opinion

About the NGOs

People from all the surveyed villages opined NGO activities and their role as helpfull particularly of the NGOs credit program aiming at improving the economic condition of rural poors.

About functioning of Union Parishad and Upazila

The people of the area supported the existence of Union parishads as rural development institution although their expectations and aspirations are not adequately and timely fullfilled by the concerned *Union* Parishads.

Having no direct contact with the Upazila the people of the area declined to comment on the system (Upazila).

22

5.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

The women of all visited villages under this sub-compartment are mainly involve in the following income generating activities besides their household works shown in the table. The table stated below includes the pattern of occupations, number of women involved with activities alongwith their daily wage rate.

Name of Village	Type of Occupation	# of Women involved	Wage rate with meal		Wage rate without meal	Remarks
			Tk.	meal	Tk.	
Bororia	Biri Thonga making	250-300	-	-	5-10/-	
	Cane & Bamboo work	20-30	-	-	5-8/-	on demand
	Spinning	10-15	-	-	10-15/-	
	Maid Servant	20-25	10-12/-	2 m.	-	
	Post Harvesting	3-5	4-6/-	3(m)	-	Seasonal
	Service holder	3	-	-	-	regular
Bertha	Biri Thonga making	20-25	-	-	6-8/-	
	Post Harvesting	10-15	4-5/-	3 m.		Seasonal
	Spinning	15-20	-		8-10/-	
	Sweing	3	-	-	25-30/-	regular
	Cotton wrapper	10-12	-	-	8-10/-	on demand
	Maid Servant	4-5	2-3/-	3 m.	-	
	Sikka making	2-3	-	-	2-3/-	on demand
	Hand pakha (cane & bamboo)	2-4	-	-	3-4/-	on demand
	Net making	10	-	-	5-7/-	
Parkushia	Biri thonga making	60-70	-	-	8-10/-	
	Cotton wrapper	1-2	-	-	4-5/-	on demand
	Fancy making	1	-	-	10-15/-	on demand
	Post Harvesting	8-10	5-7/-	3 m.	-	seasonal
Kandila	Biri thonga making	100-150	-	-	5-8/-	
	Earthwork	1	-	-	24/-	regular
	Spinning	2-3	-	-	5-6/-	regular
	Sweing	1-2	-	-	8-10/-	on demand
	Post harvesting	5-7	2-3/-	3 m.	-	seasonal
	Service holder	2-3	-	-	-	regular
	Cotton wrapper	4	-	-	4-5/-	on demand
	Net making	3	-	-	4-5/-	
	Maid servant	4-5	6-7/-	3 m.	-	
Borshila	Biri thonga making	90-100	-	-	8-10/-	
	Cotton wrapper	4-5	-	-	80-10/-	on demand
	Post harvesting	5-7	3-4/-	3 m.	-	seasonal
	Maid servant	10-12	5-8/-	1	-	
	Boiler mill	10-15	-	-	8-10/-	
Khalatbari	Biri thonga making	100-150	-	-	5-8/-	
	Spinning	1-2	-	-	5-6/-	
	Cotton wrapper	2-3	-	-	8-10/-	
	Hand pakha	1-2	-	-	8-12/-	
	Boiler mill	3	-	-	10-15/-	
	Maid servant	5-7	6-8/-	3 m.	-	
	Post harvesting	3-5	5-6/-	2	-	
	Sikka making	2	-	-	2-3/-	
	CARE road maintenance	1	-	-	24/-	
	Service holder	1	-	-	-	

Education and literacy

The villagewise literacy rate is shown in the table below:

Sl. No.	Village	Literacy rate<14>	Attendency (aged 5-14)	Ratio of Girls among allstudent	Remarks
1.	*Baroria*	20-25%	50-60%	30%	
2.	*Bertha*	10-15%	25-35%	30%	
3.	*Parkushia*	25-30%	60-65%	30%	
4.	*Kandila*	35-45%	65-75%	50%	
5.	*Borshila*	25-35%	70-75%	50%	
6.	*Khalatbari*	15-20%	40-50%	30%	

Organized groups

Types of NGOs and organized groups stated in the following chart are present in the area. All these organized groups have been structured in order to develop the socio-economic status and consciousness level among the female community.

Sl. No.	Village	Organization/Samity/Groups	# of Groups	# of Member		Remarks
				Male	Female	
1.	Barolia	1. Grameen Bank	4	-	200	
		2. BURO Bank	1	-	20-25	
		3. SDS	-	150	100	
2.	Bertha	1. Food for All	6	-	96	
		1. Grameen Bank	2	-	60	
3.	Parkushia	1. Grameen Bank	2	-	30	
		2. SDS	1	40	20	
		3. (Local) Boys Club	1	35	-	
4.	Kandila	1. Food for All	3	-	45	
		2. Paribar Parikolpona Samity	-	-	150-200	
		3. SDS	1	10	10	
		4. (Local) Anirban Juba Sangsad	-	50	-	
5.	Borshila	1. Food for All	3	-	30	
		2. Landless Society(Women)	2	-	50	
		3. (Local) Balishtha Akatra Uzzal Boys Club	1	18	-	
6.	Khalatbari	1. Bittahin Mohila Samity	1	-	25	
		2. Paribar Parikolpona Samity	-	-	150-200	
		3. SDS	1	12	13	
		4. (Local) Boys Club	1	55	-	

Public facilities

Public facilities like Union Council Office, Post Office, H.F.P. clinics etc. are all situated within 1-2 miles distance from the villages. People of these villages under this sub-compartment avail all these facilities easily. Women of this sub-compartment stated that medicare facility with free of cost from *Suruj* and Tangail Hospital is not available as a result poor people of this area suffer much. Besides this, livestock and poultry extension services are hardly available. As a result their population has started declining over the last few years due to poultry and cattle diseases. Women said that scarcity of domestic animals causes problem to the farmers for ploughing their land.

General needs

Women from all the visited villages under this sub-compartment have a great need for tube wells, latrines, free and sufficient medicare facilities, extensiion services for poultry and livestock and coverage of more NGO activities. Women of *Bertha* village have requested exacavating ponds and construction of primary school in the village. They also expressed the need for constructing a bridge and 2-3 culverts on breaches over the village road for easy movement in the rainy season. Because they think this is an important village road for school going student and also for the local people to go to the local bazar.

Women of *Parkushia* village urged to construct a girls high school within the village to facilitate higher education for their young daughters.

Water related issues

Most of the area under this sub-compartment is high to medium land, so flooding is not a big problem. Only a few low lying areas of this sub-compartment suffer from water congestion due to rainfall. Women added that drought once every 3-4 years damages the crops and creates a scarcity of water and extreme inconveniences to normal life.

Women told, they get scabies, cold, fever mainly on the month of *Falgoon*, *Chaitra* due to bathing in the polluted water of *pagars*.

Own observation

Kitchen garden in *Bororia*, *Bertha* and *Parkushia* are almost absent due to sandy soil. Presence of NGOs in number is quite few here. Women of this sub-compartment seemed to be very much involve with income generating activities besides their household work. Women's perception is that the use of insecticide in the paddy fields is polluting the water and this making the ecological situation for fish unsuitable.

List of village leaders

Village	Name of Leaders	Profession
Borolia	Promod Babu	Village Doctor
	Horidash	Professor
Bertha	Fazal	Truck Driver
	Shahid	Student
Parkushia	Wahed Ali	Matabbar
	Shamsul Hoque	Advocate
Kandila	Tona	U.P Member/Matabbar
	Mojibor	Matabbar
Borshila	Mofizuddin	Member U.P
	Gofur	Service holder
Khalatbari	Shahabuddin	Shopkeeper
	Shahjahan	Service holder

6 SUB-COMPARTMENT

6.1 INTRODUCTION

Sub-compartment 6 is on the northern periphery of the *Tangail* CPP and is bordered by the *Tangail-Jamalpur* paved road on the West (at present under re-construction), *Sibpur-Pasbetur* earthen road on the East and South, part of *Silimpur-Karatia* embankment along the *Gala khal* on the North. The central part is low and affected by drainage congestion. Land slope is towards the East and South. The total area is about 240 ha.

6.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

The early flood is caused by rainfall, starting in April. Due to the silted *khals* the excess runoff cannot drain out to the river and the low farmland are filled up. Thereafter in June river water enters and aggravates the flooding. The major entry route of river water is through the *Gala khal* branch along the borrowpit of the *Tangail-Jamalpur* road. Later during the peak monsoon in July-August river flood enters through the *Boilla khal* in the South, which is also fed by the *Sadullapur* branch of the *Gala khal*.

The central area is low, comprising about 50% of the farmland, and is affected by drainage congestion. For proper drainage of the area need re-excavation of the following *khals:*

(i) *Agbetur khal* from *Gala khal* upto *Bashalia beel* is SC-5.

(ii) *Pasbetur khal* along the road upto *Agbetur khal* via *Agbetur beel.*

(iii)*Sibpur khal* upto *Bashalia beel.*

(iv) The branch of *Sibpur khal* along the road upto *Boilla khal* through the culvert near "Food for All" school.

Conflict

To relieve drainage congestion in sub-compartment E1, the *Gala khal* branch along the borrowpit of *Tangail-Jamalpur* road will have to be re-excavated, but the people of sub-compartment-6 do not want this. They feel that this *khal* re-excavation will bring in more flood water in their area and aggravate the already severe congestion problem. However, if the tailend channels, mentioned in the previous para, are improved properly, and the embankment around E1 is improved the drainage congestion problem in this area will be solved and the mentioned opposition will subside.

Flood entry through the *Gala khal* needs control and as such regulators are required at the upsteam entry.

Erosion

The erosion at *Pasbetur* by the *Pungli* river is severe. The erosion is taking place for the last 10 years. An extra embankment, about 50 m away from the present embankment (closer to the river), may reduce the risk of sudden embankment failure.

Ground water

There are plenty STWs and DTWs in the area and exploitation of underground water resource for irrigation of Irri paddy is adequate. HTWs are used for drinking water. More numbers of HTWs are required in some area e.g. in *Pasbetur*. There is no complain of any appreciable discharge problem from the tubewells except in the drough years.

Conclusion

The low farmland of this sub-compartment is in the central part. River flood enters through branches of *Gala khal* from the North and Suth. This area is to be drained through the sub-compartment-5. Re-excavation of *khals* upto the *Bashalia beel* in the South will solve the drainage congestion problem in the early and late monsoon period.

Underground water resource is adequately exploited for irrigation by DTWs and STWs. Drinking water is obtained from HTWs, but more are required in some areas such as *Pasbetur*.

The erosion problem at *Pasbetur* need immediate attention and proper protective measures are strongly requested by the local people.

6.3 AGRICULTURE

Cropping pattern

The gross area of the sub-compartment 6 is approximately 240 ha out of which about 200 ha is net cultivated area. Three villages namely *Pauch Betau, Shibpur* and *Pauch Vikramhata* were surveyed during study of the sub-compartment. Among the major rice crops Irri/Boro (HYV) is prominant in the area. Other than Irri, deep water Aman (TDW) is grown on medium low to low land. Some T. Aus and T. Aman is also grown on the medium high land. Among the Rabi crops, mustard and wheat is prominant. The following cropping patterns are available in the area.

Crop Patterns

Land Type	*Kharif-1*	*Kharif-2*	Rabi	Annual	% of NCA
F2-F3	-	B/TDW Aman	- Boro(HYV)/Braus		30%
F2-F3	-	-	Mustard-Braus/Boro(HYV)		25%
FO-F1	T.Aus(HYV)/ Jute	T.Aman	Wheat/Potato		10%
F1	Jute	-	Mustard/Wheat/Pulse		10%
F3-F3+	-	-	Boro(HYV)/Braus		10%
F3 +	-	-	Boro (L)		5%
FO-F1	Aus/Jute	T.Aman	Wheat/Vegetables		10%

Average crop yield and price

The average yield of different per ha and their price per tons at farmgate level during the harvesting period is as follows:

Crops	Av. yield t/ha.	Price/MT
B. Aus	1.20	5360-6030/-
T. Aus (HYV)	4.00	6030/-
T. Aman (L)	2.90	6030/-
B/TDW Aman	1.50	6030/-
Boro (HYV)	5.00	6030/-
Braus (Late Boro)	4.20	6030/-
Jute	1.80	4550-5360/-
Mustard	0.70	14740/-
Wheat	2.10	5360/-
Potato	10.00	3220/-
Pulses	1.10	12060/-(Lentil) 8040/-(Khesari)
Veg.(Cabbage/Cauliflower)	14.00	3220/-

Use of fertilizers

Application of fertilizers in different crops are not according to the optimal doses. Most of the farmers apply fertilizers in a traditional way and according to their own experiences. No guideline is given by the agricultural extension workers. Farmers expressed their resentment regarding the agricultural extension services in their area. Financial problems and lack of credit facility are also factor leading to low fertilizer usage. Fertilizers are applied in comparatively higher quantities in case of HYV crops. The following rate of application of fertilizers are reported by farmers.

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)	CD/Manure(Kg)
B. Aus	90-110	50-70	-	400-450
T. Aus (HYV)	160-180	90-110	-	-
T. Aman (L)	130-150	60-80	30-50	-
B/TDW Aman	120-140	-	-	-
Boro(HYV)/Braus	170-190	90-110	50-60	-
Jute	120-130	60-80	50-60	-
Mustard	120-130	60-80	50-60	-
Wheat	150-170	80-90	50-60	-
Potato	130-150	-	-	-
Pulse	-	-	-	-
Vegetable	130-150	50-70	-	-

Irrigated crops

In the sub-compartment only Irri/Boro (HYV) is grown under irrigated condition. Ground water is the main source of irrigation by DTW & STW in the sub-compartment. Only one LLP in the village *Panchbetur* is found to be used to irrigate HYV Boro from the *Pungli* river. The following irrigation equipment were reported by the farmers:

Village	LLP/DTW/STW (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Panch Betur	LLP 1 No. (2 cusec)	20 ha.	- Electricity
	DTW 1 No. (2 cusec)	20 ha.	- Electricity
	STW 11 Nos.(1/2 cusec)	50 ha.	1 - 10
Shibpur	STW 3 Nos.	15 ha.	0 - 3
Panch Vikramhata	DTW 1 No. (2 cusec)	20 ha.	- Electricity
	STW 5 Nos.(1/2 cusec)	25 ha.	- Electricity
	22	Total : 150 ha.	

Farmers pay 1/4 of their production as the irrigation cost in the sub-compartment.

Crop damage

Crop damage is reported mainly by flood causing damage to deep water Aman and Aus seedlings. Due to damage farmers have reduced the plantation of TDW Aman considerably. Water from the *Lohajang* river enters the area through the *Rasulpur* and *Gala khal* and submerge the seedlings in the mouth of *Ashar & Sraban*. T. Aman is also affected considerably due to late flooding in the area. Due to water congestion for longer period the submerged seedlings cannot survive and damaged. Early flood occasionally partially damages Boro (HYV). In addition to floods, insects and pests also cause considerable damage to Irri paddy. *pumri poka*, Mazar *poka*, grasshopper, stemgover etc. are the main problem. Marathion, Dimicron, Diazinon, Faradon etc. are used by farmers to control the insects and pests. The devastating flood in 1987-88 caused heavy damage to crops and proporties. In 1988 100 percent of the standing crops were totally damaged.

Livestock

Livestock are not well developed. Most of the cattle in the sub-compartment belong to local variety. Due to shortage in draught animals milch cows are used as draught animal. Very few hybrid cattle are available. Acute shortage of fodder and grazing land are also responsible for this situation. Artificial insemination is not popular. Farmers reported they cannot maintain hybrid cattle due to short supply of animal feed for the lack of fund. Rinderpest, toe disease, throat sore, cow pox etc. are the common disease away the livestock. Livestock extension services are reported to be poor. Farmers reported the death of some cattle due to an unknown disease.

Poultry

The major part of the poultry are chickens which are domisticated mostly by women. They belong to local varieties. Some ducks are available in the households near the water sources.

Poultry mostly live on scavanging. Ranikhet, fowlfox, tap worm etc. are the common disease among the poultry. Occasionally mass vaccination is given by livestock extension workers.

Own observation and views

The land is nearly level to gently undulating. Irri is extensively grown covering approximately 65% of the cultivated area. Irrigation is mainly provided by STW and DTW. Irri is mostly grown on F2 to F3 land. About 35% of the land is used for growing Aus, Jute, T. Aman and Rabi crops. Wheat is extensively grown as Rabi crops in the area. Mustard is grown proceding the Boro(HYV) or Braus. Soils are mostly medium textured (Sicl) with some fine textured soils (Sic) in the depression. Modern method of cultivation and improved drainage system would enable the farmers to produce two wetland crops and a good dry land crop in most of the area except some very low pockets.

6.4 FISHERIES

The available water bodies under SC-6 with their number, type, area and 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	-	-	-	-	-	-	absent
2.	Ponds: i.Shibpur ii.Pach Bikram-hati	02 03	1.5 acres 1.5 acres	cultured and cul-turable	Nura, FEka,Kalabaush,Mrigal, Silver carp, Tilapia etc.	Poor	Individual	Pond culture fishery is poorly deve-loped but adequate slope is there.
3.	Pagars i. Shibpur ii.Pachbetor iii.Pach Bik-ramhati	09 05 05	1 acre approx	cultur-able and derilicts	Kor,magur,sing,calisha, taki gajal, puti,foli,chela, tengra,baim,chanda etc. Fresh water muscles-including unio and pila crabs and shrimps.	20 mts. approxi-mately	Individual	very res-ourceful waterbodies in the area

Professional fishermen

There are no households of professional fishermen in the area.

Subsistence fishermen

There is no households of subsistence fishermen in the area.

Fishing periods

There are no perineal water bodies such as *beels* in the area so fishing does not go on in the area round the year. Fishing is done in the floodplains in the months of *Bhadra, Ashwin and Kartik. Pagars* fishing is done mainly in the months of *Falgoon* and Chaitra. The months *Ashwin and Kartik* are reported to be the peak period for fishing while the rest of the year specially the months of *Magh, Baishak, Jaistha, Agrahayan, Poush*, are the lean period for fishing.

Fishing methods

About 70-80% floodplain fishery is done by *Shibjal, Berjal, Jhakijal, Kathjal* and about 10-15% is operated by *Aro, tenta and darki*. Sometimes angling is practised. About 80-90% *pagar* fishing is done by draining out water by LLP and about 10% is done by *Jhakijal and handpicking*.

Floodplain fishery

Floodplain fishery is well developed in the area. In the month of *Ashar* the river water from *Pungli* river via *Gala khal* enters the floodplain along with eggs and larval of carp. *Boal, Tengra, Foli, Gulsha, Shrimps* etc. also enter the floodplain and the female fish spawn there. The *pagar* fish spawn in the *pagars* before the entrance of the river water into the floodplain. The *pagar* fish *Koi, magur, sing, taki, gajal, puti* etc. spawn in the *pagars* in the months of Baishak with the onset of early rainfall. Professional and subsistence fishermen catch fish in the floodplain by different fishing technique. At the beginning of dry season the same floodplain fish go to the *pagars* while other spieces go back to river along with the receding water.

Fisheries practices

Both culture as well as capture fishery goes on in the area. But capture fishery is practised more than culture fishery. Public requested to develop culture fishery in the area.

Institutional facility

As per report the institutional facility is absent in the area. Public requested to extend them institutional help.

Fish predation and fish disease

Except shrimps almost all other fish species composition are attacked with disease in the month of *Kartik* and Agrahayan which results in lot of fish mortality. As a result during the time the water bodies are fully polluted due to dead fishes which is a serious environmental hazard. The people reported that this fish disease caused heavy fish mortality, resulting in the fish population in the area gradually decreasing. The fish predation is also an another important reason for fish declination.

People are very worried over the issues and urged for immediate control of fish disease.

Fish migration

In early *Ashar* river fish from the *Pungli* river start migrating through *Gala khal* to the floodplain and this period of migration continues upto *Bhadra*. The migrated female fish spawn in the floodplain and the fertilized carp eggs as well as its fingerlings grow quickly into this floodplain being properly nourished. Again with the receding of flood water some fish migrate back to the river through the same route.

From the fishery point of view the public demand to excavate the *Gala khal* which connects the floodplain with the *Pungli* river to facilitate fush movement.

Own observation and views

This sub-compartment does not have any perineal water bodies like *beel*. Only a few ponds and *pagars* are available for culture and capture fishery. Pond fish culture is very poorly developed in the area. *Pagar* fishery is very resourceful and many villagers depend on it during the monsoon period. Many farmers were found fishing in the *pagars* by completely draining out the *pagars* using low lift pumps. This technique of fishing is harmful because it does not allow any fish to remain, causing over-fishing.

