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 3 : WESTERN PART : VOLUME 1
(SC. LOHAJANG FLOODPLAIN, NO. 9, 10, 11)

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
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GENERALLY RELEVANT DATA

Rainfall and Drought

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

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

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

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

LOHAJANG SUB-COMPARTMENT

LO.1 INTRODUCTION

The *Lohajang* Flood Plain extends through the middle of *Tangail* CPP area from *Ramdevpur* in the North-West near the off take of the *Lohajang* river from the *Dhaleswari* river, to *Karatia* in the South-East, where the river flows out of the compartment. The flood plain, consisting of an area of about 250 ha., is on either side of the *Lohajang* river, unprotected by any regular embankment. The major part of this area lies in between sub-compartment Nos. 8 and 11 in the North, and between 4 and 14, 15 in the South.

LO.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

Riverflow in the *Lohajang* river starts in June and enters the low areas in the flood plain in July through the canals. Average land level is high in the flood plain comprising about 70% of the area and the rest is medium low to low land. The river bank is usually high and overspilling occurs in late July and August during the high stage of the river. The flood water usually does not pose any serious problem in normal flood years. Sudden rise of flood water damage crops in low areas. In high flood years e.g. in 1987 and 1988, there was considerable loss of property.

Rainfall does not cause any flooding or drainage congestion since the run-off flows out to the river unobstructed. In some cases the rain water accumulates in the nearby low land e.g. in *Dippur, Baimail* and *Kagmari chaks* in the northern part and *Kazipur baors, Garail baor* and *Jalfai chak* in the South. These low pockets are connected by *khals* with the *Lohajang* rivers. Improvements of these *khals* viz, *Dippur khal* beside *Kalibari, Hazraghat khal* beside police line, *khals* from the *baors* to the *Lohajang* river and the *Jalfai khal,* will improve drainage of these low areas. Some high areas like *Patolpara* in the South near *Kazipur* suffer from scarcity water. Flood water remains for a short period and quickly drains out during the receding period. Excavation of new ponds and re-excavation of the old ponds will partly solve the water scarcity problems in such areas.

The flood plain remains under water till September and flood water starts receding in late September. Most of the area is drained out by late October and land is available for Rabi crops. Drainage from some low pockets is delayed due to silted-up channels mentioned in the previous para. Their re-excavation will ensure early drainage of these areas. There is strong demand for re-excavation of the *Lohajang* river to improve its discharge capacity for efficient drainage of the area. Construction of a few culverts are required at some places viz, *Dharet bari, Baimail, Bajitpur* and *Jalfai* for proper flow and improved drainage.

The *Lohajang* river followed almost the same course in the last 50 years without any major shift. If any regulating structure is constructed, it should be located down stream of *Gala khal* off-take so that *Jugini* hat is left open to navigation through the *Dhaleswari* river and *Jugini khal* and *Gala khal* are open for free flow of water. A lock gate with the

regulator will be preferred for continued navigation in the *Lohajang* river during the monsoon period.

The *Lohajang* river was re-excavated in 1978-1979 and the *Jalfai khal* in 1980. Since than these *khals* have silted up again.

Water hyacinth does not pose any problem in the flood plain. Plenty of boats of all sizes ply in the *Lohajang* river during monsoon. However mechanised boats are not allowed beyond *Cillabari* to the Tangail town area due to fear of aggravated erosion by waves.

Erosion

Severe erosion is taking place by the *Lohajang* river from *Hazraghat* area beside the police line up to *Paradisepara*. The erosion has reportedly started after a loop-cutting of the river in this area about 20 years ago.

There are minor erosions spots at *Kazipur* and at *Subki* near the bridge on the *Pathrail* road. The erosion at the bridge site is reported to be due to wrong location and alignment of the bridge.

Ground water

Plenty STWs and DTWs are operating in the area for irrigation of Irri paddy. There is scope for installing a few more STWs at some locations e.g. at *Jalfai*.

HTWs are usually used for drinking water. Some people use open wells also for drinking water. Open wells are generally used for cooking and washing.

There is no appreciable discharge problem from the tube wells except in drought years. The iron constant in the underground water does not pose any problem for drinking or irrigation.

Conclusion

The flood plain is unprotected against the flooding from the *Lohajang* river and as such the area enjoys the benefits of flooding. However, sudden rise of flood water damages crops in the low land. In high flood years, e.g. in 1987 and 1988 there was considerable loss of property. A few *khals* including the *Lohajang* river need to be re-excavated for improved drainage of the area.

Underground water is adequately exploited and there is limited scope for expansion in some areas.

People are apparently motivated to cooperate for development works in the area if they are convinced that the works will definitely benefit them.

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LO.3 AGRICULTURE

Cropping pattern

The *Lohajang* Flood Plain extends from north to south, occupying a large area at the central part of the *Tangail* CPP area. The land pattern in the flood plain is of the F0 to F1 types which approximately occupies 65-70% of the area. Some F0 type land, occupying about 10-15% of the area, lies along the river banks. The rest of the area belongs to the F2 type with a small area of F3 type land.

The major crops grown are Aus, Jute, T. Aman both local and HYV on F0 and F1 land while Boro (HYV)/Braus and TDW or B. Aman on F2 and F3 land. Irri or Boro (HYV) is also grown on F1 land while some Boro (L) is grown at the river side near the water source. The following cropping patterns are available in the area:

Crop Patterns				
Land Type	*Kharif*-1	*Kharif*-2	Rabi Annual	% net cultivated area (NCA)
F0	B.Aus/Jute	-	Wheat/Millet/Pulse/Potato	20%
F0-F1	-	-	Pulse + Sugarcane	15%
F1	B.Aus/Jute	T.Aman(L/(HYV)	Wheat/Millet/Pulse	20%
	Jute		- Wheat/Mustard	10%
F2	Aus+B.Aman		- Boro(HYV)/Braus	10%
		-	Pulse/Wheat/Millet	
	TDW Aman		Boro (HYV)	10
	TDW Aman		Mustard-Boro (HYV)	10%
F3	-	-	Mustard-Boro (HYV)	5%

Average crop yield and price

Farmers in the flood plain reported the following average yield of their crops in the surveyed area. The price of their production at the farmgate level are as follows. The price rate increases in lean period but farmers cannot keep their production for longer periods because of the necessity of money for their livelihood and to invest for the next crop.

Crops	Av. yield/ha.	Price/MT
B. Aus	1.5	5360-6030/-
T. Aman (L)	1.9	6030-6700/-
T. Aman (HYV)	3.2	6030-6700/-
B/TDW Aman	1.4	6030-6700/-
Boro (HYV)	4.6	6030-6700/-
Braus (late Boro)	4.0	6030-6700/-
Boro (L)	2.9	6030-6700/-
Jute (white)	1.4	6030/-
Jute (Tossa)	1.7	8040/-
Wheat	2.1	5360-6030/-
Mustard	0.9	13500/-
Potato	9.0	3200/-
Pulse	1.10	12060/-(lentil) 9380/-(khesari)
Millet	1.50	5360/-
Sugarcane	36.00	650-670/-

Use of fertilizers

Most of the farmers reported use of less than the recommended doses fertilizers in their land for the crops grown under rainfed condition. However they use fertilizers in higher doses in Irri/ Boro(HYV) and wheat. Farmers reported that they use fertilizers as per their own estimation. They believe that the flood water increases the soil fertility by siltation every year. Following doses of fertilizer application are in practice in the area.

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)
B.Aus	110-130	90-120	30-50
T. Aman (L)	180-210	150-170	40-60
T. Aman (HYV)	210-230	160-180	40-50
B/TDW Aman	120-130	-	-
Boro (HYV)	250-270	160-180	40-50
Boro (L)	180-210	150-170	50-70
Braus (late Boro)	250-270	160-180	50-60
Jute (white)	140-170	110-130	30-50
Jute (Tossa)	150-170	90-120	30-50
Wheat	140-160	80-110	30-50
Mustard	110-120	70-90	-
Potato	120-130	90-110	-
Pulse	70-90	-	-
Sugarcane	160-190	110-130	50-60
Millet	90-110	-	-

Farmers reported that due to high price of fertilizers they cannot apply more fertilizers in their fields. No credit facility is available in the area. If they even manage to take credit they cannot refund the same due to poverty. So they avoid to take credit for cultivation.

Irrigated crops

The only crop irrigated in the dry season is the Irri or Boro (HYV). In the flood plain only 25-30% of the area is under Irri cultivation by ground water irrigation. A small area alongside the *Lohajang* is irrigated by surface water where water is available in the river. In the surveyed area the following number of DTWs and STWs were available for irrigation to Boro (HYV).

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Krishnapur	STW 9 Nos. (1/2 cusec)	50 ha.	4 Nos.Electricity 5 Nos. Diesel
Konabari	STW 8 Nos.(1/2 cusec)	45 ha.	Diesel
Bajitpur	DTW 2 Nos. (2 cusec)	50 ha.	Electricity
	STW 6 Nos. (1/2 cusec)	30 ha.	Electricity
Kazipur	DTW 1 No. (2 cusec) *Non-operating		
	STW 6 Nos. (1/2 cusec)	40 ha.	Diesel
Jalfai	STW 7 Nos. (1/2 cusec)	42 ha.	3 Nos. Diesel 4 Nos.Electricity
	Total :	257 ha.	

Farmers reported that the cost of irrigation is high in comparison with the production received by them. The DTWs were earlier managed by the Grameen Bank but withdrawn from the area due to loss in irrigation cost due to rapid loss of water by percolation. For other DTWs & STWs farmers pay 1/4 of their production as the irrigation cost in the area.

Share cropping

The terms of share cropping is 50:50. Owners supply 50% of seeds and fertilizers in case of sugarcane. In other crops seeds are supplied, or 50% of fertilizers.

In the area about 10-15% of the farmers lease in land on share cropping basis. It is also reported that some owners do not give any facility to the share cropper but take 50% of the production along with by products.

Crop damage

Crop damage in the flood plain is not so much prominent, as the majority of land belongs to F0 & F1 type where flood effect is less. Still some Aus and T. Aman is occasionally affected by flood from overtopping the *Lohajang* river and heavy shower during the monsoon. The river water carries sand and deteriorates the soil texture for which farmers now-a-days grow sugarcane instead of Aus or Aman on some of their land along the river banks. In the surveyed area it is reported that the low lying areas, where farmers usually grow TDW Aman or mixed Aus and Aman, are badly affected by flood water from *Lohajang* river. Some T. Aman and Aus is also reported to be affected while in the village *Jalfai* occasionally mature Irri/Boro (HYV) is reported to be affected due to early flood.

Livestock

Livestock population in the area are of moderate to poor health. Most livestock, specially cattle, is of local variety. Few hybrids are available in medium to rich farmer housholds. Small and marginal farmers are not interested in artificial insemination. They said that A.I is responsible for abortion. So they cross their cow by local oxen.

Medicare is provided in the area from *Tangail, Joginihat khola, Dhanerbari* etc. For the treatment of the cattle farmers pay some incentive to the livestock assistants. Artificial insemination is given from *Bailla and Tangail.* Some young men have been trained by the livestock directorate who visit the area and give mass injection to cattle when necessary. Farmers pay some incentives for their such voluntary services. Rinderpest, cow pox, toe diseases are the common disease reported among the livestock. Due to shortage of cattle farmers use milch cow to plough their land.