Many derilict ditches, *pagars* and main road side small derilict ponds were seen. The *pagars* also contain many toads. The fish catch of the farmers were checked and found disease free. Some professional fishermen were seen in the area coming from *Gharinda beel*.

Views

The knowledge of pond culture fishery is very poor but it has bright prospect in the area. The fish scarcity problem in the area can be to some extent solved by adopting or by developing culture fishery. The derilict ponds, *pagars* may be re-excavated and properly maintained for fish culture.

6.5 ENVIRONMENT

Biological

<u>Arthropods</u>

Destructive insects like *pamri, mazra*, pathra, peroli, *letha*, chat, grassohoper, mantis etc. are reported to cause serious damage to crops like Irri/Boro, Jute, Pulses etc. and the extent of damage varies from 1-2% of the total production. Farmers are very worried over the issue of insect attack and they requested to solve this problem.

Mollusca

Fresh water muscles including *unio* (bivalve) and *pila* (snails) are reported to present in the area. The population of *pila* is more numerous than that of *unio*. Both are useful to mankind and bird. During monsoon this population flourished well in the available waterbodies of the area.

Annelids

Earthworm, Nerries, Leech etc. are reported. Earthworms are abundantly present in damp places in the rainy season. These animals have medicinal value and are eaten by birds. Leeches are available in bush and water.

Fish

Fish production significantly decreased in the area due to a high mortality rate caused by disease. People are concerned over the issue seriously and they requested to control fish disease.

Amphibian

Toads, frogs, *hyla* are present. Their population is decreasing. They are useful animals to mankind and nature.

Reptiles

Tortoise are completely absent due to indiscriminate catching by a group of people. As per report every year in the month of *Magh, Falgoon* and Chaitra a group of people from *Pabna* comes to the area of the sub-compartment and catch tortoise commercially. These tortoises are reported to be sold in the market of Pabna districts as it is eaten by Hindus. Other reptilian population which includes poisonous and non-poisonous snakes, *guishap, anjan,* lizard etc. are available but in reduced number.

Birds

The present bird population in the area is reduced and as per people report the reason of this declination of its population is due to the devastating flood of 1988 and public interference (hunting, traping). The present bird stock includes mainly *shalik, crow, roven, boi, cuckoo, kingfisher, herons, owl* etc.

Mammals

Terrestorial wild animals

Wild animals in general has been reduced considerably in the area. People reported that after the flood of 1988-89 this population has been decreased in the area. Whatever wild animals

are available includes *Mongoose, Rats, Bats, Jackle, Jungle cats, Nangar, Khatash and Bagdasha* (very reduced in number).

Domestic land animals

The number of domestic land animals has also decreased. The cattle disease is reported in the area and every year about 5-10 cows die being attacked with this disease. Now there is an acute shortage of cattle in the area. Livestock medicare facility is very negligible. The farmers now-a- days are worried about the shortage of draft animals and they are in trouble to plough their land. Only very few dry cows and milch cows, are available. Buffalos and horses are completely absent in the area.

Farmers requested to provide livestock medicare facility in the area to save their valuable cattle.

Others

Afforestation

There is no report of afforestation development programme in the area either from Govt. or NGO. The farmers plant trees in their homestead garden in the rainy season. Public requested to supply them quality seeds and sapplings of trees and to train up them in horticulture.

Deforestation

Deforestation prevails in the area. Though there is no report of brick-field in the area but trees sold are reported to be used in saw mills and sold in the market as firewood.

Kitchen gardening

The practice of kitchen gardening is well developed in the area. About 80-90% of the villagers have a kitchen garden. Common varieties of vegetables are cultivated which meets the villagers vegetables consumption demand and surplus vegetables are sold in the market. Kitchen gardening is reported to be good source of income for villagers.

Human activities

Human habitation

There is new human habitation growth in the area and about 2-3 new houses, covering an average area of 10-12 decimal, have been constructed in the village *Shibpur*.

Pollution

Pollution is reported in the area and it is caused by open sanitation, stagnation of ditches water, construction of kacha latrines, throwing of dead animals bodies here and there. This causes both air and water pollution.

Own observation and views

The area has well developed homestead gardens. Birds seem to be reduced in number. Cattle were very rarely seen and seems there is a great shortage of cattle in the area. The water scarcity problems seem to prevail in the area as the number of ponds are very few. The available *pagars* were seen completely dry. Due to lack of surface water farmers were seen to have their bath in the supply water of shallow tubewells. There is however no such alternative to get cattle bathed.

Views

The water scarcity problems during post monsoon period may be solved by re-excavating the derilicts ponds, *pagars,* and ditches.

6.6 ENVIRONMENT - FEMALE

Natural vegetation

The natural vegetation is well developed in the visited area. Most of the households have kitchen garden includes varieties of seasonal vegetables like cabbage, *brinjal,* pumpkin, chilli gourd, *shajna,* bitter gourd and cocumber. Homestead forests compris herbs, shrubs and trees. Timber yielding trees like *mango, jack fruit jam, palm and hard fruit trees like dates, goyava* etc. are available as well as Banana, papaya, bamboo bush etc.

Fuel

In this sub-compartment the main source of fuel is cow dung, remains of suggarcane, paddy, wheat, mustard, pulses, bushes, dried leafs etc. Severe scarcity of fuel in *Shibpur & Panchbeture* was reported because most of the people of these two villages are poor.

Drinking water

The main source of drinking water in the visited area are tube wells. It was reported that most of the household in *Panchbature* and *Shibpur* do not have tubewells. They carry tubewell water for drinking and sometimes for bathing from other households even after facing rough behaviour. A few households in both the villages drink open-well water. On an average 20-25 tubewell are installed in both the villages which is inadequate.

Sanitation

Sanitation is poorly developed in this sub-compartment except in *Shibpur* village. Most of the people uses kacha latrines. A good number of households in *Shibpur* were provided with *pucca* latrines by *Food for All.*

Diseases

Diseases like *diarrhoea, dysentry, scabies, fever* occured in the area. Women stated most of the diseases take place in the month of *Ashwin, Kartik, Falgoon* and Chaitra. They think the main sources of getting these diseases are kacha latrine and dirty water used for bathing and other household work in the dry season.

Rats

Rats were reported abundant both inside and outside of the homesteads, damaging many household belongings, rice, wheat, fruits etc. Mosquito also creates problem for human being and livestock.

Other animals

The homestead forest is reported to have wild animals like *jungle cats, jackle, bagdasha, mongoose, bats* etc. cause damage to fruits poultry etc.

6.7 SOCIO-ECONOMIC SITUATION

Major non-farm activities

The major non-farm activities of the households in the area are Service, Petty business, Agricultural and Non-Agricultural work. There are also some gold-smiths (about 10 households in *Agbetair* village) and a few washerman families (about 4 households in *Shibpur* village).

From the total non-farm households, daily wage labourers are about 64-65%, service holders are about 18-20% and businessmen about 15% (total farm households in the surveyed area found to be around 45-46% while the non-farm households are around 54-55%). From the total households (about 330-350) in the surveyed area about 30% are reported landless.

Social and institutional aspects

Employment patterns

Mainly family labourers are used in the farm households of the area. Hired labour is used only during sowing and harvesting of HYV Boro paddy and during harvesting of wheat. And

these labourers are mainly from the locality and from the adjacent villages. Both out-migration and in-migration of labourers are reported almost nil. During the lean season of agriculture in the area, the day labourers of the area engage themselves in construction works, seasonal business, transportation (rickshaw/van) works etc. in nearby Tangail town. Some engage in growing vegetables and nursing vegetables gardens in the area.

The small and marginal farmers, and even the landless families, are involved in vegetables gardening in the area. The female members of the landless and marginal farmers families mainly takes care of the garden, while the male members work outside. Some day labourers also work in *bidi* factories around the area, but during the peak season of agriculture every one returns to their respective villages in order to work in the fields. The people of the area say that the day labourers of the area prefer to work in the agricultural field rather than in non-agricultural activities such as transport, construction, *bidi* factories etc.

Wage rate

The wage rate (for agricultural labourers) are almost same in all villages. The lean season wage rate is Tk.20 while the peak season wage rate is Tk.30. No provision for food for the day labourers is reported. The usual working hour for the day labourers in the area is from 7.00 a.m. in the morning till 2-3.00 p.m. Only for a day and night work meal is provided to the day labourers, which is very unusual in the Tangail CPP area.

Organized groups

The area is very poor in respect of organized groups. The NGOs working in the area are SDS, *NIZERAKORI* and *Food for All. Nizerakori* has its activities only in *Pasbetair* with 10-12 members, while the SDS and Food for All have their activities in almost all the villages in the area.

Transport and communication

All the villages in the surveyed area are connected through a good road communication system and the internal village roads except those of *Pas Bikramhati*, are also good. Rickshaw, van etc. can use the village roads throughout the year. The village road through *Shibpur and Pasbetair* is also useable by truck. People of the area, including *Pasbikramhati* village, can avail the *Tangail-Mymensingh* highway facility without any effort. But not having any internal road the people of *Pasbikramhati* suffer most in their movements during the rainy season. People uses *Bhela* to reach to the highway or to go from one house to another.

Markets

The people of the area do their marketing in *Pasbetair, Rasulpur* and *Elenga* hats (details of the hats of *Elenga* and *Rasulpur* are recorded in an other report). The *Pasbetair* hat is a new hat situated in that village, open on Tuesday. The hat day attendance ranges from 600-800 in the said market.

General needs

The main development need of the area is to construct an internal road in *Pasbikramhati* village. For want of this road the people of the village, particularly the school going children and women, face much trouble during the rainy season. Lack of road facility in the area is pointed out as the number one and only problem of the villagers of *Pasbikramhati*.

The other important development need of the area is to take measures to protect the embankment near *Pasbetair* village from the threat of erosion by the river *Pungli*. To establish a girls school in the area was also a demand of the people from *Pasbetair* village.

Own observation

Socio-economic situation

The socio-economic condition of the people in the surveyed area differs from village to village. The main occupation of the people of *Pasbikramhati* is farming (about 80%) while about 80% people of *Shibpur* are engaged with different non-farm activities including 20% in Petty business. And in *Pasbetair*, about 40% people are attached with farming and the remaining 60% with different non-farm activities. The reason for involvement of majority of the households in non-farm activities from *Shibpur* village, is that they are not the original inhabitants of the area. Following the acquisition of (their) land for the new born district (in 1969), they were uprooted from their native land and settled in *Shibpur*. Since then farming has ceased to be their main occupation as most of them could not buy farm land. So, they have been involved in different non-farm activities. They never regained their previous economic level after the forced settlement in *Shibpur*. Their economic condition gradually detoriated. Therefore, *Shibpur* is now the poorest area in the whole sub-compartment. About 48% families of *Shibpur* are completely landless. This is about 37% in *Pasbetair* and only 8-9% in *Pasbikramhati*.

In respect of education, *Pasbetur* people have been found more advanced than others and they are also very much politically conscious. Their average economic condition is also better than that of other villagers. Vegetable gardening which is much more seen in this village then in other villages of the area, has brought some fortune to the poorer people of the area and as a result, out-migration of labour has almost stopped from the village (as well as from the whole area).

Tangail town being adjacent to the area also provides employment opportunity to the day labourers of the area during the lean agricultural season. Hence, out-migration of day labourers from the area (to a distant palace) does not occur.

Peoples opinion

About the NGOs

The people of the area are found in favour of NGO activities. According to them, the NGO activities have been proved worthy at least for the poorer class of people. They support the NGO activities mainly for their credit program. But they stressed the need to have more

control and supervision of the respective NGOs over the use of loan by their group or individual member(s).

About functioning of Union Parishad and Upazila

People from almost all the social class in the area expressed their support for the existence of Union Parishads all over the country. According to them, the Union Parishad being the only institution aimed for rural development should not be abolished. Rather, they have suggested to develop mechanism for it to play its role effectively.

Some people have found un happy about the performances of the U.Z. system and some could not comment on the role and utility about the system (U.Z.). But the general view of the people is that they are not concerned about the Upazila. (T. Nabi).

6.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

Under the sub-compartment 6 the visited villages are *Panchbatur, Shibpur & Panch Bikramhati*. The women of *Panchbatur* and *Shibpur* do not go outside of homestead premises for work due to *Pardha* system, although they need work very much. In all the visited villages some women are engaged with different types of activities mentioned below apart from their domestic tasks.

The following table includes villagewise pattern of occupations and daily wage rate:

Name of Village	Type of Occupation	# of Women	Wage rate with meal		Wage rate without meal	Remarks
			Tk.	Meal	Tk.	
Panch Batur	Sewing	3	-	-	5-10/-	regular
	Post Harvesting	5-6	5-6	3	-	seasonal
	Biri Thonga making	4-5	-	-	5-6/-	regular
	Miad servant	10-12	5-6/-	2	-	regular
	Maid Servant	4-5	5-10/-	3(m)	-	Regular
Shibpur	Service holder	2-4	-	-	-	regular
	Biri thonga making	50-60	-	-	5-8/-	regular
	Spinning	20-25	-	-	10-15/-	regular
	Net making	2-3	-	-	5-6/-	on demand
	Post Harvesting	5-6	-	-	10-15/-	seasonal
	Maid servant	10-12	4-5/-	3		
Panch Bikramhati	Post Harvesting	10-15	5-6/-	3	-	seasonal
	Cotton Wrapper	2-3	-	-	5-8/-	seasonal
	Net making	2-3			4-5/-	regular
	Sikka making	2-3			3-4/-	on demand
	Biri thonga making	4-5			5-8/-	

Education and literacy

The literacy rate varies from one to another village is shown in the following table:

Sl. No.	Village	Literacy rate	Attendency rate	Ratio of girls	Remarks
1.	*Panch Batur*	10-15%	50-60%	60-65%	
2.	*Shibpur*	25-30%	70-80%	40-50%	
3.	*Panchbikramhati*	20-25%	70-80%	40-45%	

Organized groups

The area has a quite a few organized groups of different NGOs. Villagewise informations about organizations and groups have mentioned in the following:

Sl. No.	Village	Organization/Samity/Groups	No. of Groups with Member			Remarks
			# of groups	Male	Female	
1.	Panch Batur	1. Paribar Kallayan Samity	1	-	200	
		2. Landless Society	2	60	-	
		3. Locally organized Samity	1	15	14	
		4. Boys Club	1	10-15	-	
2.	Shibpur	1. Food for All	6-7	-	90-100	
		1. SDS	1	20	30	
3.	Panchbikramhati	1. Food for All	1-2	-	20-30	

Women opined that the landless *Samity* is more beneficial to the people.

Public facilities

Availability of public facilities like Union Council, F.P. Clinic, Health Clinic were reported within short distance to the people of the visited area. Women of *Shibpur* village complained against family planning staff does not come to provide the same service. They go 1-2 miles distance for getting these services.

General needs

The women of *Panch Batur* and *Shibpur* have a great demand of tubewells, while the women of *Panch Bikramhati* and *Panch Batur* request *pucca* latrines. Regular and adequate medicare facilities, free of cost, from *Tangail* Hospital wase urged by the women. Women also placed emphasis on getting free of cost livestock and poultry extension services on regular basis.

Existing water related situation

Women of *Panch Batur* reported that every year water rises upto the palan through the connecting *khal* with *Pungli* river. Riverine flood also causes damage to Aman crop in the eastern side low lying *chak* each 3-4 years.

On the other hand women of *Shibpur* said that riverine flood causes damage to Aman crop in the western side lying chack in the month of *Ashar* and *Sraban* while IRRI damages in the month of *Jaistha*.

Scarcity of water bodies in the dry season was also reported. Women and children bath in the deeper portion of the *khal* (where water accumulates) which contains bad water which causes them to getting scabies, itching etc. Some women of *Panch Batur* go to *Pungli* river for bathing.

Women's impression about *Pungli* river erosion

Women of *Panch Bature* village expressed concern about the severe damage of people's property caused by *Pungli* river erosion during the last 15-20 years. It was bad a lot of inhabitants to shelterless who have migrated to different places. Women of *Panch Batur* still afraid of *Pungli* erosion is destroying BWDB embankment which will cause a severe damage of human property within 2-3 years.

A considerable loss of human property during high flood years e.g. in 1988 was reported by the women of *Panch Batur* and *Shibpur*. Quite a good number of people took shelter for 10-12 days to the nearest building.

Own observation

Women and children of *Panch Batur* and *Shibpur* were found bathing in the deeper portion of the internal *khal* where water accumuled. Water hyacinth was observed floating. A few kacha latrine were found by the side of the *khal* which are an important source of infectious diseases.

Natural vegetation and homestead forest were seen to be well developed.

Name of influential leader

Village	Name of Influential Leader	Profession
- *Panch Batur*	Rasmat Matbbar	Matabber & Shopkeer
	Hafiz Matabbar	Matabbar (Literate)
- *Shibpur*	Samad Master	
	Nuru Member	
- *Panch Bikramhati*	Rahman Matabbar	
	Enam Matabbar	

E1 SUB-COMPARTMENT

E1.1 INTRODUCTION

Sub-compartment E1 is on the North-East of the main pilot project compartment. It was outside the original boundary of the Tangail CPP, but has later been included. It is along both sides of the north bound *Tangail-Madhupur* road. The river *Pungli* flows on the North and East with sharp meandering curves. The *Gala khal* intake from the *Pungli* river flows to the South through *Bara- Basalia* and *Rasulpur* villages. A *Gala khal* branch flows east to the *Pungli* river (outlet used since 1989) is the southern limit of this sub-compartment. The area is small, comprising about 180 ha., with parts of only three villages i.e., *Pauli, Salina* and *Rasulpur.* The flood flow is from the *Pungli* during the high river stage but there is no regular drainage outlet.

E1.2 HYDROLOGICAL SITUATION

River flow: flooding & drainage

River flow usually begins in early June. This sometimes coincides with heavy rainfall causing early monsoon flood and thereby damaging standing crops such as mature Boro in low areas and B. Aman seedlings. This happened in 1991.

The usual surface flood flow enters this sub-compartment from *Pungli* River: on the North near *Pauli* village and on the East beside *Salina* village by overtopping the river bank. The R.L. of the road serving as embankment is quite low at some places allowing overtopping and breaching. There is a small intake on the West through a pipe culvert on the road beside *Gala khal* inlet. The central part of this area is low, comprising most of the farm land, (about 60%) where the surface flood flow from the river and rainfall accumulate. There is no regular channel at present to ensure drainage and as such drainage congestion problem is acute in this sub-compartment.

Gala khal in the South, flowing towards the *Pungli* river (east), used to drain out this area. During monsoon flooding, large quantities of sand flowed in, damaging the farm land and the strong flow caused erosion problem of the homesteads on the *khal* bank. These problems were very severe during the 1988 flood and prompted the local people to close the *khal* outfall in 1989. The other drainage channel of the area flowing through the borrowpit of the *Tangail-Madhupur* road was also closed by the *Silimpur-Karatia* embankment and left the area without any channel for drainage causing severe drainage congestions problem of this area.

During the late monsoon drainage period in 1991, the people of *Pauli* cut open a road and managed some drainage to *Pungli* in the North through a borrowpit channel beside the road. The people of *Salina* also attempted to cut open a road in the South but failed due to the opposition of the shop owners, threatened to be evicted by the outlet. The local Union Council Chairman promised to construct a culvert in this location, which is reportedly in the process of approval. The small pipe culvert on the West does not help much in drainage,

since it is located at a high area. It was reportedly built to relieve water pressure causing repeated road breaches in that location.

Since there is no regular channel, boats are not much in use. During peak monsoon period, small country boats are used for local communication of people and freight.

Erosion

At *Salina*, river erosion is taking place. It was reported that during the last 10 years the river shifted west-ward about 200 m. Many homesteads were washed away and people moved inland. At the village *Pauli* also river erosion washed away about 70 m. in the last 5 years, and this process is still continuing.

Ground water

There is no deep tube well in the area. About 10 shallow tube-wells of 1/2 cusec capacity (10-15 acres command area) serve the area. Irrigation of Boro/Irri paddy starts early February and continuous through April. HTW's are used for drinking water and are widely available, open-wells are used for cooking and washing. The iron content of HTW water is reportedly high but people cannot help but adapt. For irrigation the iron content does not pose any problem. No deficiency in discharge of tube wells is reported in the late dry season, implying adequate recharge.

Conclusion

This sub-compartment suffers from severe drainage congestion problem and is also affected by erosion from the North and East. The drainage problem may be solved by constructing a regulator at *Salina* on the southern road to *Pungli* to effect drainage through the borrow pit channel of *Gala khal*. About 800 M. length of channel re-excavation will be required. Alternatively a regulator beside *Pauli* ensuring drainage to *Pungli* to the North will also solve this problem. The roads serving as embankment must to be raised above flood level. About 1km length of embankment is required on the East of *Salina* along *Pungli* river.