Poultry

Poultry in the flood plain is not so much developed. Most of the poultry belong to local varieties. They live on scavenging around the households. Ducks are available in most of the households near the water sources. Chickens are supplied with some rice residue, rice bran and wheat residue while ducks are provided with some snails, bi-valves etc. by some farmers.

Farm chickens are available in very few in numbers. Farmers informed they are very costly to maintain. Poultry medicare is not well developed. Occasionally mass injection is given to take preventive measure of poultry disease in the area. Ranikhet, fowlpox, tope

worm etc. are the common disease among the poultry in the flood plain of Lohajang river.

Own observation

About 70% of the area belongs to land types F0 & F1 where Aus, Jute, T. Aman and some sugarcane are grown. In most cases sugarcane is grown along with lentil as a mixed crop. This type of land is generally situated along the village periphery and on the levee (raised land along river bank). In some of this type of land T. Aman is followed by Irri/Boro (HYV) practised. The rest of the area mostly belongs to F2 with a little F3 type. This type of land is generally used for growing Boro (HYV), and TDW Aman, Aus + B. Aman and some Rabi crops. Among the Rabi crops, wheat and mustard are grown extensively. The problem of lack of water in the high and medium highland and drainage congestion in low lying area is the bottle necks for timely growing of crops in the area. Most of the river banks and channel beds are occupied by Boro (HYV)/Irri. Light to medium textured soils occur in high to medium high land and some heavy textured soils occur in the basin sites. Land is gently undulating to nearby level and very gently slopy towards the basin. The overall slope of the area is mostly towards the East and South.

CONCLUSION

As the major part of the area is high to medium land in the area crop damage is less. In the low lying area some water congestion is reported by farmers causing damage to Aus and deep water Aman paddy. Occasional damage of some T. Aman is also a phenomena in the area during the monsoon. Early flood also occasionally cause some damage to Irri/Boro (HYV) in part of the area. Heavy siltation has raised the *Lohajang* river bed. The deposition of sandy material on some land has reduced the intensity of crop growing such as sugarcane at present has occupied some area of Aus and T. Aman.

Use of fertilizers in the area is not in optimal doses. Poverty resulting in inability to make use of credit facility is the cause of using low rate of fertilizer application in their crops. Poor extension work in the area is responsible for practising traditional agriculture in the area. Lack of fodder and poverty of farmers do not allow them to domesticate hybrid cattle. Farmers view is that hybrid cattle are costlier to maintain than local varieties. The area has a shortage in draft animals. Milch cows are used as draft animals in the area. Poultry population in the area is of local varieties which contribute little in raising the socio-economic condition of the people.

LO.4 FISHERIES

Water bodies

The water bodies under the *Lohajang* Flood Plain 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. Bajitpur	1	15 acres approx	perineal	koi,magur,singh,chingri,puti Baim,Chanda,Taki,Shol,Boal, Pabda,Tengra,Foli,Rui,Katla, Mrigal,Buthom,Chela,Batashi, etc.	150-200mts approxi-mately	multi-ownership	the beel is very resourceful water body in the locality.
2.	Pagars: i. Konabari ii.Bajitpur iii.Patalpara	 04 02 03	1.5-2 acres approx	Perineal	Taki,Shol,Gazar,Puti,Tengra, Pabda,Koi,Sing,Magur,Chela, Chanda,Foli,Baim,Snails and Bivalves etc.	70-80 mts. approx.	Individual	Very much resourceful and duck cultivation
3.	Pond: i. Konabari ii.Bajitpur iii.Jalfai	 02 04 02	9-10 acres approx	Cultured & cultu-rable ponds.	Rui,Katla,Silver,Carp,Puti, and Tilapia etc.	Poor	Individual /Govt. owned.	Pond fish culture is not well developed in the area

Bajitpur *beel*

The *Bajitpur Beel* is a perineal water body and is situated in between the village of *Bajitpur* and *Kazipur* under *Tangail Pourasava*. The *beel* is connected with the surrounding river *Lohajang* through *Bajitpur khal*. The *beel* is under multi-ownership and consists of about 12-15 acres of land. Even in the dry season the water depth of the *beel* does not go below 6' and it provides suitable habitat for different kinds of fishes like *Puti, Koi,Shol, Boal, Taki, Gojal, Sing, Magur, Tengra, Pabda, Foli,Rui, Katla, Carfu, Chanda, Chela* etc. All the local people depend on this *beel* for various purposes.

The villagers use the *beel* to meet their fish consumption demand, surface water irrigation facilities, duck culture facilities, household consumption other than drinking, their own bathings as well as cattle bathing. Fishing goes on in the *beel* round the year and December/January is reported to be the peak fishing period. It is reported that about 150-200 mts. of different kinds of fishes are caught annually. The villagers catch fish from the *beel* for their own consumption. Sometimes the owners of the *beel* sell fishes to the professional fishermen on contract basis. So in addition to fish consumption, the owners also earn money by selling its fish. The *beel* also contains water hyacinth, snails and bivalves. The water hyacinth is used as a source of fodder for cattle, organic compost, food for fish. Sometimes the potato cultivators uses the water hyacinth in their potato field to keep it moistened. The snails are used as food for ducks.

Fishes are left over after fishing in the *beel*, they spawn in the early monsoon as soon as the first rainfall starts in the month of May. People reported that many fishes like *Taki, Shol, Boal, Tengra, Pabda, Koi, Magur, Sing, Chanda, Baim* etc. Spawn in the *beel* at the end of the month May and continue to grow there. As soon as the flood water enters the *beel* through the *Bajitpur* canal in the monsoon (May/June), the *beel* comes overflown and the surrounding agricultural land also becomes inundated. This time the available fish from the *beel* spread over the flood plain. The outskirts of the *beel* is under Irri/Boro cultivation and these crops are irrigated from the *beel* by the farmers.