The erosion problem is rather complicated. Costs of river training and bank protection works may not be justifiable economically. Scope of embankment retirement is limited. This problem needs further investigation and analysis to decide upon a suitable solution.

Underground water quality and quantity are satisfactory and adequately exploited. However, there is demand and scope for further expansion.

E1.3 AGRICULTURE

Crop production

The gross area of the surveyed compartment is 180 ha out of which the net cultivated area is approximately 145 ha. The major crops extensively grown in the area are Boro(HYV),

locally known as Irri and transplanted deep water Aman. Among the Rabi crops other than Boro, Mustard and Wheat dominate the area. The area is nearly level to gently slops from north to south. Low lying areas are situated at the centre and north-western part of the sub-compartment. The cropping patterns now in practice by the farmers are shown below season wise:

Crop Patterns			
Kharif-1	Kharif-2	Rabi	Approx. % of cultivated area
a) B. Aus/Jute	T.Aman(L)	Mustard/Wheat/Pulse/Veg etc	10%
b) TDW Aman	-	Boro (HYV)	30%
c) TDW Aman	-	Mustard-Braus (late Boro)	10%
d) TDW Aman	-	Mustard/Wheat/Potato/Pulse etc.	20%
e) TDW Aman	-	F	25%
f) Sugarcane (Annual)	-	(Intercultured with pulse, veg, and coriandur etc.)	5%

Average yield and sale price

The average yield of different crops grown in the area and their sale price during the harvesting period are as follows:

Crops	Av.yield MT/HA	Price/MT
B. Aus	1.7	5360/-
T. Aman (L)	2.6	6030/-
TDW Aman	1.4	6030/-
Boro (HYV)	4.2	6030/-
Braus (late Boro)	3.2	6030/-
Jute	1.9	5060/-
Wheat	2.2	5060/-
Mustard	1.5	12730/-
Potato	14.0	3220/-
Pulse (lentil)	1.0	12060/-
Sugarcane	36.8	670/-
Veg (cabbage)	17.5	3200/-

Farmers do not use fertilizers in optimal doses due to ignorance about the right doses of fertilizers and lack of credit. Agricultural extension work in the area is poor as reported by most of the farmers. Other than the Boro/Braus most of the crops are of local varieties. In the compartment the use of fertilizers at present applied to Aman paddies @ 80-90 kg of Urea only, occasionally 30-40 kg of TSP. In case of HYV Boro or Braus urea applied @ 220-250 kg, 120-150 kg of TSP and 50-60 kg of MP. The use of Urea, TSP & MP in wheat is also higher than for the other crops. The Rabi crops, other than Boro, receive fertilizers in lower doses. Aus or Jute is mostly grown with the fertilizers much lower than the optimal doses, in some cases fertilizers are not even applied at all. Farmers reported they can not apply much fertilizers in their fields due to financial problems. They also believe their soils are quite fertile as every year the area is flooded increasing the soil fertility.

Irrigated crops

In the studied area only the Boro/Braus are irrigated. Other crops are grown on the basis of availability of soil moisture in dry season and under rainfed condition in the monsoon. Surface irrigation by indigenous methods is used only to raise seedlings. Due to lack of

irrigation farmers are facing trouble to grow vegetables in the area and thereby the yield of such crops are poor. In the studied area no DTWs were available. Only 14 STW were reported which approximately irrigate an area of 70 ha. The number of STW's and the area irrigated are given below:

Village	STW (Cusec)	Irrigated Area (ha)
Salina	STW 6 Nos. (1/2 cusec)	30 ha.
Pauli	STW 8 Nos. (1/2 cusec)	40 ha.

In 1990 farmers paid 1/4 of paddy (25%) = Tk.6330/- per ha but due to increase in price diesel farmers now pay 5/16 (31%) of paddy, or alternatively 1/4 of paddy + 1000/- per ha.

Crop damage

Crop damage mainly occurs in the monsoon, sometimes damaging 75% of Aus and deep water Aman in the area. T. Aman is also affected to some extent. No damage of Boro (HYV) is reported as the crops are harvested before the entrance of flood water in the area. The flood water stands in the area from the month of June to end of August and recedes from the month of September. At present farmers keep their lands mostly fallow in the medium low to low lying areas apprehending flood damage of TDW Aman.

Livestock

The cattle population has declined due to shortage of cattle feed, specially green feed stuff and due to sale of cattle by farmers to raise their fund to invest in crop production. There is a shortage of draft animals and farmers use their milch cow for ploughing their land. The general health condition of the livestock in the area is poor as the draft animals are used to plough the land beyond their capacity. Most of the livestock is not supplied with proper feed. There is no grazing facilities in the area. In the cropping and rainy season livestock are kept confined in the houses and fed rice straw, water hyacinth, pulse or vegetative residue, rice brans etc.

The medicare through the livestock department is poor. The staff rarely visit the area. No epidemic is reported in the area. In case of serious disease farmers arrange treatment at their own cost. The average yield of milk from milch cow is about 1 and 1/2-2 litres per day. The rate of animal pair to plough one time a *bigha* of land costs Tk.50/- which rises to Tk.60/- in the peak period. No HYV cattle is available in the area.

Poultry

The poultry in the area are of local varieties which lay a total of 15-20 eggs per month per hen and this goes on at interval of 2-3 months. Duck population is poor due to lack of ditches and ponds in the area. They mostly live on scavenging, although some rich farmers supply additional food like rice brans, wheat, rice etc. The *Rani* disease is common in the poultry population. Farmers reported when the livestock assistants injects their poultry and

livestock they take some incentive from the farmers. No poultry farm was reported in the area. Price of eggs per hali (4 Nos) varies from Tk. 7-8/- in the area which rises to Tk.9-10 in the period of high demand.

Physical observation

In the area the land types are mostly to F1 (10%), F2 (60%) and F3 and F3 + (30%). The overall slope is nearly level to gently slops towards south. The depressed basin sites are situated at the centre in the village *Salina* and at the North-West of *Pauli* village. The hight of the roads are not enough to check the entrance of flood water from the *Pungli* river. Soils are mostly medium to fine textured i.e. Sicl to Sic and light textured near the river banks sil to FSL. The area is under extensive Rabi crop cultivation, the major one is mustard and others are wheat, millet, potato, vegetables etc.

CONCLUSION

The water congestion problems should be removed to bring back the confidence of farmers to grow Aman paddy on a large scale in the area. Proper water management in the sub-compartment will create a good scope for growing T. Aman on the medium high lands and TDW Aman on medium low lands. Better socio-economic condition of the people can be expected if flood control measure are taken by raising the hight of the roads in *Pauli* village and by re-excavating the *Salina khal* and making a culvert at the junction of the roads at the entrance of the village *Salina* as per opinions of the local people.

E1.4 FISHERIES

Introduction

The following report has been prepared after surveying the villages *Salina*, Union *Gala*, Upazila *Tangail* Sadar and the village *Pauli*, Union *Elenga*, Upazila *Kalihati* (sub-compartment No. E1).

Fisheries resources

Water bodies

The water bodies in the area with their number, type area, available fish species and annual catch are shown below in the table:

Sl. No.	Water bodies	Number	Area (Acre)	Type	Available fish species	Annual	Ownership	Remarks
1.	Bill	-	-	-	-	-	-	There is no perineal beel in the sub-compartment.
2.	Ponds	5	3	Cultur-able	Carp fish, Nilotica,Punti	Poor	Individual	Practically pond-fish culture is very poor.

Professional fishermen

There is no report of professional fishermen in *Salina* village but it is reported that there are about 20 households of professional fishermen living in *Pauli* village of *Kalihati* upazila. The professional fishermen catch fish mainly in the nearby *Pungli* river. Sometimes they catch fish for pond owners on hire basis. They live in the area since long. They are so poor that they are now living on land owned by others.

These professional fishermen are low cast Hindus. Most fishermen families cannot send their children to school as they are needed in the household or for fishing. As a result their literacy rate is very low.

Fishing periods

Fishing goes on in the area round the whole year but the months of December and January are the peak period.

Fishing methods

- Nets such as *Berjal, Kharjal, Dharmajal, Jhakijal, Fashal, Maijal* and *Karentijal* are used.

- Traps such as *Dhair, Darki, Husa* and *Polo* are used.

- Dry season exclusively fishing of road side ditches is sometimes done using low lift pump (LLP).

Flood plain fishery

Flood plain fishery is well practised in this sub-compartment. During the monsoon the medium level land (F1) is inundated with flood water and that conditions prevails for about 2/3 months. Then the area is naturally stocked with different kinds of fish and the people catch fish from the flood plain. In the post monsoon period the fish travel back to the river via the canal since there is no *pagar* or perineal water bodies in the area. Flood plain fishery is the main source of protein for the surrounding people.

Institutional facility

Practically no institutional facilities are available in the area for fishery development.

Fish predation and fish diseases

It is reported that in the flood plain there is a problems of fish predation. The major problem reported by the people is the occurrence of *Epizootic ulcerative syndrome* diseases over the last three years. This has caused a loss of production due to heavy fish mortality.

Fish migration

In the monsoon the fish from the nearby *Pungli* river migrate to the flood plain through the canal. The broad fish spawn in the flood plain in the months May - June.

Sources of fish fry

Pond fish culture is not well practice in the area. Only in one or two ponds the owner culture fish but in a very unscientific way. Pond owners collect fish fry from the local vendors during the monsoon. During the monsoon vendors move in the area with earthenware pots containing fish fry for sale. The vendors collect fish fry from *Bhuapur Ghat.*

Views of the public

People suggested that as there is no perineal water bodies in the area excavation of some area in the *beel* to make some *pagar* be done for fish stock. Some suggested that migratory routes of fishes from river to flood the plain be re-excavated for their easy movement.

Own observation

There are no perineal water bodies, only seasonally flooded areas. Only in some areas the middle point is a little bit low laying land but it dries up during peak dry season. Road side ditches were found here and there in the area. Only very few derelict ponds were found. Some culturable ponds were also found. But scientific fish culture in the pond was found almost absent even though resources are available.

Conclusion

Since the flood plain is mostly medium high to medium low land the low laying area be excavated if possible so as to make it a perineal water bodies and many *pagars* are made in the area. As a result the *pagars* and excavated area of the *beel* will be able to retain more water which will facilitate fish retention in the area. So by effective drainage system water can be preserved in the perineal water bodies and *pagars.*

89

E1.5 ENVIRONMENT

Introduction

The following report was prepared after surveying the village *Salina, Union Gala* of *Tangail* Sadar upazila, and village *Pauli, Union Elenga* of *Kalihati* upazila (sub-compartment No. E1).

Field findings

Significant natural vegetation
Natural vegetation is not well developed in the area except near homesteads, covering an average area of .2 acre in each homestead of the area. There is no natural forest. In the homestead forest herbs, shrubs and trees are found. The plant community comprises common variety of trees. It comprises trees like Mango, Jackfruit, Banana, Coconut, Nut-trees, well developed Bamboo bush, Korai etc. Besides, there are many kitchen gardens comprising common varieties of vegetables.

Aquatic plants

The river *Pungli* flows along the sub-compartment and seasonally floods the area. It is reported that no significant aquatic vegetation exists except water hyacinth, hydrila, water lily, and other aquatic micro-organism. All the flora and fauna in the area play vital role and is a good source of ecosystem.

Biological (fauna)

Fishes

Many fish like shrimp, fresh water common species of fishes are present in the water bodies.

Amphibian

Includes toad, frog etc. are present in the area. These are also important animals for mankind.

Reptiles:

Lizard, snake varanus etc. are reported to be present in the area. But there is no report of both land and aquatic turtles in the area.

Birds

It is reported that the bird population as a whole is decreasing in the area. Crow are very rare. Vultures occasionally come to the area when there is a trace of animal dead bodies. Common birds like *Shalik, Bak, Kingfisher, Panicauri* are found in the area. There is no report of guest bird in the area.

Mammals

Domestic animals like cow, bull, cat are found in the area. But there is a report of declination of this population in the area. Horses and buffalso are absent. Wild animals like *Mongoose, Jackle, Jangle* cats, *Bagdasha,* etc. are reported to be declining in the area. People reported that all these animal populations are declining in the area because of devastate flood of 1988 which destructed their habitat.

Rats

Many rats are present in the area which causes serious damage to the peoples property.

Others

Sanitation

There are a good number of hand pumps in the area which are the main source of drinking water. But there is also a report that people sometimes drink water from nearby ponds. *pucca* latrines is very rare, but traditional village latrine are found in the area. But open sanitation is also in practice.

Fuels

Great scarcity of fuel prevails in the area. The main source of fuel is cow-dung; jute stick, remains of paddy, dried leaves of plant. Fire-wood is used by the rich people for cooking.

Transportation

The transportation system is a little bit developed. Because the sub-compartment is not so far from the town, peoples in the rural area can easily travel.

Human activities

Agriculture

People's main occupation is agriculture. About 80% of the total land of the sub-compartment is under cultivation.

Afforestation

There is no report of afforestation programme in the area neither from Govt. side nor from any NGO. Only small scale plantation is done in the area by the people at their own initiation.

Deforestation

There is a report of deforestation in the area. Deforestation is going on at a high rate. People sell out their trees to middle men (timber traders). Most trees used in the brick field as firewood. This deforestation is a serious threat to the ecosystem.

Human habitation

Due to high population growth many new houses are reported to be constructed in the area every year. Approximately 15 to 20 decimal land per house is being used for such habitation and there is a report that in every year at least 2 to 3 such houses are being constructed in the area. This decreases the agricultural land area.

Pollution

There is a report of both air and water pollution in the area. The source of water pollution is stagnant water, open sanitation also the dead animals left here and there. Extensive use of insecticides and pesticides like *Bashudin,* Furadon etc. in agriculture are a sources of pollution. It is noted that there is a report of the use of jute seeds (in powder form) as substitute of insecticide to control agricultural crops from the attack of insects and they are getting good result (indigenous method).

Views of the public:

- The sanitation problem should be solved.
- Afforestation programme should be launched.
- Water congestion (logging) should be removed.

Own observation:

Due to occasional drought in the area the growth of plant vegetation is disturbed. Sometimes the overflood and heavy rainfall also disturbs the environment. Pollution of air and water is a serious threat in the area. Deforestation was noticed. Due to surface water scarcity, sanitation is very poor. Land and aquatic animals were found to be declining in the area. Use of insecticide and pesticide is in practice.

Conclusion:

By controlled flooding and controlled drainage, the water logging conditions may be removed and thereby water pollution can be avoided and thus can ensure the agriculture. By effective management of water the fish population as well as amphibian and reptiles in the water bodies can be well maintained.

E1.6 SOCIO-ECONOMIC SITUATION

Survey area

The surveyed area is divided into two villages with *Tangail-Mymensingh* road through the middle of the area. The two villages are: *Salina* under *Gala* Union in *Tangail Sadar Upazila* and *Pauli* under *Elenga* Union in *Kalihati* Upazila.

MAJOR NON-FARM ACTIVITIES

Major non-farm activities in which people *Salina* village area are involved in are approx. 50-55%, seasonal and petty business 15-20%, daily labour (both agri. and non-agri.) 25-30%, contractual and transport line 3-5%, while people of *Pauli* are involved with daily labour 50-60%, different types of petty business 20-25%, transport 10-12%, *bidi* factory works 10-15%. A group of 07-08 fisherman family is also there in *Pauli* village.

Social and institutional aspects

Employment patterns

Mainly family labour is used in the farm households of the area. About 8 to 10 families in each of the villages employ labourers at their households on yearly basis for their agricultural activities. The families who employ labourers are mostly service holders and or businessman having farm land. Women in *Salina* village usually do not work at others house except a very few (from the most needy family) and only during post-harvesting time, while a large number of women (from the daily labourers family) in *Pauli* village find work in other people's houses during and after the harvesting of paddy.

Fifteen to twenty women from *Pauli* village also works as *bidi* factory worker in *Tangail town*, for 3 to 5 days a week, depending on the volume of work. But no women from *Salina* village works outside home as a daily labourer. Women from the landless families (10-15 households) in *Pauli* village engage in making *Thonga* (packet), but this is absent in *Salina* village.

Wage rates

The wage rate for the daily labourers in *Salina* village ranges from Tk.25-30 without meals in lean seasons and Tk.35-40 in pick seasons *(Jaishtho-Ashar)* with one meal only for a few days during high-pick time of harvesting HYV paddy. Usually the daily labourers in *Salina* village are not paid with meals and it is a long standing practice in the village. The practice of engaging half day labour from 7:00 a.m. to 1:00 p.m. and from 1:00 p.m. to 5:00 p.m. is also found in *Salina* village. In *Pauli* village the wage rate is Tk.20 in lean periods without meal and Tk.30-40 with two times meals in the peak season.

The women *bidi* workers who work in the factory on a contractual basis (production wise) earn Tk.20-25 per day. The *Thonga* makers can earn Tk.5-8 per day. The agri. daily labourers of *Salina* village do not go out of their village to find work while labourers from *Pauli* village have to go outside of their village (within one mile) during lean season. No in-migration of labourers from distant places is found.

Education and literacy

The literacy rate in *Salina* village is about 40% while it is maximum 30% in *Pauli* village. Due to the poorer economic condition of the general people of *Pauli* village in comparison to *Salina* village people, the literacy rate is lower in *Pauli* village. But the present rate of enrolment in school of children of both the villages are equal and the ratio of school going children in both the villages is 60% boys and 40% girls. The educational facilities for both the villages are almost equal with 2 primary school, one high school and one madrasha within quarter mile of the villages.

Organized groups

Only two local NGO's; SSS and SDO are working in *Salina* village. They have 2/3 female groups in the village. Group formation, creating savings habit, centre based education for the children and providing small scale loan for I.G. activities are the main activities of the NGO's. The *Pauli* village has no activity of any NGO and therefore no organized group is there. But two female groups of 15-20 women are there who organized themselves of their own. These groups main activity is savings and loan disbursement.

Public facilities

All the public facilities are available around the area and people of both the villages can avail those facilities easily.

Transport and communication:

Both villages have a good road communication system and the roads are communicable throughout the year. Rickshaw and vans can use the village roads. With the *Tangail-Mymensingh* road being only quarter mile away from both the villages, movement to even distant places is very easier for the people of the area.

Markets

The people of the area go for their marketing in *Elenga* and *Rasulpur* hat. *Rasulpur* has a 3000-4000 attendance while *Elenga* hat (on Friday) has an attendance of 15,000-20,000 people.

General needs

In respect of education, health communication and marketing problems, the people of the area have no grievances, but they need adequate supply of medicines in the Govt. run health

clinics/centres. Extension service for poultry, livestock, agriculture is needed but only to a limited extent. The area particularly the people of *Pauli* village expressed their need to have the Grameen Bank and other NGO activities in their area.

Own observations

Existing water related situation

The area faces drainage congestion problems both by flood water from *Pungli*. The water stagnation continues there for 3/4 months keeping no chance for Aman cultivation. In some parts of *Salina* village inundation of homesteads (8/10 house on the bank of the river *Pungli*) also happens during the monsoon by riverine flooding.

Socio-economic situation

The socio-economic condition of the two villages in the area is not the same. Both economically and culturally the people of *Salina* are more advanced than the people in *Pauli*. The number of service holders and the literacy rate is higher in *Salina* village than *Pauli*. The number of landless families and seasonal businessman are less in *Salina* than in *Pauli*. Although the two villages are under the administrative boundaries of two upazila and situated in two sides of the *Tangail-Mymensingh* high way the people of the area maintain good relationship among themselves.

People's opinion (about solving water related problem)

The people of the area from both the villages have been found very impatient to see the drainage congestion problem solved. It has been known that people from both the villages planned (last year) to cut the embankment near the bridge on *Gala khal* to drain the logged water of the area. Finally they refrained themselves on receiving objection from the shop keepers on the embankment and having assurance from the Union Chairman to have a culvert/bridge on that point. People of the area have been found willing to participate if any quarter comes forward to help solve their problem.

Conclusion

To boost the agricultural production of the area and thereby economic and social development, the drainage problem should be removed by putting a culvert/bridge or a sluice gate on the embankment near the under-constructed bridge on *Gala khal*.

7 SUB-COMPARTMENT

7.1 INTRODUCTION

The sub-compartment 7 is on the northern periphery of the *Tangail* CPP. This area is traingular in shape and is bounded by the embankment cum road along *Gala khal* from *Sadullapur to Rasulpur* on the North, *Tangail-Jamalpur* paved road on the East and *Gala khal* branch from *Sadullapur to Enayetpur* on the West. The paved road from *Tangail* town to *Enayetpur* bazar forms the south-western boundary. The total area of this sub-compartment is about 360 ha. Average land level is medium high and low farmland affected by drainage congestion is about 25%, located in the central part of the basin shaped area.