Professional fishermen

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

Subsistence fishermen

About 20-25 households of subsistence fishermen are living in the area. They are poor Muslim people and they catch fish for about six months of the year and the rest part of the year they are occupied in other professions. They go fishing in *Bajitpur beel,* the *Lohajang* river and also in the flood plain during full monsoon. They cannot afford to go to *Jamuna* river for fishing as they do not have the necessary inputs to go fishing on the *Jamuna* river. These subsistence fishermen are reported to manage their livelihood hand to mouth.

Fishing periods

Fishing in the *Lohajang* river goes on for about six months of the year. During the post monsoon period the *Lohajang* river dries up. But fishing in the *Bajitpur beel* goes on almost round the year and the months of November, December and January is reported to be the peak fishing period. Flood plain fishing goes on only for about 1-2 months during monsoon.

Fishing methods

Since the area has got perineal *beel,* ponds, *pagars* and flood plain, different fishing techniques are practised. During the monsoon, flood plain fishery is done by *Karentjal, Dharmajal, Jhakijal,* and also by means of harpoons like *Aro, Tenta, Juti* etc. About 80-90% of flood plain fishery is done by *Karentjal* and *Dharmajal* and about 10% of flood plain fishery is done by harpoons.

During early monsoon fishing is done in the canal by means of traps and castnet. About 20-30% of canal fishing is done by traps, about 10-20% of canal fishing is done by angling and about 50% of canal fishing is done by castnet.

The capture fishery in the *Lohajang* river is done by *Dharmajal* and *Castnet*. The *beel* fishery is done by *Berjal, Jhakijal, Dharmajal, Jali* and *push nets*. Sometimes the *beel* fishery is reported to be done by angling. About 70-80% of *beel* fishery is done by *Dharmajal* and *Jhakijal*. Pond fishery is done by both *Berjal* and *Castnet*.

Institutional facility

Institutional facilities are reported to be absent in the area.

Fish predation and fish diseases

Fish predation is reported. In the *beel* the baby fishes are eaten by *Shol,Taki,Gojal,Foli,Boal* and sometimes by birds *Toad* and *Snakes*. So fish predation is a problem in the area.

People in and around said that the majority of the *beel* and riverine fishes are attacked with *Epizootic Ulcerative Syndrome* diseases. The snake headed fishes are reported to be highly

attacked with this disease, but shrimps are apparently free from this kind of attack. The other fish species *Puti, Koi,Magur,Sing* etc. are also attacked with this disease.

Flood plain fishery

The area is high land type but the flood plain comes under inundation for a shorter period. So flood plain fishery is reported to be practised in the area for a shorter period. The flood plain of *Konabari* is flooded by the *District khal* and the flood plain of *Bajitpur, Kazipur* is flooded by *Bajitpur* canal, and the flood plain of *Jalfai* is flooded by *Jalfai khal.* During early monsoon (May/ June) all the flood plain started flooding by the water of *Lohajang* river through respective *khals* and during full monsoon (July/August) the area is flooded fully.

Since the area is high land type the maximum depth of flood plain water is reported to be within the range of 1-2' and of very short duration for about one and a half month. The riverine fishes as well as fishes of the *beel* (*Bajitpur beel)* spread over the flood plain and move freely. In the flood plain both Juvenile and adult fishes are available. Many riverine fish migrating to the flood plain during the monsoon where they spawn. The *beel* fish spawn in the *beel.* Both the adult and baby fish move into the flood plain and start growing. During this time most of the surrounding villagers freely catch fish in the flood plain.

The villagers meet their fish consumption demand from the flood plain catch. The professional and subsistence fishermen from the neighbouring areas also go fishing in the flood plain. When the flood water starts receding the available fishes go to the *beel* and *Pagars* and these are naturally stocked. It is reported that some of the fishes also go back to river along with water. The flood plain is reported to be the good source of fish multiplication and fish growing habitat.

Fish migration

People reported that during early monsoon the riverine fishes (both gravid and non-gravid) migrate to the flood plain along with flood water through the canals. The gravid females spawn in the flood plain and stay there as long as the flood water is available. As per report the fishes from *Lohajang* river migrate to the *Bajitpur* flood plain through the *Bajitpur khal, Konabari* flood plain through district canal.

Own observation

The visited area is a high land type and the river *Lohajang* passes through the area. Canals like *Bajitpur, Konabari* etc. were found dried up and these canals connect the flood plains with the *Lohajang* river. The *Lohajang* river itself was found dried up completely. The river *beel* was found under rice cultivation in some places.

In the *Bajitpur beel,* some subsistence fishermen were found fishing by means of *Berjal,* some small children were found fishing by push nets. Many ducks were found to be grazing in the *beel.* A lot of water hyacinth was found floating on the *beel* and people use water hyacinth as fodder for their cattle. People were bathing in the *beel* and cattle also bath in the *beel.* The road side ditches, *pagars* etc. were found dried up completely. Ponds are very rare in the area.

Conclusion

There is a public demand to increase water bodies in the area by re-excavating the outskirts of the *Bajitpur beel,* nearby homestead *Pagars* and ditches in the area to facilitate sufficient fish habitat, household consumption other than drinking, duck culture etc. The people also urged to re-excavate the existing dried up *khals* thus connecting the flood plains of the area with the *Lohajang* river to facilitate fish migration in the area. They also urged to excavate new ponds in the area to boost up pond fish culture in the area.