7.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

Early monsoon rainfall in May is the initial source of flooding, which fills the low areas. River water enters the area later through a channel in *Magurata* from the *Gala khal* branch through *Sadullapur* in the West, and from the borrow-pit channel in the East, and also a branch of *Gala khal* flowing east of the *Tangail-Jamalpur* paved road (through a culvert on the road). During the peak monsoon, the *Gala khal* on the West and South overspills its banks and floods the entire area.

Drainage congestion problem affects about 25% of the farmland mostly in the South of *Sadullapur* and West of *Rasulpur*. Re-excavation of the channel through *Magurata to Gala khal* in the West and the borrow-pit channel in the East with channel improvements in SC-6 will relieve the drainage congestion of this area. Internal link channels will be required to connect the low pockets with the existing *khals*. But this will be opposed by the affected land owners, unless proper compensation paid in advance.

The devastating flood of 1988 had the same usual effect in this sub-compartment also.

Erosion

Some erosion is taking place in the North from the *Gala khal* at *Rasulpur*. Apparently the reason is that an influential person re-excavated part of the *khal* to get earth for personal use. This has weakened the embankment. This situation needs to be rectified.

Ground water

There are enough STWs and DTWs in the area for Irri cultivation. For drinking water HTWs are used. A few additional HTWs are required in *Sadullapur*. Discharge problem is reportedly in April.

Conclusion

Average land level is medium high in this sub-compartment and as such drainage congestion problem is not so severe here. Re-excavation of the existing channels will relieve the drainage congestion of the low pockets, comprising about 25% of the farmland. Groundwater is adequately exploited. But there is scope for limited expansion in some localities.

7.3 AGRICULTURE

Cropping pattern

The studied area of the sub-compartment 7 covers the villages *Rasulpur, Sadullapur* (eastern part) and *Dholapara*. The gross area of the sub-compartment is approximately 360 ha out of which about 260 ha is estimated to be net cultivated area. Among the major crops Aus or Jute in *Kharif-1* season is grown on medium high to high lands and Irri/Boro (HYV) is cultivated in some medium high and medium low to low lands where dry land irrigation is provided. Transplanted Aman is reported to be grown on about 20% of the net cultivated area. The following cropping patterns were reported to be in practice in the sub-compartment.

Crop Patterns

Land Type	*Kharif-1*	*Kharif-2*	Rabi	Annual	% of NCA
F0-F1	B.Aus/Jute	-	Wheat/Mustard/Potato		20%
F1	B.Aus/Jute	T. Aman	Wheat/Pulse		20%
F2-F3	TDW Aman	-	Boro (HYV)/Braus		25%
F3 +	-	-	Boro (HYV)/Braus		20%
F2	-	-	Mustard-Braus		10%
F0-F1	-	-	Groundnut/Potato		5%

Average crop yield and price

The average yield of different crops in the cropping season and their prices at the farmgate level is given below:

Crops	Av. yield t/ha.	Price/MT
B. Aus	1.10	5360/-
T. Aman	1.70	6030/-
TDW Aman	1.40	6030/-
Boro (HYV)/Braus	4.60	6030-6700/-
Jute (White)	1.70	5090-5360/-
Jute (Tossa)	1.90	6700-7370/-
Wheat	2.20	5360-6030/-
Pulse	1.00	14500-14750/-
Mustard	1.40	12060-13400/-
Potato	8.00	3200/-
Groundnut	2.20	12060/-

Use of fertilizers

The use of fertilizers in the area is traditional. The scientific method of application and proper doses are not maintained in the area for lack of knowledge and credit. The agricultural extension service is very poor in the area. Some farmers use cow dung @ 15-20 mounds per *pakhi (Bigha)* specially in Aus or Jute season.

Farmers usually area, TSP and MP in different crops but in most cases single area is applied. The rate of application of fertilizers are as follows:

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)
B. Aus	70-90	-	-
T. Aman	140-160	-	-
TDW Aman	90-110	70-90	-
Boro (HYV)/Braus	210-240	100-170	40-45
Jute	70-90	-	-
Wheat	150-170	70-90	40-50
Mustard	110-130	80-90	-
Pulse	70-90	-	-
Groundnut	70-90	70-90	-
Potato	120-140	90-110	30-40

Farmers reported that due to poverty they cannot use more fertilizer in their fields. The cost of fertilizers are high and credit facility are lacking.

Irrigated crops

The irrigated crop of grown in the area is the Irri or Boro (HYV) and Braus (late Boro). Farmers grow Boro with irrigation through KSS in case of DTWs. There are also some STWs in the area which are mostly privately owned. The cost of irrigation is covered by giving 1/4 of the crops produced with irrigation. In the surveyed area the following DTWs and STWs were available to irrigate the Boro (HYV)/Braus.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Rasulpur	DTW 2 Nos.(2 cusec)	Not operative due to sandy soils in the area which causes rapid percolation.	-
	STW 4 Nos. (1/2 cusec)	20 ha.	2 - 2
Sadullapur(East)	DTW 1 No. (2 cusec)	Not-operating	-
	STW 8 Nos. (1/2 cusec)	45 ha.	2 - 6
Dholpara(Bailla)	DTW 1 No. (2 cusec)	20 ha.	0 - 1
	STW 6 Nos. (1/2 cusec)	35 ha.	2 - 4
	20	Total : 135 ha.	

*In the village *Rasulpur* and *Sadullapur* the DTWs were installed by BADC but due to light textured soils in the area there was rapid loss of water causing heavy loss to maintain there. Ultimately those DTWs were abundoned.

Share cropping

In the sub-compartment most of the farmers reported to be of the medium to marginal categories. Those who are in involved in service share cropped their land with the terms 50:50 of the produced crops. In case of Irri/Boro (HYV) 1/4 of the crops is given as the cost of irrigation and the rest of production are divided equally among the owner and share cropper. The share cropper is to bear all the cost of inputs required.

Crop damage

Among the crops damaged Irri is reported occasionally affected by early flood and insect attack. The major crops affected by rain and flood water is the Aus and deep water Aman seedlings. Some T. Amans are also affected due to late flooding in the month of September or October. Occasionally damage of crops occurs by hailstroms, thunder storms etc. In the area of village *Rasulpur & Sadullapur* flood water enter through the *Sadullapur & Gala khal* from *Lohajang & Pungli* while the area under *Dholapara* is flooded by water from *Pungli* through the *Gala khal* and the district *khal* from *Lohajang*. People of the area want the flood in the area on the ground of increasing the soil fertility by siltation but they want it in a controlled way by re-excavating the existing filled up *khals* to drainout the excess water during heavy shower and excess flood.

Livestock

The livestock in the area is not much developed. The general health situation is moderate to poor. The area faces a shortage in draft animals. The acute feed deficiency arises in the month February to April when most of the farmers purchase straw at a high price.

In the sub-compartment there is a livestock centre in *Bailla* from where A.I is given. Hybrid cattle are very few in the area. Farmers say it is expensive to maintain hybrid cattle. Further the poor medicare is also responsible for the loss of draft animals in the area. In the sub-compartment in almost every year some cattle die due to an unknown disease which is farmers say is poisoning by cobblers.

The average milk obtained from milch cow is about 1.5-2.0 litres per day. Farmers also use their milch cow as draft animal. Rinderpest, Toe and mouth disease, throat sore etc. are the common disease away the livestock in the area.

Poultry

Among the poultry chickens are abundantly available in the area. Ducks are available in fewer number. One poultry farm is situated in the village *Bailla* which produce eggs and chicken in the area. Chicks of 7 to 15 days age cost taka 20 to 25/- each. Farmers get difficulties to keep them as they are susceptible to disease and environmental effect. Ranikhet and tapeworm is the common disease among the poultry.

Own observation and views

The land in the area generally slopes towards the South. About 40-45% of land belongs to medium high to high land where Aus, Jute and T. Aman is grown in *Kharif-1* season. Among the Rabi crops, wheat is extensively grown on these land. The topography is gently undulating to nearly level. The rest of the area is under the land type medium low to low lands (F2-F3) where mostly Irri/Boro(HYV) is grown with ground water irrigation. Soils are mostly medium textured (Sicl) with some Sic at the depression. Soils along the river banks or canal sides are FSL which is not suitable for growing Boro(HYV) due to rapid percolation of irrigated water.

Both livestock and poultry belong to local varieties. The area faces a shortage in draft animals. Most of the farmers plough their lands on hire basis. Each pair of cattle cost Tk.30/- for one time ploughing. Two pair of animals are required to plough a bigha of land. To increase hybrid cattle in the sub-compartment extension work for livestock development is essential in the area.

7.4 FISHERIES

Water bodies

The available water bodies under the sub-compartment SC-7 with their number, type, area and 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:	-	-	-	-	-	-	absent
2.	Ponds i. Rasulpur ii. Sadullapur iii.Dhulpara	 4 1 3	 2.50 acres 1 acre 2acres approx	 cultured cultured cultured	Nura,Feka,Kalabaush,Tilapia	Poor	Individual	Pond fish culture is very poorly developedin the area.
3.	Pagars: i. Rasulpur ii. Sadullapur iii.Dhulpara	 15 1 1 20 2	 1.5 acre .15 acres .15 acres approx	 cultur-able cultur-able cultur-able	Koi,Puti,Sing,Magur,Taki, Shol,Gazar,Shrimp,Pabda, Tengra,Bijri,Chanda,Chela, Buthum,Baim etc.	30-35 mts approxi-mately	Individual	Small water bodies but most re-sourceful

Ponds

There are about 8 ponds in the visited area and all those ponds are under carpfish culture. The ponds are of different sizes and belong to individuals. Fish production is not reported to be satisfactory as the scientific fish culture is not exactly followed due to lack of knowledge. The pond owners collect fingerlings of carp fishes from *Muktagacha* fish hatchery, *Mymensingh,* as well as from local professional fishermen during monsoon. The pond owners sell out the fish from their cultured ponds once a year.

Ponds are reported to be very useful for them both from fish culture point of view as well as household consumptions. During the post monsoon, when there is no anyother source of water in the area, the villagers are reported to depend on these limited number of ponds for bathing and other household consumption.

There is a great public demand in the area to excavate fresh ponds to facilitate pond fish culture and household consumption.

Pagars

As per report there are about 17 *pagars* of different sizes in the area. The floodplain fishes are naturally stocked into these *pagars* when the flood water starts receding from the floodplain during the month of *Ashshin* and *Kartik*. During the post monsoon period the *pagars* owner get their own fish supply from these *pagars* and in addition they sell fish to the professional fishermen as well as to other villagers. The *pagars* are used as source of water for duck culture, bathing pools for people and cattle as well as for many other household consumption.

There is a great public demand to freshly excavate new *pagars* and re-excavate the existing the dried *pagars* in order to increase waterbodies in the area to facilitate fish stocking, and for other household works specially during post monsoon period.

Professional fishermen

As per report there is no household of professional fishermen in the area.

Subsistence fishermen

As per report there are about 14 households of subsistence fishermen in the village *Rasulpur* and *Sadullapur*. In the village *Rasulpur* there are about 10 subsistence fishermen, they are Hindus.

Fishing periods

As there is no *beel* in the area the fishing is reported to start in *Jaistha* and continues upto *Kartik* during the early and full monsoon period. *Ashin* and *Kartik* are the peak period for fishing in the area. Besides small scale fishing goes on in the area in *pagars* and ponds almost round the year.

Fishing methods

During early and full monsoon about 70-80% floodplain fishery is done by *Karentjal, Jhakijal, Dharmajal (Shibjal), Berjal* by professional fishermen from neighbouring villages and by local people. About 10-15% fishery is done by *Darki, Kouch, Aro* and *Tenta.*

During the post monsoon period about 70-80% fishing is done by *Jhakijal, Pushnet, LLP* and *Handpicking* in *pagars* and ponds.

Floodplain fishery

Since the area is medium high to medium low lavel land the floodplain fishery is practised. The floodplain is connected with the *Pungli* river through *Bashalia (Bara) khal*. During the months of early *Jaistha* and *Ashar* the river water starts to enter into the floodplains through *Bara Bashalia khal* from *Pungli* river and finally comes to the floodplains of the sub-compartment. This brings eggs and juvenile of carp fishes into the floodplain. These time all these fish find sufficient food supply in the floodplain water and they rapidly grow up and spread all over the floodplain.

The inundation periods of these floodplain extends from 3-5 months and this time local public as well as professional fishermen from the neighbouring area go fishing freely in the floodplain. As soon as the flood water starts receding during *Ashwin* and *Kartik* the floodplain fish go to deeper water bodies like *pagars* in the area and these are thus naturally stocked. Some fish spieces go back to the river along with the water.

Fisheries practices

As per public report both the practices like culture and capture fisheries do exist in the area. But the pond fish culture is not satisfactory.

Institutional facility

As per report the institutional facility is nil in the area.

Fish predation & fish diseases

Both fish predation and its diseases are reported in the area and it gradually decreasing the fish population. The public is seriously concerned about fish diseases. There is a great public demand to control this fish diseases in the area in order to save the valuable fish wealth.

Fish migration

As per report fish migration takes place in the area and as a result floodplain fishery is developed. During early monsoon fish from *Pungli* river migrate to the floodplains of the sub-compartment through *Bara Bashalia khal*. The migrated fish spawn in the floodplains and propogate. People in the area requested to re-excavate the silted up fish migratory channel (*Bara Bashalia khal)* in order to facilitate fish migration in the area.

Own observations and views

The whole visited area seems to be medium high to medium low lavel land. There is no *beel* and only a limited number of ponds and *pagars*. The water lavel of the ponds and *pagars* was found to low and a few were found dried up. The catch of these fishermen was checked and found to contain fishes like *Puti, Tengra, Baim, Taki, Kaklia* etc. and these were found without disease.

Views

Overfishing in the *pagars* is a great threat for fish population. The *pagars* owner should be trained in this prospect. The derilicts ponds should be re-excavated and brought under fish culture.

7.5 ENVIRONMENT

Biological

Arthropods

Destructive insects like *pamri, mazra, letha*, chat, *chenga* etc. are reported. Valuable crops like *Irri, Boro, Jute, Pulses, Wheat* etc. are damaged by insects and extent of damage is 1-2% of total crop production. People in the area are concerned about insect attacks. They urged to control this insect attack to the extent possible.

Mollusca

Water bodies like excavated ponds, *pagars* and floodplain are reported to contain fresh water muscles - the lamellidiens (Bivalves), *pila* Globossa (Snails) of different sizes. During the post monsoon period in the shallow water bodies many birds, ducks etc. are reported to graze and eat small sizes snails.

Annelids

Annelids like *Earthworm, Leech, Nerries* etc. are found in the area.

Fish

Different kinds of fish are available. People reported that the fish population in the waterbodies have significantly decreased and as a result the local people are facing problems.

Amphibian

The amphibian population includes toads, frogs, *hyla* etc. Their population is decreasing. Toads are important as it has edible value and also it helps in controlling destrucjtive insects in agricultural field.

Reptiles

People reported that the tortoise population is completely absent in the area due to unknown reasons. They reported that once the area had tortoise both in water and on land and Hindu people used to eat them. Other reptiles like snakes, *guishap, anjan,* lizards are reported but with gradual decreasing.

Birds

Birds like *Dahuk, Cuckoo, Boi, Crane, Doyal, Shalik, Vulture, Crow, Raven, Owl* etc. are found in the homestead garden but their population has considerably decreased since the 1988 flood. People reported that another reasons of declination of birds population is the public interference like hunting trapping etc. Many people domesticate pigeons. People are concerned about significant decrease of bird population in the area. Public urged to stop hunting of birds by urban people.

Mammals

Terrestorial wild animals

Terrestorial wild animals are reported by public in the visited area but in reduced number. People are unaware of the reasons of their reduction. Some people reported that the devastating flood of the 1988 has washed away all the habitats as well as the wild animals themself. Whatever wild animals are available are - *Jungle cats, Nangar, Jackle, Mongoose, Khatash* etc. out of these jackle is reported to be very few in number. But the population of mongoose is reported to be satisfactory. People reported that once the area had an otter population but now the same is completely absent. Rats and moles are found and the rat problem is a great menace to the public.

Domestic land animals

As per report domestic land animals are very much reduced in the area due to cattle disease and fodder scarcity. Now-a-days due to cultivation of Irri/Boro in the agricultural field the fodder scarcity has become acute.

Besides that, cattle disease is a problem in the area and due to lack of medicare facility every year a lot of cow dies in the area. About 20 cows died last year in *Sadullapur* village, Union *Gala* due to cattle disease. Draft animals scarcity is a real problem in the area due to which farmers face difficulties ploughing their land.

Whatever domestic land animals are available in the area are dry cow, milch cow, cat. Horses and buffalos are completely absent. Cart are no longer available in the area and this has created a transportation problems for the rural people.

Others

Afforestation

In the year 1988 there was an afforestation programme in *Rasulpur* village of *Gala* Union conducted by a Govt. agency. Villagers reported that they were provided with sapplings of *Mehogony* and *Shegun* for plantation in their homestead garden. But after that there is no such programme and whatever afforestation goes on is done, by the public at their own initiative.

People in the area requested to supply them seeds, and sapplings of timber yielding and fruit yielding plants. They told that the homestead forest is their great resort and is very helpful in solving their economic problems. So they urged to boost up afforestation in their area as much as possible.

Deforestation

Deforestation is goes on round the year. The wood traders as well as brick-field owners from neighbouring area visit the villages and purchase different kinds of trees.

Institutional facility

As per public report the institutional facilities i.e. from the Deptt. of Livestock and Deptt. of Forestry are nil. People do expect much help from both these Deptt. in order to maintain their homestead garden as well as to save their valuable cattle from disease.

Human activities

Human habitation

Human habitation growth is reported but to a very minimum lavel. About 1-2 new houses covering an average area of 10-15 decimal of land is being annually constructed in the visited area.

Kitchen gardening

Kitchen gardening is well developed in the area. Almost every household has a kitchen garden. Kitchen garden is reported to have different kinds of vegetables like - *Mistikumra, Gourd, Cauliflower, Cavage, Chilli, Data, Cucumber, Bitter gourd, Pinach, Chal Kumra* etc. These vegetables easily meet the villagers vegetables consumption demand. Some farmers, after meeting their own vegetables needs, sell the surplus.

Pollution

Pollution is caused by *kacha* latrines, open sanitation, stagnant water in ditches, leaving of dead animals bodies here and there, throwing of garbage etc. This the pollution is a source of many air and water borne diseases.

Own observation and views

Homestead gardens are developed and wild animals like mongoose, jackle live in the bushes. The cattle population is threatened due to cattle disease. Bird population is significantly decreased. Open sanitation, construction of kacha latrines and stagnant water in the ditches were noticed.

The ditches, *pagars* and derilicts ponds in the visited area were found dried up. People face extreme water scarcity problems during the dry season. No brick-field was observed.

7.6 ENVIRONMENT

Homestead forest

Homestead forest is reported to cover an average area of .2-.3 acres in each homestead in the visited area. The homestead forest includes with the most common varieties of trees such as herbs, shrubs, mango, jackfruit, coconut, butternut, banana, *goyava, boroi, jambora,* leamon, bamboo, *shimul, karai* etc. Kitchen gardens are also seen in visited area having common varieties of seasonal vegetables like *Brinjal, Cally,* Bittergourd, Bottle gourd, cocumber, pumpkin, lady's finger, *korola, lalshak, data,* cabbage etc. In between the different varieties of trees and bushes many types of animals like *rat, mongoose, varanan, lizard* etc. live.

Fuel

The main sources of fuel in the visited area are cowdung, dried leaves, dried bushes of different paddy, straw, banches of trees and timber. Rich and middle class people do not suffer much from fuel scarcity while fuel scarcity was reported by poor people.

Drinking water

The main source of drinking water in the visited area are tubewells. In an average 100-130 tubewells were reported installed in this sub-compartment which is quite a high number. But the number of tubewell in *Sadullapur* is comparatively less than that of other two villages.

Sanitation

In an average 30-40 *pucca* latrines was reported installed in this sub-compartment which is low. Most of the people use kacha latrines.

Diseases

Diseases like Diarrohea, Dysentry, Pox, Scabies taken place in the month of *Ashwin, Kartik, Falgoon* & Chaitra. Women think the major source of getting there diseases is kacha latrines. Their perception is that the media of getting these sort of diseases is fly and mosquito. They carry germs from kacha latrines and people get sick when fly and mosquito come over their uncovered foods. They also mentioned that the bad small from kacha latrines pollute the air.

Rats

The rat problem both inside and outside of the homestead was reported causing a damage to paddy, fruits, vegetables and household belongings. Mosquito also creates problem for human being.