LO.5 ENVIRONMENT - MALE

Biological

Arthropod

Destructive crop damaging insects like *Mazra, Pamri, Letha, Changa, Nanda Poka* were reported in the area. These destructive insects damage crops like Irri, Boro, Aman, Sugarcane, Pulses, Jute etc. Grasshopper and Mantis are also reported. Some insects are also useful as they help in plant pollination. In some places honey bee is reported. Mosquito is also another menace in the area as it grows over the stagnant water and damp bushes.

Mollusca

Mollusca which includes snail and bivalves (unio) are reported to be present in the shallow water bodies in the area. A lot of snails of different sizes are present in the *Bajitpur beel* (*Baor*) which is used as food for duck and birds. Bivalves are also reported to be present on the bottom layer of water bodies. Snails are also used as bait by people during angling and many fishes are caught by this method.

Fish (pisces)

Different kinds of fish are reported to be present in *beels,* ponds, *pagars* and road side ditches. The adjacent river *Lohajang* is reported to be a good source of aquatic plants and animal vegetation. The aquatic micro-organism which is available in the water bodies serves as food for fish.

Amphibian

Amphibian, which include Toad, Frogs, *Hyla* etc, are reported to be present in both water bodies and bushes. Specially toads are available in the nook and corner of the homestead forest and frogs are available in the water bodies. *Hyla* is comparatively smaller in size. All these amphibian populations are economically important and some two years ago it had much export value. But due to the apprehension of ecological disruption these practice of exporting toads/frogs has been banned by the Govt. Since than the indiscriminate toad catching practice

in the rural area has been reduced much and their population is now good in number. Toads/Frogs are very useful in engulfing destructive insects of agricultural fields.

Reptiles

Reptiles which includes both poisonous and non-poisonous snakes, turtles, *guishap*, lizards are reported in the area. The turtles population is declining and they are rarely found in the area. Both turtles and their eggs are eaten by the Hindu community. *Guishap* is dominant in the area.

Birds

Once the area was rich in bird population but their number has considerably decreasing over the last few years due to unknown reasons. People reported that hunting by gun-firing and traps, and the flood of 1988 may be the cause of this decline. The available bird population in the area includes *crow, raven, shalik, panikawri, kora, boi, doyal, charai, king-fisher, owl, heron* etc. People reported that some interested people do hunting different kinds of birds from the homestead garden at night by traditional methods using *shar* a kind of harpoon. Guest birds, during winter are reported to visit the *beel* and *Lohajang* river. But the number visits this area is gradually declining.

Mammals

Terrestrial wild animals

The homestead forest is reported to house wild animals like jungle cats, jackle, nangar, *bagdasha, mongoose,* bats, rats etc. Rat menace is a serious problem in the area as they damage agricultural crops and domestic items.

Domestic land animals

Domestic land animals are reported to be gradually decreasing in the area due to many reasons. People reported that fodder scarcity, poverty and cattle disease are the main reasons for the declining number. People reported that every year, in the month of September, a lot of cows die due to an unknown cattle disease They are deprived of cattle medicare. Whatever domestic land animals are available in the area are dry cows, milch cows, sheep, goats. Buffalos and horse are reported to be completely absent in the area.

There is a great scarcity of draft animals in the area and the farmers now a days facing great difficulties in ploughing their agricultural land due to lack of draft animals. Domestic dogs and cats are available in some households.

Others

Public sanitation

Sanitation system is very poor in the area. Women uses the traditional *kacha* latrines which is constructed near the homestead in a very un-planned way and this generates a bad smell.

Open sanitation by small children is also reported. *Pucca* latrines are very few but in *Bajitpur* village there is a good number of *pucca* latrines.

Homestead vegetables

The homestead kitchen gardening is widespread but every household does not have a kitchen garden. Only the well to do people do kitchen gardening in the area. Kitchen gardening includes different varieties of vegetables which include cauliflower, cabbage, bringal, pumkin, chili, radish, gourd, potato, bitter ground etc. The villagers after meeting their own vegetables consumption, sell the rest.

Afforestation

Almost every household has a well developed homestead forest comprising different varieties of shrubs, plants and trees. No afforestation programme is carried out by the Govt. or Non-Govt. agencies. People in the area carry out small scale afforestation programme at their own initiation during the rainy seasons. Besides many fruit yielding plants provide nutritious fruits to the people.

Deforestation

Deforestation goes on in the area round the year. There is a brick-field in *Jalfai* village. The brick-field owners purchase trees from the villagers and use it as fire-wood. A lot of trees are also sold to the furniture shop owners.

Human activities

Agriculture

Agriculture is reported to be a main occupation in the area but people are also engaged in other occupation as well. Only a limited number of people own agricultural land. The main agricultural products in the area includes Irri/Boro, Sugarcane, Wheat and Jute. People reported that jute cultivation in the area is declining as the farmers do not get a good price compared to their investment.

Human habitation

New human habitation growth is reported in the area. It is reported that over the last two years about 5/6 new houses has been build up in *Jalfai* village and *Patalpara* (*Kazipur*) covering an average area of 20-25 decimal per house. The agricultural land as well as homestead forest are reported to be gradually decreasing in the area. People reported that these new human habitation growth is not due to migration of people from other area but due to increased population in the area.

Use of insecticide and pesticides

The use of insecticides in the Irri/Boro field is to avoid insect attack. *Bashudin, diazin, dimacron* etc. are used, but the majority farmers use *bashudin*, thinking it to be more effective, though costly.

Pollution

Open sanitation, un-plan-wise construction of *kacha* latrines, are environmental hazards. Stagnant water also causes water pollution in the area. Fumes from the brick-field pollutes the air and causes retarded growth of crops of the surrounding area.