Other animals

Other wild animals like fox, bagdasha, mongoose etc. was reported in the visited area.

7.7 SOCIO-ECONOMIC SITUATION

Major non-farm activities

Major non-farm activities of the households in the surveyed area of the sub-compartment 7 are: Service, Agricultural works, Transport works, Cane works, Pottery, Business and so on. From the total non-farm activities of the households, agricultural works (by the day labourers) covers about 52%, service about 14%, business about 03%, transport works about 10%, cane works about 9%, pottery about 07% and miscellaneous non-farm activities cover the rest.

Social and institutioal aspects

Employment patterns

Mainly family labour is used in the farm households of the area. Hired labour is used only in big farm households and business households. Use of hired labour is common during the peak season of agriculture in the area.

Marginal and small farmers of the area works as wage labourer particularly during the lean season and low peak season of agriculture in the area.

There is in-migration (both from the adjacent area and distant area) of labour (during the the peak season) while out-migration of labour is not reported (from any of the village). During the lean season of agriculture the day labourers of the area, particularly from the landless households and marginal farm households, find their work mainly in transport (rickshaw/van) line.

Wage rate

The wage rate (for agricultural works) found in the surveyed villages are as follows:

Sl.#	Village	Wage - Lean Season/Peak Season				Remarks
		Tk.	Meal	Tk.	Meal	
1.	*Rasulpur*	20	-	30-35	-	Food is generally not provided to the daily labourers in the whole area. The working hour for the day labourers in the area is from 7 a.m. to 3 p.m.
2.	*Sadullapur (Purbapara)*	20	-	25-30	-	
3.	*Dhulpara*	20-25	-	30-35	-	

The households attached with cane work can earn Tk.50-60 per day. The carpentars wage in the area is around Tk. 50-60 with one meal per day.

Organized groups (samity)

There are different NGOs working in the area, who have their organized groups and beneficiaries of both male, female and children. Among the prominent NGOs (both national and local) are: FPAB, GB, SSS, SDS, BURO and Food for All. Comperatively female groups of the NGOs are found in the area. The activities of NGOs are concentrated in *Rasulpur & Sadullapur* village, while they are minimal in *Gulpara*.

Transport and communication

All the village roads in the surveyed area are connected through a good road communication system and in most of the case, the internal village roads are also good. The bad part of the internal village roads causes some problems in using rickshaw and van for about one to two month during the monsoon. The rest of the year rickshaws and vans can use the road easily.

Rickshaw and van are the main means of transport in the surveyed area. The eastern part of the sub-compartment being bounded by a part of *Tangail - Mymensingh* road, people of the area also can avail high-way facility very easily and can taken bus and trucks as and when needed.

Markets

The people of the sub-compartment do their marketing in the hats and bazars within and around the area are: 1) *Elenga*, 2) *Bailla*, 3) *Gala*, 4) *Rasulpur* etc. (Detail information about the hats/bazars like hat/bazar day, attendance etc. are in other reports).

General needs

In respect of education, health, communication and marketing the people of the area do not have many problems. The extension services (particularly agriculture and livestock) are reported to be satisfactory. Drinking water facilities also found quite sufficient except in *Sadullapur* village. But people of the area, particularly from *Rasulpur* and *Dhulpara* are concerned about the waterlogging problem around their villages during the monsoon. This waterlogging problem mainly creats communication problem (to the residents of *Dhulpara*) and threatens inundation of homesteads/courtyards of houses, with the rise of the water level in the *chaks* during monsoon. So, people of this area want to get rid of this problem, for which they think a link channel from *Rasulpur* village to *Gala khal* through the Mymensingh road side borrow-pit many solve the problems of *Rasulpur* people and raising of internal road (upto 2 feet) through *Dhulpara* many solve the problem of *Dhulpara* people. These are the main needs of the people of *Rasulpur* and *Dhulpara*.

There is another important problem of the people of the whole area, that is availability of water during the dry season. The area, having no panennial waterbody (except a few culture fish pond), suffers for want of water during the dry season, particularly for bathing of cattle. *Sadullapur* village people expressed their need to have more credit facilities through the NGOs or other relevant institutions in order to improve their economic condition.

Own observation

Existing socio-economic situation

About one third of the surveyed area is under the Municipality and situated at the outskirt of Tangail town and the rest two third area is under the Union Council. Therefore, the area is a mixed type of rural/urban nature. Even then the principal occupation of the households in the whole area is farming. Those who are attached with service and or with business (particularly the households in *Dhulpara* - under Municipality) also have sufficient farmland and are active in farming. The businessmen in *Dhulpara* are attached with transport business and are considered as big business families.

The rate of landless families in highest in *Sadullapur* and it is lowest in *Rasulpur*. The landless families are involved in cane work, transport work (rickshaw/van) and seasonal agricultural work. While the marginal farmers works as wage labourers mainly in the agricultural field and with transport line as well.

The out-migration of labour from the area is almost nil, because the area has sufficient employment opportunity for the day labourers in the agricultural sector as well as in the transport line (including Tangail town). But day labourers in the area prefers to work in the agricultural field. In respect of education also, the people of this area have been found quite advanced.

People's opinion

<u>About NGO activities</u>

The people of the area have found the NGO activities as helpfull for the common people, particularly for the low income group families in the area. The poor people have been benefitted much by the credit program of different NGOs working in the area. And for improving their economic condition further, the people of the area expressed their need to have more coverage of NGOs with credit program in the area.

<u>About Union Parishad and Upazila</u>

The people in the area both under municipality and under Union council viewed the Union council as an important institution for the socio-economic development of the rural people. They are found more or less happy with the performances of the Union Parishad, although they think that the Union Council should play a more effective role in the development process. A high powered supervisory team many ensure performing expected role by the Union Council as opined by the people of the area.

About the Upazila activities the people of the area are not well aware, as they do not have direct link with the Upazila administration. So, they could not clearly comment on the activities or role of the Upazila as a system or as an institution.

7.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

The visited area under the sub-compartment 7 are *Rasulpur, Sadullapur & Enayetpur* villages. Some women of the area are involve in different types of activities besides their domestic tasks, except in *Dolpara* of *Enayetpur* village.

The women of the visited area are involve with different types of activities mentioned in the following table along with employment pattern and daywise wage rate in relate to the villages:

Name of Village	Patterns of Employment	# of Women	Daywise Wage Rate			Remarks
			With Meal		Without Meal	
			Tk.	Meal	Tk.	
Rasulpur village	Biri Thonga making	25	-	-	5-6/-	
	Sika making	4-5	-	-	10-20/-	on demand
	Weeding/Seedling	5-10	-	-	10-20/-	Seasonal
	Post Harvesting work	15-20	-	-	12-15/-	Seasonal
	Maid Servant	4-5	5-10/-	3(m)	-	Regular
	FWA	2	-	-	-	employee
	CARE Service holder	5	-	-	-	- do -
	Cane work	8-10	-	-	30-40/-	
	Earth work	15-20	-	-	10-16/-	Seasonal
Sadullapur village	Biri Thongs making	15-20	-	-	5-10/-	
	Spining & Jari Processing	12-13	-	-	5-15/-	
	Post Harvesting	20-25	10-12/-	3(m)	-	Seasonal
	Cotton Wrapper	10-12	-	-	15-20/-	Seasonal
	Net making	15-16	-	-	10-12/-	
Enayetpur village	Post Harvesting	2-5	10-12/-	3(m)	-	Seasonal
	Service Holder	3-4	-	-	-	Regular emp.

Education and literacy

The area is connected with good road communication systems and facilities such as educational institution are also available within the short distance from the villages. Literacy rate at *Rasulpur* and *Enayetpur* is much higher than that or *Sadullapur* because the people of *Sadullapur* are poor and unable to afford money to send their children to the school.

The table shown below reflects the literacy rate according to villages visited:

Sl. No.	Village	Literacy rate<14>	Attendency (aged 5-14)	% of Girls among all students	Remarks
1.	*Rasulpur*	40-45%	80-90%	40%	
2.	*Sadullapur*	20-25%	50-60%	45%	
3.	*Enayetpur*	40-45%	70-80%	40%	

Organized groups

Different types of NGOs and organized groups were reported present in *Rasulpur* and *Sadullapur* villages except *Enayetpur*. All these organized groups have been structured with a view to improve the socio-economic status as well as to raise the level of awareness among the women community. A few local group/club (with local initiative) was also organized to enhence the sports, culture and social welfare activities.

Sl. No.	Village	Organization/Samity/Groups	# of Groups	# of Member		Activity
				Male	Female	
1.	Rasulpur	1. SSS	2	50	50	Savings habit & income
		2. SDS	1	60	40	generation activities
		3. BURO	1	-	10-12	Savings habit.
		4. Zagoronee Juba Club	1	25	-	Savings and trainingon
		5. Banik Samity	1	-	25	improved agricultural techniques.
						Sports and culture.
						Sports and savings
2.	Sadullapur	Food for All				
		1. Nari Kallayan Samity	1	-	8	Savings
		3. Nobo Kallayan Mahila Samity	1	-	13	Savings
		4. *(UNICEF)	1	-	15-16	*(UNICEF)United Nations Children Funds)Savings
		5. BURO	1	-	13	Savings
		6. Nakki Samity	1	-	10-12	Savings
		7. Sonchita Samity	1	-	12	Savings
		8. SDS	1	30	35	Savings
		9. Mitali Samity	1	-	14	Savings,Health massage
		10.Zagoroni Club (Local)	1	12-13	-	Savings
3.	Enayetpur	1. Renaisso Samity (local) (Mohila)	1	-	20	Savings

Public facilities

Public facilities like Union council office, post office, F.P. clinics etc. are all situated within 2-3 km distance from the villages. People of these area can avail all these facilities easily.

General needs

In respect of education and health facilities women of that area do not suffer much. But women of (*Rasulpur*) have demand of providing sufficient medicare facilities which are quite insufficient at present. Women of *Dhulpara* under *Enayetpur* village also urged to make the internal kacha read high which is linked with *Baillah* bazar and *Baillah* primary school. This road inundates and remains unusable for about one month during rainy season causes problem for school going student as well as the for the people live opposite of *Tangail - Mymensingh* road. Because this is the short-cut way for them to go to *Baillah* bazar.

Existing water related situation

The major part of this sub-compartment is high to medium land so flooding does not occur here frequently. But women of *Rasulpur* stated that during rainy season water accumulates in the nearby low land *chaks* (called *Parcher Dag*), causing damage to IRRI crops.

Women also said that the internal *khal* located adjacent to the eastern side of *Rasulpur* caused some damage of nearby kacha road (near *Abul Bhuiyan's house*) because the drainage of run-off water is obstructed near Chairman *bari* (southern side of *Rasulpur*). As a result water level comes upto the level of homesteads in the rainy season.

Women of *Enayetpur* village told that the river water flow from *Parengli* through *Baillah khal* causes some damage to *Ropa Aman* allmost every year. Moreover, the internal kacha road connected with *Baillah* bazar, submurges under water for about 1 month in the rainy season making it unusable for that period. As a result people from opposite side of *Tangail - Mymensingh* main road use the internal homestead way of *Dhulpara* to go to *Baillah* bazar. This creates a problem for the women and for school going children.

Own observation

The internal *khal* liked with *Gala khal* eastern side of *Rasulpur* caused some damage of the adjacent kacha road because the out-flow of water is blocked near the Chairman *bari* (southern side of *Rasulpur*). There is a possibility of the remaining portion of the road being damaged in the coming rainy season.

Impact of 1988 flood

Women of *Rasulpur* village told how the severe impact of 1988 flood caused great damage to paddy, houses, livestock, poultry etc. They also remember that most of the people stayed on the highway for a few days with livestock. Only a few households stayed at their houses as their homestead land much higher and water did not reach into their houses.

8 SUB-COMPARTMENT

8.1 INTRODUCTION

The sub-compartment 8 is on the northern periphery of the *Tangail* CPP. This area is almost triangular is shape and is bounded by the embankment cum road beside *Gala khal* from the *Lohajang* river to *Sadullapur* on the North, the earthen road beside *Gala khal* branch from *Sadullapur to Enayetpur* on the East, and the earthen road from *Dharerbari to Enayetpur* on the West and South. The northern part in *Pichuria and Sadullapur* is high and sloping southward. Low farmland in *Bhatchanda* and *Enayetpur* is badly affected by drainage congestion. The paved road from Tangail town to *Gala* bazaar and further north up to the proposed Jamuna bridge site, passes through this sub-compartment. The total area of this sub-compartment is about 900 ha.

8.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

Early monsoon rainfall in May fills the low farmland and *beels*. River water enters the area in June through the *Magurata khal* from *Gala khal* and spreads over the entire area through *Bhatchanda chak*. In late July river flow from the *Lohajang* river enters the sub-compartment through the so called *district khal* beside the police line. This flow spreads over the farmland through the *Bamni khal* beside *Batchanda* and through the low land of *Char Kagmara* and *Baimail*. During the high river stage the *Lohajang* river bank overspilles and flood water enters the area through 3 breaches. In-flow through the *Dharerbari khal* is not of much significance as the mouth of the *khal* is quite high due to sand deposit and the *khal* is closed inside due to FFW road construction.

High flood levels in the flood plain continue through August-September. This flood in normal flood years does not pose any problem. The people's major concern is the early flood in May-June, when there is mature Irri in the field waiting to be harvested and Aman seedlings are still not yet stabilised. During this period it is necessary to control flood entry and proper drainage is to be ensured to drain out the excess rainfall.

Flood water starts receding in late September and by November drainage flow stops. The low lying congested area remain waterlogged, drying up only through evaporation which, in some places, continues up to February. No Rabi crop is possible in such area and even the Irri cultivation is delayed, becoming susceptible to the early flood. Re-excavation of the existing silted channels will relieve the area of the drainage congestion problems.

The following re-excavation and structural construction works are required to solve the flooding and drainage congestion problem of the area.

- Re-excavation of *Gala khal* from *Sadullapur to Enayetpur*.

- Re-excavation of district *khal* from *Enayetpur* to the *Lohajang* river (continuation of *Gala khal).*

- Re-excavation of *Boilla khal* from *Enayetpur to Sibpur* and onward to SC-5 with a regulator on this *khal* at *Enayetpur* (continuation of *Gala khal).*

N.B.: *Gala khal* divides into two branches at *Enayetpur*; one flows south to the Lohajang river as the district *khal* and the other flows east as *Boilla khal* to SC-5 and onward.

- *Magurata khal* from *Batchanda beel* to *Gala khal.*

- Link canal from *Bamni khal* to *Batchanda beel* at a location south of *Batehanda High School* with a culvert on the road from *Enayetpur to Batchanda.* An alternative link road from the *Batchanda* road to the graveyard will have to be provided.

- Re-excavation of *Bamni khal* from south *Pichuria* through *Batchanda* to district *khal* with 2 culverts; one for *Idgah* link road at *Enayetpur* and one on the *Baniabari* road near *Batehanda* school.

- *Dharerbari khal* up to *Bamni khal* beside the new road on the *khal* with a culvert on the road.

- Link canal from *Baimail* and *Char Kagmara chak* to district *khal.*

- One culvert is required to drain out the North-West *chak* of *Dariabari.*

Gala khal and *Magurata khal* were re-excavated in 1979. Since then these have silted up again.

The *Lohajang* river and the *Gala khal* are extensively used for navigation during monsoon. As such any structure on these channels should include navigation lock. Internal boat movements are minimal. There is no appreciable problem from water hyacinth in this area.

Conflicts

(a) Re-excavation of link channel from *Bamni khal* to *Batchanda beel* is opposed by the people of *Batehanda* as they feel that this will aggravate the already severe water congestion problem of *Batechanda chak* and the graveyard link road will be affected.

(b) Re-excavation of *Dharerbari khal* will be opposed by some people if the road on part of this *khal* is removed.

(c) *Bamni khal* is owned by people and the high parts are used for cultivation. Re-excavation will be opposed by these people.

(d) There is a demand from some people for a loop cutting of the *district khal.* The people whose land will be affected by the new *khal,* oppose this.

(e) Some people want opening of *Pichuria khal* to *Gala khal* on the North with a regulator at the outfall. This would allow flushing and supplementary irrigation. This *khal* is now closed by the embankment on *Gala khal* (part of *Silimpur - Karatia* embankment). There is a clear difference of opinion between local people as to whether opening up the *khal* would be a good idea or not.

People of the area have very little idea about BWDB and their activities.

The 1988 flood submerged almost the entire area of this sub-compartment except some high spots on the North in *Pichuria and Sadullapur*. For about two weeks people left their houses under water and lived on makeshift arrangements on high roads. About 95% of the crops were damage. Considerable numbers of cattle and poultry were lost. This picture is common for all the sub-compartments of the project.

Erosion

Minor erosion is taking place at *Kablapara* west of *Dharerbari* from the *Lohajang* river.

Ground water

Enough STWs and DTWs are available for irrigation of Irri paddy. HTWs are used for drinking water and are sufficient in number. Only in *Dariabari* a few additional HTWs are required. There is no appreciable discharge problem except in late dry season in drought years.

Conclusion

The southern part of this sub-compartment is affected by drainage congestion problem due to blocked and silted canals. Re-excavation of *Gala khal, Magurata khal, District khal* and other listed channels will relieve this area of the congestion problem. Flood flow through the *Gala khal* needs to be controlled and as such a regulator is required. Underground water is adequately exploited but there is scope for further expansion.

People are apparently motivated to cooperate for development works.

8.3 AGRICULTURE

Cropping pattern

The gross area of the sub-compartment 8 is 900 ha. Out of this gross area the net cultivated area is estimated to be 650 ha. Under the sub-compartment the visited area are the villages *Enayetpur, Bhatchanda, Sadullapur, Pitchuria, Dharerbari* and *Dariabari*. The major crops grown in the area is Irri/Boro (HYV) mostly on medium low to low lands while T. Aman and Aus or Jute predominately are grown on high to medium high lands in the villages *Pitchuria* and *Dharerbari*. Among the Rabi crops wheat, mustard and some pulses are extensively grown. The following cropping patterns are at present practised in the area.

Crop Patterns				
Land Type	*Kharif-1*	*Kharif-2*	Rabi Annual	% of NCA
F0-F1	B.Aus/Jute	T.Aman	Wheat/Pulse/Potato	10%
F1	-	T. Aman	Boro (HYV)	10%
F2	B.Aus+BAman	-	Wheat/Mustard/Pulse	15%
			Mustard/Boro (HYV)	15%
F0-F1	Aus+Jute	-	Wheat/Mustard/Potato	15%
F2-F3 TDW Aman	-	-	Boro (HYV)	20%
F2-F3	-	-	Boro (HYV)	10%
F0	-	-	- Sugarcane	3%
F1	-	T. Aman	Groundnut	2%

Some T. Aus is grown in the area under rainfed condition. In case of less rainfall farmers arrange to irrigate these crops by STWs in the area.

Average crop yield and price

The average yield of different crops obtained from farmers interview and their price at farmgate level are as follows. Farmers reported the price of their production varies as per demand of the produced crop in the area. The price increases in the lean period.

Crops	Av. yield t/ha.	Price/MT
B. Aus	1.40	5360-6030/-
T. Aus	2.50	5360-6030/-
T. Aman	2.30	5360-6030/-
B. Aman	1.20	5360-6030/-
TDW Aman	1.50	5360-6030/-
Boro (HYV)/Braus	5.00	5360-6030/-
Jute (White)	1.70	4020-4690/-
Jute (Tossa)	2.20	6030-6700/-
Wheat	2.50	5360-6030/-
Pulse	0.80	13400-14740/-
Mustard	0.80	10720-12060/-
Potato	7.00	3220-3480/-
Groundnut	1.90	10720-11256/-
Sugarcane	27.00	536-670/-

Use of fertilizers

The method and use of fertilizers in different crops are traditional. Farmers reported they hardly get any advise from agricultural extension workers about the doses and method of application of fertilizers and to adopt scientific method of cultivation as the agricultural extension workers rarely visit the area. The lack of fund and credit facility is the main bottleneck to apply optimal doses of fertilizers. However they reported higher doses of fertilizers in HYV Boro, Wheat, Mustard in comparison with other crops. The doses are determined according to their own experience and tradition. The following amount of fertilizers are applied in different crops in the sub-compartment.

Crops	Urea(kg)	TSP(kg)	MP(kg)
B. Aus	75-90	-	-
T. Aus	120-130	80-90	-
T. Aman	140-150	-	-
B. Aus + B. Aman	75-90	-	-
TDW Aman	75-90	-	-
Boro (HYV)/Braus	200-220	140-150	40-50
Wheat	140-150	90-100	-
Jute	75-90	-	-
Mustard	110-120	90-110	-
Potato	130-150	110-120	-
Sugarcane	220-240	120-140	70-80
Pulse	120-140	70-90	-

Share cropper

In the sub-compartment share cropping system is not so much noticeable. A few farmers share cropped in terms of 50:50 of the production. The owner in some cases contributes 50% of fertilizers and seeds and some cases nothing is supplied to the share cropper. If 50% of the inputs (fertilizers & seeds) is supplied, the share cropper bears the expense of carrying the harvested crops to owner's house.

Irrigated crops

The only irrigated crop in the sub-compartment is the Boro (HYV)/Braus. Farmers have no other alternatives to irrigate their Irri/Boro (HYV) other than ground water irrigation. They irrigate their Boro crop with the help of DTWs and STWs available in the sub-compartment. Farmers purchased some DTWs in the area through KSS but actually some influential people exploit them to avail much advantage from this. In village *Bhatchanda* one DTW is lying in non-operating condition due to dispute among an influential man and farmers. The following DTW & STW are available in the area to irrigate the Boro (HYV) in the surveyed area.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Enayetpur	DTW 1 No. (2 cusec)	20 ha.	0 - 1
	STW 30 Nos. (1/2 cusec)	370 ha.	27 - 3
Bhatchanda	DTW 1 No. (2 cusec)	Non-operating due to dispute	1 - 0
	STW 8 Nos. (1/2 cusec)	36 ha.	7 - 1
Sadullapur	DTW 1 No. (2 cusec)	Non-operating due to loss in cost (Grameen Bank)	
	STW 15 Nos. (1/2 cusec)	75 ha.	5 - 10
Pitchuria	DTW 1 No. (2 cusec)	21 ha.	0 - 1
	STW 9 Nos. (1/2 cusec)	40 ha.	8 - 1
Dharerbari	STW 4 Nos. (1/2 cusec)	20 ha.	4 - 0
Dariabari	STW 4 Nos. (1/2 cusec)	20 ha.	4 - 0
	Total :	602 ha.	

All the STWs are privately owned. Farmers give 1/4 of their crops as the irrigation cost in all the villages except the village *Dharerbari* where Tk.150/- is charged per *Pakhi* (0.33 dec.) in addition to 1/4 of crops.

Crop damage

In the sub-compartment Irri/Boro (HYV) is occasionally affected by early flood. In addition insect and pest attack considerably cause damage to Irri, Aus, Aman, Jute etc. Destructive crop damaging pests and insects like *grass-hopper, mazra*, Pamri poka, Leda *poka*, Nanda *poka*, Senga, Stem borer etc. are reported in the area. Farmers use *Basudin, Diazenon, Di-micron, Faradon* to control such destruction.

The local method adopted to control pests and insects is the use of powdered jute seeds mixed with fertilizers which is sprayed on their crops to control pest and insect attack. Farmers reported that they obtained good result by using powdered jute seeds.

Flood and rain water causes damage to Boro (HYV) and to DW Aman and Aus in the village *Enayetpur and Sadullapur*. Flood and rain water cause damage to deep water Aman, Aus seedlings in the whole area. Occasional damage to T. Aman is also reported due to water congestion in the area. Re-excavation of some *khals* is requested by the farmers to improve the drainage congestion in the sub-compartment.

The flood situation of 1988 over flooded 90% of the households, compelling most of the people of the area to take shelter in flood relief centres in Tangail and the camps at higher evaluation land. The flood caused damage to 100 percent of Aus and Aman crops in that year.

Livestock

Livestock in the area mostly belongs to local variety and their health situation is moderate to poor. The area has a shortage of draft animals. Lack of livestock feed in the area compels farmers to purchase straw at high cost in the lean period. A few hybrid cattle are available in the area and these are owned by rich farmers. Farmers reported high cost to maintain hybrid cattle. Failure of artificial insemination is reported by farmers. Most of the farmers breed their cows with local oxen. They believe local variety of cattle is best suited under the present environmental situation. Average yield of milk per milch cow reported to be 1.5-2.0 litres per day. Farmers use their milch cow as draft animals due shortage of draft animals in the area.

Common cattle diseases in the area are rinderpest, throat sore, toe-disease, cow pox. Some unknown disease is reported to cause the death of cattle in the area. Medicare is poor in the sub-compartment.

Poultry

Among the poultry local variety of chickens are abundant in the area. Very few farm chickens are available in the area. Farmers reported the farm chickens are susceptible to disease and they cannot maintain them. There is a poultry farm in *Enayetpur*. Lack of extension service and poor medicare in poultry sector is responsible for the decrease of the interest of farmers to domesticate HYV poultry in the area.

Ranikhet, fowlpox, tape worm are the common disease among the poultry. Ducks are kept by some farmers where a water source is available. All the poultry in the area live on scavenging in and around household and nearby water ditches in the sub-compartment.

Own observation and views

About 45-50% of the land in the sub-compartment belong to F0 and F1 type where mostly Aus, Jute and T. Amans is grown. Some Boro (HYV) is also grown on this type of land where irrigation facilities are available. The rest 50% of the land is of the F2 and F3 land type. F3 land is estimated to be 10% of the cultivated area and is used for a single Boro (HYV) crop.

The overall land slopes towards the East and South. Most of the soils are medium textured (Sicl), Sic soils occur in some depressed area. Soils near the river banks are Sil to FSL. Boro (HYV)/Irri is the extensive crop in the area. Among the Rabi crops wheat is prominent, but mustard, pulse and some potatoes are also grown. Average yield of the crops are moderate. This is due to lack of use of fertilizers, traditional method of cultivation and crop damaged by flood and insects/pests. Farmers reported BR-II is more resistant to flood damage as it can survive for 15 days under sub-merged condition.

Improved type of poultry if introduced in the area with proper extension service and medicare it would improve the socio-economic condition of the peoples, specially women to some extent.

8.4 FISHERIES

Water bodies

The available water bodies under the sub-compartment 8 with their number, type, area and 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: i. Bhatchanda (Big) ii. Bhatchanda (Small)	 1 1	 8acres 5acres	perineal	koi,taki,shol,boal,puti, Chanda,Chela,Gajal,Tengra, Pabda,Sing,Magur,Buthum, Kaklia, Calisha,Batashi, Bizri,Balliga,Rui,Katla, Mrigal,Kalabaush,Shrimps etc	150-200mts approxi-mately	khash and fewportion ofthe beel is owned by public	both the beel are most res-ourceful waterbodies
2.	Ponds i. Enayetpur ii. Bhatchanda iii.Sadullapur iv. Pichuria v. Dharerbari vi.Dariabari	 3 1 1 3 2 1	 1 acre 1 acre 1 acre 4acres 5acres .5acre	culturabl culturabl culturabl cultured/ culturabl cultured cultured	Rui,Katla,Mrigal,Sarputi, Silver carp, Nilotica,etc.	Poor	Individual	Pond fish culture is very poor through cul-turableponds areavailable
	Pagars: i. Enayetpur ii. Bhatchanda iii.Sadullapur iv. Pichuria v. Dariabari	 25 30 3 20 2	 12 acres approx	Both cul-tured and culturabl	Puti,Taki,Shol,Koi,Magur, Sing,Chela,Tengra,Pabda, Baim,Batashi,Chanda,Dankina Buthum etc.	100-150mts approx.	Individual	Very much useful both from pointof fishery and household consumption

99

Bhatchanda beel

There are two *beels* in the *Bhatchanda* village, Union - *Gala* Sadar Upazila. These two *beels* are very resourceful water bodies in the area as they serve the villagers and their cattle, in various ways. The two *beels* approximately cover a total area of 13 acres of land and the depth of water, even in the dry season, does not go below 5'. Out of these two *beels* - one is big and covers about 8 acres of land and the other one is small and covers about 5 acres of land. These *beels* are separated from one another by high land. The *beels* can be easily approached from the main kacha road of the village.

The available fishes in the beels are - *Koi, Magur, Taki, Boal, Shol, Calisha, Gajal, Pabda, Chanda, Chela, Puti, Jaklia, Tengra, Baim, Kalabaush, Rui, Katla, Mrigal, Shrimps, Batachi, Buthum* etc. Fishing goes on in the *beel* round the whole year and the Bengali months *Agrahan, Poush, Magh* are the peak period for fishing. Approximately 150-200 MTs. of different kinds of fishes are caught anually from this *beel.*

Many ducks and different kinds of birds graze in this *beel.* A lot of water hyacinth is also present in the *beel* which serves as cattle fodder, compost and also serves as good source of fish food. The water hyacinth is reported to be used by the farmers in the potato fields. In addition, a lot of snails, unio, crab, etc. are also reported to be present in the *beel.* The outskirts of the *beel* is under Irri/Boro cultivation.

As per report the *beel* is under individual ownership and a small portion is khash land. The *beel* is reported to be free for fishing by everybody. The *beel* is connected with the river *Lohajang* through *Gala khal.* During the monsoon period when the flood plain is inundation the *beel* fishes spread over the floodplain.

Both farmers professional and subsistence fishermen reported that they are very much dependant on these *beels* for many purposes. They jointly requested to increase the water bodies of the *beel* by re-excavating the outskirts of the *beel* to facilitate more fish stocking and its multiplication and surface water irrigation. They also requested to re-excavation the link canal of the *beel* to facilitate fish migration during monsoon period.

Pagars

There is a great public demand from the villagers to excavate *pagars* in the area to facilitate household use and small scale fish culture. They also requested to re-excavate the existing *pagars* to increase the water bodies in the area.

Ponds

There are about 11 ponds in the sub-compartment. Few of them are cultured, few are cultivatable while others are derelict. The carp (major carp) fish culture is practised but not scientifically. The awareness of pond fish culture is very low in the area though the facilities for such cultivation is there. The pond owners reported that during the month of *Ashar*/Sravan they collect carp fingerlings from the local professional fishermen and sometimes also from hatchery of *Muktagacha, Mymensingh.* The people have no idea about scientific fish culture.

The public in the area requested to increase ponds in the area to facilitate pond fish culture as well as to facilitate household uses. They also requested to give them the ideas of pond fish culture.

Professional fishermen

About 15 households professional fishermen living in *Enayetpur and Bhatehanda* village since long. About 4 households of professional fishermen live in *Pichuria* village. All these professional fishermen are low caste Hindus and they are poor. About 20-25 households of professional fishermen have been reported to have left for India for good four to five years ago from the village *Pichuria*. All these fishermen are reported to catch fish in the *Bhatchanda beel* round the whole year.

The fishermen family reported that they do not get any loan facility and they cannot afford to purchase the necessary inputs for fishing due to poverty. They just manage to maintain the family from hand to mouth. The male members of the family go for fishing while the women are engaged in repairing fishing nets and in other household works.

The fishermen go to the *Lohajang and Dhaleswari* rivers during the monsoon for capture fishing, in addition to *Bhatchanda beel* fishing. They also do fishing in the *pagars* on contract basis with the *pagars* owner during the post monsoon period. One Mr. *Thanda Chandra Rajbongshi* of village *Enayetpur, Tangail Pourasava* is reported to be the leader of fishermen communities of both *Enayetpur and Bhatchanda* village. No *Matshajibi Samity* is reported in the area. During full monsoon period the income of the fishermen community is reported to increase a little bit as the fishing facilities increases in the area.

Subsistence fishermen

Only one household of subsistence fishermen has been reported in the village *Pichuria*, Union - *Gala*, Upazila - *Tangail Sadar*. The family is a Muslim one and has migrated from Rangpur a few years ago.

Fishing periods

Fishing goes on in the perineal waterbodies of the sub-compartment round the year but the months of *Kartik*, *Agrahan* and *Poush* are reported to be the peak fishing period. Besides that, the months of *Ashar*, *Sravan* and *Bhadra* are reported to be also a good period for floodplain fishery. The months of *Falgoon*, *Chaitra*, *Baishak* are the lean period.

Fishing methods

Various fishing methods are in practice in the area. Flood plain fishing is done by *Dharmajal (Shibjal)*, *Berjal*, *Jhakijal* and by angling. About 15-20% fishing is done by different kinds of traps such as *Dhair*, *Khalkhale*, *Hosa* and Harpoons such as *Kouch*, *Aro*, *Tenta* etc.

Pagars, *beel* and pond fishing is done by *Berjal*, *Kharjal*, *Pushnet* and *Jhakijal* during post monsoon period. During the dry season LLP and handpicking it also reported in the area.

92

Floodplain fishery

The floodplains of the sub-compartment are connected with its surrounding river *Lohajang* and *Pungli* by the *Gala khal*. During early monsoon (*Jaistha*, Ashar) the river water starts to enter the floodplains through the *Gala khal* and different kinds of fishes (both Juvenile + adult) also enter into the floodplains along with water and thereby spread all around.

Fisheries practices

Both culture and capture fishery is reported to exist in the area as both rivers, pond, *pagars* and *beel* are available in the area. But pond fish culture is very poor in the area.

Institutional facility

As per report the institutional facilities are absent in the area.

Fish predation and fish disease

Fish predation is a problem in the area. As per report predators like *Snake, Bird, Amphibia, Shol, Boal, Gajal, Foli*, etc eat a good number of fish fry the during monsoon period. Fish disease is reported and fish population is gradually decreasing in the area due to severe attack. People in the area are seriously concerned about fish disease. People requested to help them by controlling fish disease.

Fish migration

Fish migration takes place in the area. During early monsoon the riverine fishes from *Lohajang* as well as *Pungli* river do migrate to the floodplain through *Gala* khal. People in the area requested to re-excavate the *Gala khal* to facilitate more fish migration. They mentioned that if the *Gala khal* is re-excavated the migratory channel of fishes would be channelised and it will help more fish production in the area.

Own observation and views

There are two *beels* in the *Bhatchanda* village and the public was seen fishing in the *beels*. The water depth of the *beels* seem to be more than 4' and its upper surface was observed covered with water hyacinth. Birds of different categories and ducks were found grazing in the *beels*. Small children were found fishing in the shallow water region of the *beel* by hand picking. Farmers enjoy the surface water irrigation facility from the *beel*. The *khal* connecting the *beel* with the *Gala khal* was found dried up. A good number of *pagars* were found in the village *Bhatchanda* some are still having water where ducks are grazing and some have been completely dried up. The villagers were found bathing in the *pagars* and women were found using *pagars* water for various household use.

Ponds are rare in the area and pond fish culture is also very poorly developed. There is a *khal* in the village *Pichuria* connecting its floodplain with the nearby river. The *khal* has been blocked and it prevents the fish migration from the nearby river.

8.5 ENVIRONMENT

Biological

Arthropods

Many destructive insects which includes *Pamri, mazra, chenga*, Chat, Letho as well as other unidentified insects has been reported. The paddy like Irri/Boro Aush, Aman are damaged by *mazra* and *Pumri* insects. Jute is damaged by *chenga* and Pulses are reported to be damaged by a kind of black insect (unidentified). People reported that a considerable amount of crops are damaged annually by insects attack and they are very much concerned about this insect attack. Besides some other useful insects are also present in the crop fields which includes butterfly, honey bee etc. crabs are also reported.

Mollusca

unio and *pila* are reported to be present in the water bodies of the area. Many birds and ducks depend on these *unio* and *pila* (snails) as it serves as food for birds.

Annelids

Earthworm, leech, neries etc. are reported to be present in the area. People reported that all annelids are decreasing in the area.

Fish

People reported that the fish population is gradually decreasing in the area and the fishermen are facing problems due to the significant decrease of the fish population.

Amphibian

Toads, frogs and hyla are reported in the area. People reported that this amphibian population is declining due to human interference. People of *Dariabari* village reported that a group of people catches frog/toads at night from their area during the rainy season and they sell it to the frog traders in the market.

Reptiles

Tortoises are totally absent in the area due to unknown reasons and other reptiles has been significantly decreased in the area. The other reptiles comprises poisonous and non-poisonous snakes, *guishap* and hazards. Snake bitting during monsoon is reported in the area. *Guishap* is an economically important animal to mankind.

Birds

Once the area had a rich bird population but their numbers have significantly decreasing since the flood of 1988. People also reported that due to public interference the bird population has been decreased. The available birds in the area comprises - *Shalik, Crow, Raven, Heron, Kingfisher, Kite, Doyal, Boi, Cuckoo, Panicawri, Owls* etc. The guest birds are reported to visit the *Bhatchanda beel* during winter and many urban hunters prey these guest birds by gun.

Mammals

Terrestrial wild animals

Almost every visited villages has got homestead gardens comprising common varieties of plants, shrubs and trees which provides good shelter for many wild animals. People reported that as compared to before the number of these wild animals have been decreasing in the area due to unknown reasons. The wild animals include *mongoose, bat, jungle cats, nagar, bagdasha, rat, mole* etc. out of which the population of mongoose is satisfactory.

Rats are a great menace in the area and they causes damage to the crops. People reported that last year rats caused a lot of damage to wheat crops and also to sugarcane. People are seriously concerned about the rat problem. People in the area requested to irradiate the rat problems.

Domestic land animal

Domestic land animals such as dry cows, milch cows, buffalos, horses, sheep and goats are found but in reduced numbers. There is a great shortage of draft animals in the area, due to which poor farmers cannot afford to plough their agricultural land. The draft animals has been reduced due to cattle disease and fodder scarcity. The cattle disease is the area and a number of cow die every year due to this cattle disease. People are seriously concerned about this cattle disease.

People requested to provide them cattle medicare in order to save their valuable cattle from disease.

Others

Afforestation

As per report, there is no afforestation programme in the area either from Govt. or NGO. People plant trees at their own initiative near their homes.

Deforestation

Though no brick field is reported in the area the deforestation goes on round the whole year. The villagers, as per their need, sell trees from their homestead garden to the neighbouring brick-field owners as well as to the wood traders.

Human activities

Human habitation

There is a report of new human habitation growth in the visited area. Every year approximately 3-4 new houses covering an average area of 10-15 decimal of land.

Pollution

Unplanned construction of kacha latrines, disposal of dead animal bodies here and there, water lodging conditions in the homestead ditches and open sanitation etc. are reported in the area. These practices pollute the air and water and this is a source of many water and air-borne diseases.

There is a great public demand to solve this pollution problem as far as possible. They urged to provide them all necessary inputs for construction of *pucca* latrines in the area.

Homestead forest

Homestead forest is reported to cover an average area of (.2-.3) acres in the area. The homestead forest comprises the most common varieties of trees like herbs, shrubs, mango, jackfruit, *litchi*, banana, bamboo bush, palm tree, date tree, *jumbura*, berry, hard fruit trees, *tamarin, karai, shimul, goyava* etc. Many kitchen gardens are in the area having common varieties of seasonal vegetables. Animals like rats, mongoose, snake, varanas, lizard etc. are living in between the different varieties of trees of the visited village. There are many types of flying birds habitat in the branches of trees.

Fuel

The main sources of fuel is straw of paddy, wheat, mustard and pulses, cow dung, bushes, dried leaves of trees, water hyacinth etc. People from the poor section (who have no livestock and paddy field) in the village like *Sadullapur, Barchanda, Enayetpur, Dharerbari* are reported to face a serious scarcity of fuel in the rainy season. After harvesting HYV Boro and Rabi crops people get more fuel, even the poor section. Rich and middle class families store wood, bushes, cowdung, jutestick for rainy season.

Drinking water

The number of tube wells is high and they are the main source of drinking water. In most of the area, women use open-well and ponds water for washing, cleaning, bathing etc. In the villages *Dharerbari and Duriabari* poor women request to supply more tubewells in their area either by government or NGOs

Sanitation

In the visited area most of the people use kacha (traditional) latrines. There are few *pucca* latrines in the rich households of the visited area.

Diseases

Diseases like Diarrhoea, Discentry, Skin diseases, Measles, Feve, Malaria, Pox have occurred in the visited area. Most of the diseases occurred in the month of *Ashwin, Kartik, Falgoon*, Chaitra. People think that the source of diseases are open sanitation, using dirty and logged water for showering and household works in dry season, mosquito, fly etc.

Rats

Rats damage destroy wheat, paddy, fruits, vegetables and also household belongings. Mosquito also create problem for human being and livestock in the month of *Magh* to *Chaitra.*

Own observation and views

Homestead garden is developed but it needs more attention for proper maintenance. The number of wild animals has been reduced in the area. Draft animals are decreased in the area. The transportation system is not so developed. Kitchen garden is well developed in the area. Homestead ditches, derelict ponds, *pagars* etc. were found dried up. The whole area seems to face an acute scarcity of water.

The homestead ditches, *pagars,* derelict ponds needs to be re-excavated to provide surface water facilities for the villagers during post monsoon period. If it is done people will enjoy the surface water irrigation facilities, bathing facilities during post monsoon period.