Own observation

The whole visited area seems to be high to medium level land. The river *Lohajang* passes through the visited area and was found almost dried up. The canals like *Jalfai, Bajitpur* connecting the flood plains of the villages with the adjacent river *Lohajang* were found to be silted up. The agricultural land in the village *Jalfai* seems to be less in comparison to its population and the soil is mostly sandy. The road side ditches and *Pagars* were found dried up and the ducks in the area were found on the road side due to lack of surface water in the village *Jalfai, Patalpara (Kazipur) and Konabari*.

The whole are seems to faces an acute water scarcity problem, except *Bajitpur* village. In the village *Bajitpur* there is a good perineal water body which is locally known as *Bajitpur* baor. The surrounding villagers get maximum benefit from the *beel* like fish, water hyacinth used as fodder for their cattle, bath themselves and their cattle and other household usage. Many small children were found fishing in the *Bajitpur beel* by means of push nets (*Jali*). The outskirts of the *beel* were found under Boro/Irri cultivation and the crops are irrigating by the *beel* water.

The whole area has good homestead garden consisting of different kinds of trees, plants which provides good habitat for wild life. Birds were found very reduced in number. Crow is a common bird but was absent in the area may be due to lack of food. Cattle were also few in number. Many shrubs are available in the road side. Animal dead bodies were found to be throw here and there in the area, causing environmental hazards.

Conclusion

People in the area demanded to increase water bodies like re-excavating the existing dried canals, *pagars* and road side ditches to facilitate household use other than drinking. They told that they face difficulty to culture ducks during the post monsoon period due to lack of surface water. They also urged to increase the existing *beel* area by re-excavating the outskirts of the *beel* which will enable to accommodate more water and hence the public will be more benefitted.

People in the *Patalpara* village requested help to dig new ponds *pagars* and ditches. They requested to solve their sanitation (*Patalpara*) as well as fuel scarcity problems. The poor

people in the area are very much concerned about fuel problem as they are unable to afford fuel.

People requested to supply them quality saplings and seeds of different kinds of economically important plant. Lack of draft animals is a serious concern in the area and they urged to help them to solve this problem as far as possible. They are also concerned about the rat menace in the area as rats cause a lot of damage to agricultural and household items. They also demanded to improve their communication system.

LO.6 ENVIRONMENT - FEMALE

Homestead forest

Homestead forest is reported to cover an average area of (.1-.3) acres in each homestead. The homestead forest comprises common varieties of trees like herbs, shrubs, mango, jackfruit, lichi, coconut, banana, *shimul,* bamboo bush, *jambura,* berry, hard fruit trees, *karai, barai,* bettle nut, *goava* etc. Kitchen gardens are also found in the area having common varieties of seasonal vegetables. In between the different varieties of trees and bushes there exist many types of animals like rats, *mongoose,* shake, *varanas,* lizard etc. Many types of birds live in the branches of trees.

Fuel

The main sources of fuel are cow-dung, remains of sugarcane, paddy, wheat, mustard, pulses, bushes, dried leaves of trees wood etc. People from the rich and middle class families store wood, bushes, cowdung, jute sticks etc. for the rainy season. On the other hand, the people of the poor section (who have no livestock and paddy field) report serious scarcity of fuel, especially in the rainy season.

Drinking water

There are 70-85 tube wells in the visited area which are the main source of drinking water. But in areas like *Jalfai (Charpara), Kazipur (Patalpara)* some people are using well water for drinking. There are some (15-18) tube wells supplied by Garmeen Bank, CARE and also government levels. For household work women are using mainly water from well, tube wells and ponds. In every village poor people (who have no tube well) have to walk some distance for drinking water.

Sanitation

There are 25-30 *pucca* latrines in the visited area, except in *Krishnapur (Purbapara)* village. Most of the people are using *kacha* (traditional) latrines. Grameen Bank and CARE also have supplied some inputs for construction of few *pucca* latrines in some villages.

Diseases

Diseases like diarrhoea, dyscentry, malaria, measles, pox, skin diseases have occurred in the area. Most of the diseases occurred in the month of *Ashwin, Kartik, Falgoon, Chaitra*. People think that the source of diseases are *kacha* (traditional) latrine, dirty water used for bathing and household work in the dry season, mosquito, fly etc.

Rats

Rats are abundant both inside and outside of the homesteads, damaging wheat, rice, fruits, vegetables and also household belongings. Mosquitos also create problems for human being and livestock.

Other animals

There are other wild animals like fox, *bagdasha, mongoose, magh*, cats, dogs in the area. There are different types of birds. People think that after 1988 flood, the number of wild animals has decreased.

LO.7 SOCIO-ECONOMIC SITUATION - MALE

Major non-farm activities

The major non-farm activities of the households found in the surveyed area are: service, business, transport works, agricultural works, weaving, carpentry etc. The agricultural labour constitutes about 45% (including marginal farmers) of the total households while transport workers cover about 25%, service holders covers about 13%, businessmen (including petty business-men) cover about 12% and the rest are weavers, carpenters and miscellaneous working groups.

Social and institutional aspects

Employment patterns

Both family labour and hired labour is used in the farm households of the surveyed area. Hired labour is mainly used in *Sahapara and Bajitpur* (under *Bajitpur Mauza*). Because the majority of the farm households in the area are also involved in other profession, like business and service, they depend on hired labours. In other part of the area, use of family labour is a common phenomenon.

Out-migration of labour is reported from the northern part of the flood plain, while it is not reported in the southern part. The reason is that the southern part is very close to Tangail town and the daily labourers somehow manage to find their work in the town during the lean season for agriculture in the area.

Practically, the poorer households and the day labourers of *Sahapara, Bajitpur and Nagar Jalfai* tend to find their work in the adjacent urban areas almost throughout the year. Those who have some agricultural land return to their own area during peak season for agriculture. The daily labourers from this area, particularly from *Nagar Jalfai* mainly engage themselves in transportation work in the Tangail town. The highest number of rickshaw/van pullers are found in this village. During the lean season for agriculture, some day labourers (from marginal farmer families) from both northern & southern part, engage in seasonal business.

Wage rates

The wage rate (for agricultural labourers) in the surveyed villages differs from place to place. However, the following table shows the wage rates as found in the area during the survey:

Sl.#	Village	Wage - Lean Season/Peak Season				Remarks
		Tk.	Meal	Tk.	Meal	
1.	*Krishnapur (Purbapara)*	20	1	25	1	
2.	*Konabari*	20	1	25-30	1	Mainly hired labour is used in this village and labourers are collected from Tangail town, so the peak season labour wage is gone slightly high.
3.	*Bajitpur (Sahapara, Bajitpur, Musulmanpara, Namasudropara)*	25-30	1	35-40	2	
4.	*Patalpara (Uttarpara)*	20 or 25 or 10	1 - 3	30-35 or 18-20	1 - 3	Three meal is usually provided to the in migrated labourers.
5.	*Nagar Jalfai*	30 or 20	1 3	35 or 25	1 3	- do -

The wage rate for different non-agricultural professional workers like carpenters and weavers in the area are Tk.60-65 with one meal and Tk.35-40 without meal respectively. The rent of a rickshaw is taka 28-30 per day or taka 14-15 for a half day and a rickshaw puller can earn Tk.40-45 (excluding the rent) for a half day work.

Organized groups

Organized groups of the Grameen Bank and BRDB are found in only three villages, with Grameen Bank groups of 03/04 (female) in two villages and two KSS of BRDB in two villages. Both BRDB & Grameen Bank groups are found in *Patal (Uttarpara)* village only. SDS has beneficiary groups of young children in 3 villages.

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. During the dry season the roads in all the villages remain useable by rickshaw and van. The road in *Konabari* has a breach and some part of an internal road near *Sahapura* is low. This causes problems to the people in using these roads in the rainy season. The *Charpara* people of *Nagar Jalfai* village also face problems in movements (from one house to another and to reach the main road of the village) during the rainy season as they have no internal village road.

Rickshaw and van are the main means of transport in the surveyed area. During the rainy season boat is also used by the people of *Konabari* to come to *Tangail* town and by the people of *Nagar Jalfai* to go to *Karatia* hat. The (riverine) route to *Karatia* hat via *Nagar Jalfai* is an important route of navigation for the traders of different localities.

Markets

The main and important markets in the northern part of the surveyed area are: *Jugni, Baghil, Bailla* and *Dharerbari*. While the markets in the southern part are: *Karatia, Putiajani, Pathrail, Bajitpur* and *Tangail* (for information about all these markets see other reports).

General needs

In respect of education, health and marketing the people in the area do not have much complaints, but there are some problems in respect of road communication. The people of *Konabari* requested a culvert/bridge on the road towards the (*Dharerbari*) school and the market and a bridge on the *Lohajang* near *Bat Tala* point, as these structures will provide them, and a big number of people in the surrounding area, a far better communication system all the year round. At least a culvert on the road towards *Dharerbari* will be of a great help to them in movements during the monsoon.

A culvert on the *khal* in side the *Bajitpur/Sahapur* village and raising of internal roads also was requested by the people of the area. Development of internal roads and construction of a internal road inside *Charpara* part of *Nagar Jalfai* village also demanded by the people in the village. They now use *Bhela* to go from one house to another or to reach the main road of the village, for about two months of the monsoon season.

The extension service for agriculture, livestock and fishery are very poor in the area which according to the people needs to be strengthened, particularly the livestock and agriculture extension.

Drinking water facilities need to be extended by installing more HTWs in *Krishnapur* village.

Own observation

Existing water related situation

The water related situation of the surveyed area slightly differs between the northern part and the southern part. There is a drainage congestion problem and incidence of crop damage (when *Lohajang* overflows) by flood water occurs in the northern part while southern part have no congestion problem and crops in the field, are also not affected/damaged by the flood.

Flooding has a rather beneficial affect in the southern part. But both in the northern part (as in *Konabari*) and southern part (as in *Bajitpur/Sahapara* and part of *Nagar Jalfai*) some low-lying areas (including internal roads) go under knee deep water during monsoon and cause communication problems to the people. Courtyards of some houses (in both parts) also inundates during high flood like last year. However, water retention does not linger more than 10/15 days on the roads and around the courtyards of houses except a few house in *Nagar Jalfai* where the situation continues for about one to one and half months.

But the whole area suffers from water scarcity during the dry season, when the river and other water bodies in the area completely dry up. The area has a shortage of water from *Chaitra* to *Jaistha*, when people, particularly the women, suffer most for lack of water. Bathing of cattle during this time becomes almost impossible,

Socio-economic situation

The socio-economic condition of the people in the surveyed area differs greatly from village to village. People of *Krishnapur (Purbapara)* have been found poorest in every respect among all the villages in the area. Two third of the households in the area are daily labourers and about 60% households are reported landless. They are also backward in education.

Bajitpur/Sahapara is the richest and most educated village in the whole surveyed area. Mostly businessmen who live here also have agricultural land. The businessmen are mainly Hindus, and the weavers and carpenters in the village are also Hindu. This is an area of mixed Hindu and Muslims culture. This is also a semi-urban area, close to the Tangail town. The literacy rate here as reported is about 70-75%.

The socio-economic condition of *Konabari* in the North and *Patal Uttarpara* in the South are almost similar. Only in respect of education the *Patal* people are found more advanced than the people of *Konabari*. The number of landless families in both the villages are almost equal. But the landless household heads in *Patal* village are all (except one) engaged in service or business, but this is not the case in *Konabari*.