8.6 SOCIO-ECONOMIC SITUATION

Major non-farm activities

The people in sub-compartment 8 are engaged in different non-farm activities such as service, business, daily labour (both agricultural and non-agricultural), and traditional occupations like pottery, weaving, carpentry etc. Of the total non-farm activities, about 65-70% are occupied by the day labourers (including transport workers about 10%, *bidi* workers about 8-10%), about 4-5% by businessmen, about 12-15% by service holders, about 8-10% by traditional occupational groups and rest by others.

Social and institutional aspects

Employment pattern

Mainly family labour is used in the farm households of the area. Use of hired labour is seen only during peak season of agriculture in the area. Both out-migration and in-migration of labourers is reported, but in-migration of labourers is more compared to out-migration. The in-migration of labourers usually occurs from the adjacent villages and from the char area (not so far from the area). Out-migration of labourers is limited to the adjacent villages of

the sub-compartment. During the lean seasons of agriculture in the area, the day labourers of the sub-compartment engage themselves in *bidi* making and in transport work. Some engage in seasonal business.

Wage rates

The wage rate for the labourers engaged in agricultural works slightly differs from one village to another. However, village-wise wage rate for the agricultural labourers are given in the following table:

Sl.#	Village	Wage - Lean Season/Peak Season				Remarks
		Tk.	Meal	Tk.	Meal	
1.	*Enayetpur*	20	-	25-30	one	During sawing of HYV-Boro seedling and harvesting of wheat is considered as mid-peak season and harvesting of HYV-Boro is considered as high peak season when meal is provided to the labourers.
2.	*Bhatchanda*	12-15	-	20-25	one	
3.	*Sadullapur*	20	-	25-30	-	
4.	*Pichuria*	20-25	one	30 or 35	one	
5.	*Dharerbari*	20	one	25-30	one	
6.	*Duriabari*	20-25	one	30	one	

Employment patterns and activities of women

The visited area are *Enayetpur, Barchanda, Sadullapur, Pichuria, Dharerbari and Duriabari.* In most of the visited villages poor women look inside or outside of their village for work. Large numbers of women in *Barchanda, Pichuria, Dharerbari* are engaged in Biri making. In the whole area, women are engaged in different types of works besides their household works. The type of employment with daily wage rates are shown below:

Sl. No.	Type of Occupation	Number of Labour	With Meal		Without Meal	Remarks
			Tk.	Meal		
1.	Biri Thonga	600-650	-	-	5-7	
2.	Cotton Wrapper	20-25	-	-	20-35	Seasonal
3.	Weaving	20-25	-	-	10-15	
4.	Jute Wires	5-10	-	-	5-10	On demand
5.	Boil Mill	15-20	-	-	10-15	
6.	Seedling	100-150	5-6	2	10-15	Seasonal
7.	Post Harvesting	25-30	4-5	3	10-12	Seasonal
8.	RMP	10-12	-	-	15-20	
9.	Maid	15-20	3-5	3	-	
10.	Service (FAW, (Nurse,Teacher)	30-35	-	-	40-50	
11.	Pottery	100-130	10-15	3	-	

Organized groups

The surveyed villages have a very limited number of NGO activities and therefore, a few organized groups are found. The Grameen Bank, BURO, SDS, SSS and KSS of BRDB are found in the area, but not in all the villages. There is only one KSS (of 34 member) reported in the whole surveyed area while Grameen Bank has 3/4 female groups. BURO is working in 2/3 villages and their group formation is still under way. Organization/clubs of local people are also not found in all the villages. Their activities are limited with the objective of savings and investment in profit making activities.

Markets

There are quite a good number of markets in the sub-compartment and in its surrounding area. The people of the surveyed area as well as of the sub-compartment used to do their marketing in the markets are as follows: *Bailla*, *Dharerbari*, *Jugini*, *baghil* and *Gala*.

Public facilities

Public facilities like post office, Union Council office, health centres/F.P. clinics are all found in the area and are at a distance within 1 km from each of the villages. People of the area are happy about the above mentioned facilities.

Transport and communication

The road communication system including the internal village roads of the area are quite good. Almost all the villages (surveyed) in the sub-compartment are well connected with Tangail town and other important places around the area through roads including one paved road. Rickshaw/van can use the village roads almost throughout the year. A few culverts on *Dharerbari Tangail* road and *Bahtchanda-Dharerbari* road, would further improve the road communication system and also facilitate year round movement of rickshaw/van and other transports in the whole area.

Development needs

The people of the sub-compartment have urged for a few things for the development of their area. They requested 2/3 culverts on the *Dharerbari Tangail* road. Without the culverts the people of *Bhatchanda, Pichuria, Dharerbari, Dhuriabari* and part of *Enayetpur* face a lot of problems in transportation particularly to go to *Tangail* town during the rainy season. Although there is a good paved road, this *Dharerbari - Tangail* road is much preferred by the people of the area as it is a short-cut. A culvert on *Bhatchanda-Dharerbari* road is also needed to provide a better road communication system to the students of *Bhatchanda* and from other adjacent villages to attend school (*Dharerbari*) and also to the general people to attend *Dharerbari hat* during the monsoon. People of *Dhuriabari* requested supply of electricity in their village which they think will help develop their economy, as they want to use electricity in irrigation system, and other small scale industries in the area.

Extension service for agriculture, livestock and poultry and fishery is also very much needed in the whole surveyed area.

Education and literacy

The literacy rate of the visited villages is shown in the following table:

Sl. No.	Village	Literacy rate(14)	Attendance rate 5-14	% of Girls (of all students)
1.	*Enayetpur*	18-20%	60-70%	30-35%
2.	*Barchanda*	10-15%	50-60%	30-35%
3.	*Sadullapur*	25-30%	75-85%	40-45%
4.	*Pichuria*	20-25%	70-80%	40-45%
5.	*Dharerbari*	15-20%	75-85%	30-35%
6.	*Duriabari*	10-15%	70-80%	30-35%

Organized groups

In all the visited area, there are different organized groups such as local NGO, Krishi Bank, BURO, SDS, BRDB etc are present. Activities of these organized groups are mainly aimed at developing the socio-economic condition of the people. In the visited area there are some local samity/club and they are mainly doing social welfare works. The list of these organizations and groups are shown below:

Sl. No.	Village	Organization and Samity	No. of Groups with Member				Remarks
			No.of group	Male	No.of group	Female	
1.	Enayetpur	1. KSS	Not known	Not kn	wn -	-	
		2. SDS	1	60+	1	40+	
		3. Food for All	-	-	4	60	
		4. Nabarur Juba Shangha	1	30	-	-	
2.	Barchanda	1. KSS	1	35	-	-	
		2. Grameen Bank	-	-	2	45	
		3. SDS	1	30	1	15	
		4. Family Welfare Samity(FPAB)	1	25	1	20	
3.	Sadullapur	1. Grameen Bank	-	-	4	120	
		2. Food for All	-	-	3	65	
		3. BURO	-	-	4	150	
		4. Family Welfare Samity(FPAB)	2	60	2	60	
		5. SDS	1	65	1	60	
		6. Sports Club	1	45	-	-	
5.	Pichuria	1. Grameen Bank	-	-	6	180	
		2. BURO	-	-	4	150	
		3. SDS	1	120	1	100	
		4. KSS	1	40	-	-	
		5. Bhai Bhai Sporting Club	1	35	-	-	
		6. Pichuria Agrani Samity	1	30	-	-	
5.	Dharerbari	1. Grameen Bank	1	30	1	30	
		2. SDS	1	60	1	50	
		3. BURO	-	-	1	20	
		4. Ansar V.D.P.	1	60	1	60	
6.	Duriabari	1. SDS	1	25	1	20	
		2. Young Club	1	30	-	-	

Public facilities

In respect of family planning and health clinic services women of almost of all the visited area have a common complain. They think that the service of these clinics is irregular. Family Welfare Assistants do not visit their area according to schedule. So, most of the times they have to buy contraceptives themselves. Women also said that they do not get sufficient medicines for their children from the health clinic and often they come back from the clinic without medicine. Women of this visited area also need livestock hospital in their locality.

General needs

Women of *Barchanda* demand to make 2 bridges on the way to *Dharerbari* from *Barchanda*. There are two breaches in this road. In the rainy season, students of this villages face serious problem on the way to school. Women of this area also demand to raise the level of the kacha road to their village. Women from most of the villages need work like in cottage industry.

Girls and women of *Pichuria* and *Dharerbari* need a college in *Dharerbari*. Now some of the girls students are going to Tangail town. They think, it is very expensive and time consuming especially in the rainy season. Girls students face problems going to college in Tangail. Women of *Dharerbari* demand to construct a *pucca* road from *Dharerbari* to Tangail. Biri working women think if the road will be pucca, then they could easily send their products to Tangail. In the rainy season, they now have to cross some breaches by boat and that costs more. Women of *Duriabari* needs more NGO activities and need loans, literacy program etc.

Existing water related situation

Skin disease have been found in *Enayetpur* village. Women of this area told that in the rainy season, water comes to the low areas through *Billa khal* and remains stagnant at different places. Due to lack of sufficient ponds, women (especially poor) are using stagnant water for bathing, cleaning etc. According to them water quality is very bad in the dry season. Women (part of the village) of this area also told that in the rainy season, due to normal flooding, they cannot easily move to their neighbour's house. School going children also face the same problem in rainy season.

Women of *Barchanda* told that often during *mid-Jaishtha,* unwanted water comes to the *chak* (farming land) through *Magurata khal* and destroys the HYV Boro crop. Women of *Dharerbari* told that during the 1988 flood, sand came to the farmland with the flood water from the *Lohajang* river and farming land became infertile due to that sand. The affected farmers are now getting less produce. Women, especially from the landless families, also think that if more crops are grown, they can work at the rich families (land holders) and earn in cash or kind.

Women of *Pichuria* think that since many roads have made around their village water normal flooding cannot come to their farm land and they think that the lands loosing fertility due to this.

OWN OBSERVATION

Socio-economic situation

The socio-economic situation of the people in the surveyed area is found to be quite equitable. The only exception is that the condition of the people of *Bhatchanda* is slightly below the average condition of the people in the area. The main occupation of the majority of the people in the area is agriculture. And the daily labourers of the area are also mostly involved in agricultural work in the area. The agricultural day labourers of the area do not migrate out to a distant place during the lean season of agriculture in the area. At that time, they engage themselves in *bidi* making and with transport work.

The area has a good road communication system and being close to *Tangail* town, provides scope to the day labourers of the area to work in the transport line and also in the nearby *bidi* factories. The day labourers of the area find it convenient and also economically acceptable to work in these two fields rather than going outside of the area (to a distant place) to find work. The another reason for non-out migration of day labourers in the area is that a minimum number of landless families (in comparison to other areas). The number of marginal and small farm households is high and for the sake of managing their farms they do not leave the area.

The area is also found advanced in respect of education, having a quite few educational institutions. The people are also found very much eager about education.

Peoples view

<u>About Union Parishad and Upazila</u>

Mixed feelings about the activities and performance of Union Council are observed from the people of the area. According to some the Union Council is an unworthy institution and cannot make any good of the common people. Some said that despite corruption the Union council does some good work for the people like constructing roads, bridges/culverts, providing food grains to the poor and vulnerable groups and by taking care of improving hats/bazaars and schools of a particular union.

About the activities and operational method of the upazila, people of the sub-compartment do not have any clear idea and therefore, they did not comment about that.

<u>About NGO activities</u>

The people find NGO activities helpful. They mainly referred to the NGO's that provides credit facilities to its members (like the Grameen Bank). They think more and more coverage of NGOs with credit program in the area will improve the economic condition of the people.

16 SUB-COMPARTMENT

16.1 INTRODUCTION

Tangail urban area is bounded by the *Tangail-Gala* paved road on the North, *Tangail-Sontosh* paved road upto the *Lohajang* river on the West, village *Kachua danga* beside *Tangail-Sontosh* road on the South and parallel earthen road of *Tangail-Mymensingh* paved road from *Mirrerbetka* to Bus-stand on the East. The total area of *Tangail* town is 260 ha. The average land level of *Kazipara, Beparipara, Barabasna* are high and that of *Akur Takurpara, Muslim Akur Takur para* and central part of the town is medium high and *Adi-Tangail, Biswaser-betka* is a comparatively low-lying area.

Karatia urban area is bounded by the *Muchibari khal* on the North, College *khal* on the West, *Zamindarbari* on the South-East and *Palpara, Talukderpara* on the East.

16.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

The early rainfall, starting in April-May fills up the low lying pocket or ponds in the area. The eastern bank of the *Lohajang* river from the area of district court's building upto the bridge (over the *Lohajang* river) on the *Tangail-Sontosh* road is quite flat and river water enters in July-August by overspilling the bank during the high stage of the river and spreads through the area by overland flow and sometimes inundates *Akur Takur Para, Muslim Akur Takur Para, Stadium* area, *Dighulia* by water of depth varying from 1 to 1.5 foot. The flood water usually does not pose a serious problem in normal flood years. Most of the homesteads are above normal flood level. Sudden rise of flood water causes inconveniences to normal life.

Water enters through a culvert on *Tangail-Sontosh* road from *Lohajang* river via *Dighulia* and submerge *Kachudanga* area and water is drained out through the same route during the receding period. People demand to close the culvert to stop water from entering the area. Sometimes, during the peak monsoon, water also enters to the town area from *Biswaser Betka khal* through Tangail *khal* and water spreads over both sides of the *khal* and inundates the area by water of 1-2 foot deep. The flood water usually remains for a short period and quickly drains out.

Adi-Tangail is a low-lying area and is not well connected with any *khals* and rivers. Flood water sometimes enters *Adi-Tangail* by overland flow through the fields. Sometimes rainfall causes flooding or drainage congestion in the area for 15-20 days during the peak monsoon and causes disturbance to the people in their movement.

Two branches of *Biswaserbetka khal* passes through the town. One branch ends near *Biswaserbetka* and the other one meets the *Lohajang* river near the Stadium through the town area crossing the culvert under the *Tangail-Karatia* road. The outfall of this *Tangail khal* near the Stadium is closed. The *Biswaserbetka khal* near the *Burai* river (*Darun beel*) is

silted up. Sometimes during peak monsoon the south-eastern part of *Biswaserbetka* is partly inundated by flood water of 2'-3' depth. During normal flood some internal roads go under 1-2 feet of water.

In order to solve the flooding problem of the town people demands the construction of an embankment along the eastern bank of *Lohajang* river from district court's building upto bridge (over *Lohajang* river) on *Tangail-Sontosh* road. To solve the drainage congestion due to rainfall and sometimes due to contrance of river water, the *Tangail khal* from *Lohajang* river (near *Stadium*) upto the intake of *Biswaserbetka khal* and the other branch of *Biswaserbetka khal* upto town needs re-excavation. There is a demand from the public to construct a few culverts on the eastern and southern parts of *Adi-Tangail* in order to remove the drainage congestion problem of this area.

1988 flood

In the 1988 flood the town area was inundated by water of depth varying from 3 feet to 5 feet and it took 15-20 days to drainout the water. Water entered the town area from the *Lohajang* river mainly by overtopping the bank from the western side. Flood water also entered the area through the *Tangail khal,* a branch of *Biswaserbetka khal* in the southern part of *Tangail* town. There was considerable loss of property due to the 1988 flood. Stored foodgrains, agricultural products and business products were lost and damaged and many domestic animals died.

Karatia

The average land level in western part of the *Karatia* urban area is higher and that of the eastern part of the market is medium high while the area of *Sahapara, Beparipara, Palpara* are comparatively low-lying areas. During normal floods, river water does not enter this urban area. Sometimes heavy rainfall causes drainage congestion since the run-off cannot flow out to the nearby college *khal* and *Muchibari khal* unobstructed. Rain water accumulates in the nearby low lying area e.g. *Palpara, Sahapara & Beparipara* and it takes 10-15 days to drain out the water. In the 1988 flood, there was considerable loss of property. The area was inundated by water of depth varying from 2-5 ft. The public demand for re-excavation of *Lohajang* river and *Muchibari khal.*

Erosion:

The erosion at both banks of the *Lohajang* river near *Stadium*, Housing Society area and district court's building has been going on for about 3-4 years. Due to the river bend, the location near district court's building is vulnerable and needs to be strengthened. The present position is threatened and if no remedial measure is taken, it is likely to be completely eroded during the next monsoon.

There is no erosion problem in *Karatia* urban area.

Ground water

A section of people use supply water from the Tangail Municipality. Most of the people drink HTWs water, but more HTWs are needed. Some people also use open-well water for washing clothes and household utensils, bathing etc. There is demand from the public for installing more HTWs in the undeveloped area e.g. *Adi-Tangail, Beparipara, Machudanga, Biswaserbetka* etc. The quality of under-ground water is good.

People of *Karatia* urban area use HTWs water. There is also demand from the public to install more HTWs in this area. The quality of underground water is good and iron does not seem to pose any problem for drinking purposes. In drought years, there is a report of less discharge from tubewells in April - May. But in normal years discharge is normal.

Conclusion

Tangail urban area is not well protected from the flood. Flood water from the *Lohajang* river enters the town area through *Muslim Akur Takur Para, Akur Takur Para, Taltala, Dighulia* and district court's building area and by overtopping the eastern bank of the *Lohajang* river during high stage of the river. The flood water does not cause any serious problem in normal flood years. In normal flood, these areas are inundated by water of a depth varying from 1-2 feet. People demand for construction of embankment along the eastern bank of the *Lohajang* river from district court's building upto bridge (over *Lohajang* river) on *Tangail-Sontosh* road to protect the *Tangail* urban area from entrance of flood water from the *Lohajang* river.

There are demands from the public for construction of some drains from the adjacent area of the western part of *Tangail* urban area to the *Lohajang* river to solve the drainage congestion problem of the area. *Tangail khal* is silted up and clearly in capable to proper drainout the adjacent respective nearby areas resulting in drainage congestion. Major drainage of *Tangail* town takes place through the *Tangail khal*. This *khal* extends from *Biswaserbetka* to *Lohajang* river (near the Stadium) and needs re-excavation and thorough cleaning for proper drainage of the area. This will however result in a conflic with the *Matshayajibi Samabaya Samity*, an association which has leased in sections of the *khal* for fishery purposes. In order to remove the drainage congestion problems of *Adi-Tangail*, people requested construction of a few culverts over existing roads in eastern and southern part of this area.

Remedial measures should be taken up early to safeguard against any further erosion at river bends near the Housing Society area, Stadium area and the Court building area. The quality and quantity of underground water are satisfactory and adequately exploited. People drinks supply water and HTWs water.

The *Karatia* urban area is relatively high land. In normal flood years, river water does not enter this area because it is not well connected with any *khals* or river. Rain water accumulates in the low-lying area and causes drainage congestion for a short period. The public demand for re-excavation of college *khal, Muchibari khal* and the *Lohajang* river. The public generally drinks HTWs water, but there is scope and demand for installing more HTWs. The quality of underground water is good and iron does not pose any problem for drinking.

92

16.3 AGRICULTURE

In the town *Tangail* agricultural production is of relatively little importance. The subject will therefore not be dealt with here.

16.4 FISHERIES

Water bodies

The available waterbodies under the sub-compartment-16, with their number type, area and available fish species are shown below in the table:

Sl. No.	Water bodies	Number	Area (Acre)	Type	Available fish species	Annual	Ownership	Remarks
1.	Ponds:		1.5	cultur-	nura, feka, mrigal, tilapia,	poor	individual	there isno
	i.Kochuadanga	01	approx	able,	Silver carp, carfu.			catch record
	ii.Chardigholia	05	6 "	cultured				But inB'desh
	iii.Akur Takur			and				as a whole
	Para	03	3 "	derilicts				there isa
	iv.District							record of
	Collectorate	03	55 "					017kg/hactre
	v.Beparipara	02	04 "					productionof
	vi.Adi-Tangail	02	2 "					fish in cul-
	vii.Ashaquepur	08	10 "					turableponds
	viii.Biswaser							
	Betka	15	15 "					
	ix.Adalat para	03	4 "					
	x. Karatia	05	10 "					
2.	Pagars:				Koi,Magur,Shing,Puti,Taki,	34 mts	Individual	Resourceful
	i.Kochuadanga	04	3		Chela,Dankina,Shol,Gajal,	approx.		waterbodies
	ii.Chardigholia	08	acres		Fresh water-muscle including			in the area.
	iii.Akurtakurpara	04	approx		unio and Pila, Shrimps and			
	iv.District				crabs.			
	Collectorate	-						
	v.Beparipara	03						
	vi.Adi-Tangail	06						
	vii.Ashaquepur	04						
	viii.Biswaser							
	Betka	05						
	ix.Adalat para	04						

Professional fishermen

There are about 50 households of professional fishermen living in *Chardigholia* area and about 20 households living in *Beparipara* under Tangail Pourasava. All these professional fishermen are poor Muslims and they live in the area since long. They catch fish in the nearby *beels*, ponds and *pagars* round the year. They also sometimes go to the river for capture fishery. Their socio-economic condition is better than that of professional fishermen of other sub-compartments in the CPP area.

Subsistence fishermen

There are about 20-25 households of subsistence fishermen living in the village *Chardegholia* under Tangail Pourasava. They are poor Muslim people. They are reported to catch fish in

the *beels*, *pagars* and ponds mainly by *Jhakijal*. During lean fishing period they are occupied with other profession like rickshaw pulling, earth-cutting and day labourer etc.

Culture fishery

Culture fishery is practised in the area but to a very minimum scale. There are about 57 ponds in the area out of which culture fishery is practised only in 10/12 ponds and the other ponds are derilict. Most ponds are naturally stocked during the monsoon. Part of the *Thangail khal* has been leased in by the *Matshayajibi Samabaya Samity* for culture fisheries. There is a court case amonst members of this association about the use of the water body.

Fishing technique

The fishes are caught in the ponds by *Berjal* and in some cases by *Jhakijal*. About 80-90% pond is done by *Berdjal* and about 10% is done by *Jhakijal*.

Fish diseases

Fish disease is reported. Eqizootic ulcerative syndrome disease is a common occurence among carp fish in the ponds. People reported that many fishes die because of this disease. So the pond owners requested to control fish disease.

Institutional facility

As per report the institutional facility is nil. People requested fisheries extension services.

Own observation and views

Though the visited area is a district town but there is a good number of cultured, culturable and derilicts ponds. There are many *pagars* of different sizes in the area. The river *Lohajang* passing through the town was found dried up. Many minisize fish nursery ponds were found on either side of the *Lohajang* river which are used for rearing fish spawn.

16.5 ENVIRONMENT - MALE

Biological

Mollusca

unio (Bivalve) and *pila* (Snails) of different sizes are reported to be present in *pagars*, ponds and ditches. The *unio* population is less than that of Pila. Both these molluscs are useful to mankind and ducks. *Pila* (snails) of different sizes are the good source of food for ducks and different birds.

Ammelids

Nerries, Leech, Earthworms etc. are reported to be present but in reduced number earthworms and leech are useful.

Fish

A good number of waterbodies like *pagars*, ponds, ditches etc. are present which are inhabited by different kinds of fishes. Carp varieties are found more in cultivated ponds in comprison to other species. But as a whole the fish population is decreasing in the area due to disease etc.

Amphibian

Toads, Frogs and *Hyla* are reported but in reduced number. There is a report from public that the practice of toad catching goes on in the area and which is responsible for reduction of amphibian population.

Reptiles

Reptiles though present but in very reduced number. There are poisonous and non-poisonous Snakes, *Guishap*, Lizard, *Anjan*. Tortoise are completely absent from the area due to unknown reasons.

Birds

Birds population has been significantly decreased in the area. The available birds stock in the area includes *Crow, Cuckoos, Shalik, Herons, Boi, Tuntuni*. As per report this bird population has decreased after the flood of 1988.

Mammals

Terrestorial wild animals

Wild animals are very rare in the town area. There are some wild animals, including Moles, Rats, *Mongoose* and *Jackle* etc. The wild animals habitat has been decreased due to rapid human habitation growth.

Domestic land animals

Domestic land animals are few in number. They include Dry Cows, Milch Cows, Sheep, Goats etc. Cattle disease is reported but not so severe.

Others

Afforestation

No afforestation programme from Govt. or NGO is reported. People at their own initiation plant trees at their homestead.

Deforestation

Deforestation goes on in the area. There is a brick-field near *Karatia* and a lot of fire-wood is used in the brick-field for its operation.

Kitchen gardening

Kitchen gardening is there but it is not so developed. People are involved in kitchen gardening to meet their vegetables consumption demand. They cultivate common vegetables like Pumpkin, *Lalshak*, Gourd, Chilli, Cucumber etc.

Human activities

Human habitation

The town area is rapidly increasing due to population growth and immigration. Tangail town is likely to keep on growing in years to come.

Pollution

Both air and water pollution are reported. Serious environmental hazards are caused by inadequate drainage, stagnant water in ditches, dumping up of garbages, use of vehicles with badly tuned engines, open sanitation, leaving dead animal bodies around etc. Brick-fields in the vicinity of the town discharge hazardous smoke.

Own observation and views

The visited area the *Tangail* town and its urban area *Karatia* do have many natural vegetation, road side ditches, agricultural land, kitchen gardening etc. One brick-field was found near *Karatia* town. Many *pagars* were seen but they were completely dried up. *Tangail khal* passes through *Tangail* town and was found to have polluted water and abundant water hyacinth which helps mosquito growth. The drainage system in the town itself was found to be inadequate. The roads and paths inside the town is not developed which creates transportation problems.

Views

The down drainage system needs to be improved to facilitate flushing of the Municipal garbages and to remove drainage congestion. The water hyacinth inside town ditches need to be destroyed to prevent mosquito growth. The derilict ponds and *pagars* need to be reexcavated and which in turn can be well utilized for fish culture.

16.6 ENVIRONMENT - FEMALE

Homestead forest

Homestead forest are well developed in most of the town area except *Akur Takur Muslim Para*. The homestead forest comprises with varieties of trees such as herbs, shrubs, mango, jackfruit, leamon, hard fruit tree, *shimul, kodom,* palm etc.

Fuel

The main source of fuel is saw-mill powder. Although the electricity facility exists in all the visited area the use of electric heaters is very minimum due to high cost of electricity. Only in *Akur Takur Muslim Para* some households use such heaters. The middle class families use fire wood, cowdung and some rich households use gas as a source of fuel. The poor use mostly dried leaves, bushes and remains of paddy as fuel.

Drinking water

The number of tubewells is high. About 90% of the people use tubewell water for drinking purpose. Only a few people from *Biswas Betka* and *Kochuadanga* drink open-well water. Open-well water and tubewell water are also used for washing, cleaning and cooking purpose. Rich familiesy use supply piped water for household consumption and drinking purpose.

Sanitation

Most of the households in the visited area use *katcha* latrines. Women think that the bad smell from *katcha* latrines pollutes the air. Middle class families living in *pucca* buildings have septic tanks. The sewarage/storm water system is not adequate for a city of this size.

Diseases

Diseases like Diarrhoea, Dysentry, Pox, Fever, Eye infection and *Scabies* prevail in the area. Most diseases occur in the month of *Kartik, Falgoon* and *Chaitra* while *scabies* prevails in the month of *Magh* and *Falgoon*.

Rat problem

Rats are everywhere as they thrive on the concentration of garbages etc. found in the town area. They damage household belongings and are a vehicle for spreading diseases.

16.7 SOCIO-ECONOMIC SITUATION - MALE

Survey area

The surveyed area are: a) *Kachuadanga*, b) *Akur Takur Muslim Para*, c) *Kagmara*, d) *Panjapara (Sabalia)*, e) *Biswas Betka* and f) *Adi Tangail*. The whole area may be devided into two parts, i.e. the eastern part of *Tangail-Mymensingh* road; consists of *Biswas Betka* and *Panjapara (Sabalia)* in the eastern part and the western part of Tangail-Mymensingh road consists of the rest of the area. From the western part *Kachua danga* and *Akur Takur Muslim para* are situated just on the river side in the eastern side of the *Lohajang* while *Kagmara* is situated on the western side of the river.

Major activities

The households in the area are involved in a variety of non-farm activities, but there are also some families who as yet depend mainly on agriculture. The farm households are found in *Adi Tangail, Biswas Betka and Kagmara.*

Wage rates

The wage rate for the local labourers works in the agriculture field (around the town area) is Tk.35-45 with one meal during lean season for agriculture, while it is Tk.40-50 with one meal during the peak season. In case of in-mmigrated labourers the wage is given 10 taka less in all the season.

The labour wage for the non-agricultural works in the town area (hired for various types of work), Tk.50-55 the year round.

Origin and type of settlement

Origin

Among the surveyed area, *Biswas Betka* and *Adi Tangail* area are the area where people settled first (before Tangail emerged as a district in 1969). Then after Liberation, settlement gradually took place in *Kagmara* and *Kachua danga*. People started settling in *Panjapara (Sablia* and *Akur Takur Muslim Para* in the mid eighties.

Type

At present about 90% residents of *Biswas Betka* and about 80% of *Adi Tangail* are the inhabitants who have been there from the very beginning and the rest are immigrants. The rate of recent settlers (within 8-10 years time) in *Kagmara, Kachua danga* and *Panjapara* is 40%, 60% and 70% respectively. *Akur Takur Muslim para* is a very new settlement (only 5/6 years old) with 100% immigrant inhabitants. Most of the immigrants are from difference upazillas under *Tangail* district.

26

Socio-economic situation

Characteristics and occupations of the inhabitants

The people who immigrated and settled in *Kachua danga* and *Kagmara* are mostly the victim of river erosion. They lost their land and homes by erosion of the *Jamuna* and *Dhaleswari* (victims of the *Jamuna* are the majority).

Those who settled in other places of the surveyed area are mainly (a) service holders (about 60%) at different offices in *Tangail* town and (b) businessmen (about 40%). These people are mainly the inhabitants of this district and from the adjacent upazilas. They gradually switched over from rural to urban life as their occupation centered at *Tangail* town.

The people involved with service and business and belong to the middle class, lives in *Akur Takur Muslim para*, *Panjapara*, part of *Adi Tangail* and part of the *Kagmara*. Other parts of *Kagmara* and *Adi Tangail* are inhabited by marginal farmers and day labourers. About 90% households of *Biswas Betka* and about 50% of *Kachua danga* are day labourers (non-agricultural), and the remaining 50% are petty businessmen. They are mainly transport workers (rickshaw, van, tempoo, truck, bus etc.), engineering workshop worker, *bidi* worker, earth cutter, brick-field worker, construction worker etc.

Socio-economic condition

River erosion victims who settled in *Kachua danga* and *Kagmara* village were not all poor. About 50-60%) had capital and could therefore start a new life in the town. They are mainly involve in business (one third with big and two third with petty business). Although they are immigrants and victims of river erosion their condition is much better than the natives of *Biswas Betka*.

Housing condition

The housing condition of households in *Biswas Betka* also are the worst of all. Most houses in this area are thatched. Tin (75%) and semi-*pucca* (25%) houses are found in *Kachua danga, Adi Tangail* and *Kagmara*. The ratio of *pucca* houses to semi-*pucca* houses in *Panja para* is 60% and 40% respectively. Almost 90-95% houses in *Akur Takur Muslim para* are pucca.

Existing water related situation

Except *Kachua danga* all other areas are affected by flood almost every year. The river *Lohajang* over-tops near *Akur Takur Muslim para* and inundates homesteads in the area. The area hasno drainage channel and therefore suffers from drainage congestion. Water remains in the area for about 10-15 days. In the southern part of *Akur Takur Muslim para*, the water level goes up to 4/5 feet and only by cutting a channel (near the *Rifat Textile Mill*) the water can drain into the *Lohajang*.

The *Akur Takur Muslim para* and its adjacent areas are the main source of intake of flood water into *Tangail* town from the river *Lohajang*.

There are also flooding and drainage congestion problem in *Adi Tangail, Kagmara* and *Panjapara*. Through two inside *khals Kagmara* and *Panjapara* is inundated and causes water logging problems and disturb the movement of people. Flood water enters *Adi Tangail* via over land flow of river water through the fields. Rain water also causes inundation and congestion.

The area affected most by flooding is *Biswas Betka*. Flood water from the *Lohajang* enters the area via a *khal* and inundates three fourth of the area almost every year. Due to the closure of the *khal* mouth by gradual siltation, the flooding situation in the area has worsened during the last few years. The internal roads of the area go under two to three feet water and about 50% homesteads are affected every year during the monsoon. During the whole monsoon (2-3 months) people in the area have to use *Boat* or *Bhela* to more within the village.

Development need

Although the surveyed area is under the municipality yet 80% of the area is not provided with suficient facilities like drainage and sanitation, street lights, paved internal roads, supply of drinking water etc. Yet municipal taxes are charged and collected from the residents of the area. The people of the area suffer most from the absence of good internal roads, and during monsoon their sufferings become worse.

The education facility are inadequate for the children of *Kachua danga* and *Kagmara*. While unemployment is a problem for the people of *Biswas Betka* and part of *Kagmara* and *Kachua danga*.

Peoples opinion (about solving water related problem)

In order to solve the flooding problem of *Kagmara* the people in the area suggested to raise the bank of the *khal* that passes through the area from north to south and connected with the *Lohajang* at both the sides. For *Akur Takur Muslim para*, the solution people of the area suggested is to re-excavate the *Lohajang* and to embank both its sides, particularly the eastern side. Also a drain from the area to the *Lohajang* will be of greater use to solve the drainage congestion problem of the area and its surroundings.

To solve the problem of flooding in *Biswas Betka* people of the area suggested to re-excavate the mouth of the *khals* that flow through the area and to connect them with *Borai Nadi*. They also suggested to improve the *khal* by thorough cleaning. In order to remove the drainage congestion problem of Adi *Tangail* a few culvert in the eastern and southern side roads of the area will be helpful.

Conclusion

It is evident from the survey that the *Tangail* town is not properly protected from the flood and the Lohajang is the main source of flooding in the town. The most vulnerable part of the surveyed area as well as in the *Tangail* town is Akur *Takur Muslim para*. The river bank in this area from *Taltala* upto the bridge (over the *Lohajang*) on the *Tangail-Santosh* road is

quite flat and over-topping often occurs during the monsoon. As a result, flood water from the Lohajang easily enters the town and threatens normal life of the people of the town.

Although *Akur Takur Muslim para* is situated at the bank (East) of the river, it is not so much affected by flood, other than having a water logging problem. This area is a newly growing residential area of middle class people who were well aware of the situation and therefore constructed and are constructing their houses on raised mounds inorder to protect their houses from severe flood attack. But people in other flood prone areas of the town like *Biswas Betka, Kagmara* are not in a position to take any precautionary measures against flood attack by themselves as they do not have the means to do so. The are of the low income groups.

16.8 SOCIO-ECONOMIC SITUATION - FEMALE

Survey area

The visited area under the sub-compartment 16 are: 1. *Kochuadanga, 2. Akur Takur Muslimpara, 3. Thanapara, 4. Adi-Tangail, 5. Biswasbetka* and 6. *Karatia* urban area.

Introduction

At present about 70-80 households are the inhabitants of *Kochuadanga (Charpara)* who have migrated there from different *Char* areas, like *Boalkandi, Moishar Char, Isha Basha, Bairabbari Char, Monabari Char* etc. The people immigrated and settled in *Kochuadanga (Charpara)* are mainly the victim of *Jamuna* and *Dhaleswari* river erosion. This settlement has started after liberation, i.e. after 1971.

Approximately, 1000-1200 households reside in *Akur Takur Muslimpara, Karatia (Urban area)*, part of *Kochuadanga*, part of *Adi-Tangail* and are involved with business and service lines, about 70-80% households of *Biswasbetka* and 50% of households of *Adi-Tangail* are mainly depend on agriculture, while approximately 90% people of *Thanapara (Beparipara)* are fish traders i.e. *Nikari*.

Employment pattern and activities of women

Women of the visited area under this sub-compartment are reported less involve with cash earning activities. The reasons are: (a) need is very minimum due to economic solvency, (b) women are not usually allowed by their husband to work outside of their houses.

Even then, some poor women are involve with cash earning activities besides their household works except *Thanapara (Beparipara)* and *Karatia*.

The type of employment with wage rates are shown in the following table:

Village	Type of Occupation	# of women involved	Wate Rate		Remarks
			With meal	Without meal	
Kochuadanga (Charpara)	Biri thonga making Cotton wrapper Garments worker	20-25 2-4 7-8	- - -	5-8/- 5-8/- -	 Seasonal Regular
Akur Takur (Muslimpara)	Biri thonga making Sweing Maid servant Service holder	20-25 5-7 25-30 8-10	- - 3-4/3 -	5-10/- 15-20/- - -	 on demand Regular
Adi-Tangail	Boil Mill Spinning Biri thonga making Cotton wrapper	20-25 2-5 60-70 2-5	- - - -	20/- 8-10/- 5-10/- 5-8/-	 Seasonal
Thanapara (Beparipara)	-	-	-	-	-
Biswasbetka (Dakhinpara)	Biri thonga making Sweing Maid servant Service holder	30-40 2-3 4-5 4-5	- - 5-6/2 -	5-8/- 8-12/- - -	 on demand Regular
Karatia (Palpara)	Service holder	1-2	-	-	Regular

Education and literacy

The literacy rate in *Thanapara (Beparipara)* is very poor in compare to other areas visited in this sub-compartment. About 90% residents of *Beparipara* are fish traders, i.e. *Nikari*. The people of *Beparipara* are reluctant towards education due to their poor economic condition.

The literacy rate of the visited area are given below:

Sl.No.	Village	Literacy Rate	Attendency rate	% of Grils
1.	*Kochuadanga (Charpara)*	25-35%	60-70%	30%
2.	*Akur Takur (Muslim para)*	45-50%	70-75%	40%
3.	*Thanapara (Beparipara)*	5-8%	30-40%	30%
4.	*Adi-Tangail*	30-35%	60-70%	40%
5.	*Biswas Betka (Dakhin para)*	35-40%	65-70%	45%
6.	*Karatia (Paul para)*	40-45%	75-80%	45%

Organized groups

The number of organized groups of NGO and its coverage is reported very poor. The groups of NGOs and their membership status are shown in the following table:

Sl. No.	Area/Mahalla	Organization/Group/Samity	No. of Member involved		Remarks
			Male	Female	
1.	Kochuadanga (Charpara)	1. Grameen Bank 2. Mohila Samabaya Samity 3. Local Samity	- - 12	150 20-25 12	3 (centres)
2.	Akur Takur (Muslimpara)	1. SDS 2. Local Mohila Samity	20 -	15 20-25	
3.	Adi-Tangail	1. Local Mohila Samity	-	15	
4.	Thanapara (Beparipara)	1. Mohila Samabaya Samity	-	100-150	No more working
5.	Biswas Betka (Dakhinpara)	1. Mohila Samity	-	60-70	
6.	Karatia (Paulpara)	1. Local Mohila Samity	-	30	

Public facilities

Public facilities like Union Council Office, Post Office, F.P and *Health Clinics* are all situated within 2-2.5 km distance.

Family planning service is available as per demand of the local people. But women from all areas complained about the non-availability of free medicare facility from *Tangail Sadar Hospital*.

General needs

Although the whole surveyed area is urban or Municipal Area even then there is a need for improved Gas supply, supply piped water, drainage and sanitation. Internal road communication facility is also quite poor.

All most all the areas except *Akur Takur Muslim Para* have strong demand for free medicare facility and construction of *pucca* latrines.

Water related situation

Women from *Akur Takur Muslim Para* stated that as the river bank is low, over-topping often takes place from the *Lohajang* river and water submerges the area. To solve the flooding problem, they suggested to construct embankments on both the side of the *Lohajang* river. Improve drainage channels were also suggested to drainout the congested water.

There is a demand from the women of *Kochuadanga* to make the *Bhabani Pathuli* road high. The road is just on the side of the *Lohajang* river and connected with *Tangail-Sontosh* main road. Each year, during full monsoon small and shallow boats move through the river for communication of the people and cargo. River erosion during monsoon affect the road significantly. Some plantation work on the road side is also suggested.

In order to solve the flooding problem in *Biswas Betka* women suggested re-excavation of *Biswas Betka khal* which is obstructed at different places by house owners for their own interest.

Women from *Adi-Tangail* suggested construction of a few culverts over the eastern and southern roads of the area to mitigate the drainage congestion problem. Flood water enters *Adi-Tangail* through overland flow of river water. Rain water also accumulates and causes inundation and congestion problems.

Among all the visited area under this sub-compartment the most affected area by flood are *Biswas Betka* and *Karatia Paulpara*. Women from these areas stated that they have to use boat or *Bhela* for movement within the village. Flood water also causes great damage to Boro seedlings over the northern *chak* of *Biswas Betka*. It is reported that they get only the IRRI crop.

Women recall the substantial damage of human property during high flood year 1988. Most of the people took shelter in the nearest multistoried buildings for about 10-15 days. Only a few people constructed their houses on high spots and stayed in their own houses. Flood water entered inside the houses upto the level of 2-3 feet.

Women from *Karatia Paul Para* requested the construction of a culvert over the *katcha* road near *Sana Paul's* house. Each year, during monsoon, this road inundates and remains unusable for a couple of days, causes communication problem for the local people and school going student. It will be more beneficial to them it step taken to make the road high.

Own observation

The area is unprotected against the flooding from the *Lohajang* river. Rise of flood water inundates the area and disturbs normal life.