In *Nagar Jalfai* village (the 2nd poorest village in the area) the daily labourers households occupy about two third of the total households of which about 50% are landless, but surprisingly no out-migration occurs from this village during the lean season for agriculture in the area. The daily labourers in the area rather avoid agricultural work and they prefer to drive rickshaw/van in the town. The village is close to Tangail town and having good road connection, the daily labourers find work such as rickshaw/van pulling more easy and a

regular employment source. So, in-migration of agricultural labourer occurs here and on a regular basis. In respect of education the people in the village also occupies the second position from the bottom.

Peoples opinion (about solving water related problem)

According to the people in the northern part of the surveyed area (*Krishnapur & Konabari* village people), the drainage congestion problem and the affect of flood may be overcome if the *khals* in the area are re-excavated and or the bank of the river is raised or embanked. The people from *Konabari* informed that the construction of a sluice gate near the intake of the *Lohajang* (about which they heard from some other source) will help remove their problem causes by flood. And the people of southern part, demanded the re-excavation of the *Lohajang* for year round availability of water into the *Lohajang* to remove their water scarcity problem during the dry season and also to ensure navigation most of the time of the year.

Conclusion

The problem in the northern area of the *Lohajang* flood plain is flood damage to the crops and water logging hampers cultivation of the next crop. Floods also creates road communication problems during the rainy season. Flooding also occurs in the southern part without causing much damage to the crops in the area, but here too creates road communication problems.

The situation however, becomes reverse during the dry season. When the whole area, particularly some parts of southern part, suffers due to the scarcity of water. In both the cases re-excavation of existing *khals* in the area and also the re-excavation of the *Lohajang* can bring the favourable situation for agriculture by minimizing the crop damage and freeing more land for cultivation in one hand and also remove water scarcity by ensuring availability of water in the river almost throughout the year on the other hand. Steps should also be taken to improvement the internal road communication system and inundation of homesteads is to be checked to provide people better living conditions.

LO.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

Under the *Lohajang* Flood Plain, the visited area are *Krishnapur (Purbapara)*, *Konabari*, *Bajitpur (Shahapara)*, *Kazipur (Patalpara)* and *Jalfai (Charpara)*. There is a practice among the poor women of *Jalfai (Charpara)* of going outside of their village for work. On the other hand, the poor women of *Krishnapur* village do not go outside for work due to social pressure and *purda*, though they need work very much. In all the visited area, some women are engaged in different types of work besides their household works. The type of employment with wage rates are shown below:

Sl. No.	Type of Occupation	Name of Labour	With Meal		Without Meal	Remarks
			Tk.	Meal	Tk.	
1.	Biri Thonga	50-60	-	-	6-8	-
2.	Cotton Wrapper	10-15	-	-	15-30	Seasonal
3.	Jute Wires	8-10	-	-	15-30	On Demand
4.	Seedling	15-20	5-10	1	15-20	
5.	Post Harvesting work	15-20	5-10	2	12-16	
6.	RMP	3-5	-	-	550-600	
7.	Weaving	15-20	-	-	10-12	
8.	Cutting Mud	60-70	-	-	12-15	Seasonal
9.	Boil Mill	10-15	-	-	400-450	Seasonal
10.	Maid	5-10	5-6	2	-	
11.	FWA	2-3	-	-	800-950	
12.	Service	3-5	-	-	1500-3000	

Education and literacy

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

Sl.No.	Village	Literacy Rate	Ratio of Boys	Ratio of Girls
1.	*Krishnapur(Purba para)*	5-10%	50%	50%
2.	*Konabari*	30-35%	50%	50%
3.	*Bajitpur(Sahapara*	35-40%	55%	45%
4.	*Kazipur(Patalpara*	25-30%	65%	35%
5.	*Jalfai(Charpara)*	10-15%	65%	35%

There are some educational institutions in the village or in the bordering villages. Communication is also good, through there are some problems in the rainy season in villages like *Konabari*. There is a breach on the way to *Dairabari*. The women of *Bajitpur (Sahapara)* told that in the rainy season normal flood comes and submerged the road. So children cannot go to school.

Organized groups

Sl. No.	Village	Organization and Samity	No. of Groups with Member				Remarks
			No.of group	Male	No.of group	Female	
1.	Krishnapur (Purbapara)	1. Grameen Bank	-	-	1	30	
2.	Konabari	1. Grameen Bank 2. SDS 3. BURO 4. Konabari Young Club	2 1 1 1	60 30 15 50	2 1 3 -	60 20 45 -	
3.	Bajitpur (Sahapara)	1. BURO 2. SDS 3. Bajitpur Binapani Club	- 1 1	- 15 28	1 1 -	20 12 -	
4.	Kazipur (Patalpara)	1. Grameen Bank 2. BURO 3. SDS 4. Kishore Samabaya Samity	1 1 1 1	25 20 15 24	2 1 1 -	40 25 15 1	
5.	Jalfai (Charpara)	1. Grameen Bank 2. SDS 3. Ansar VDP Samity 4. Jubak Club 5. CARE 6. Mitali Samabaya Samity	1 1 - 1 - 1	30 35 - 55 - 95	1 1 1 - 2 -	30 30 60 - 50 -	

In all the visited villages of *Lohajang* flood plain, there are different organized groups such as local NGOs, Krishi Bank, BURO, SDS, BRDB etc. Activities of these organized groups are mainly aimed at developing the socio-economic condition of the people. There are some local *samity*/club in the surveyed area and they are mainly doing social welfare works.

Public facilities

Public facilities like Union Council office, post office, F.P. clinic, health clinic etc. are available within one and three mile distance from the village. But in the rainy season women face many problems if they want to make use of the services of family planning and for EPI programmes due to breaches on the road. In most of the villages, women complained that family planning assistants do not come to their villages frequently and they have to go at a long distance for receiving medicines. They said that if a F.P. clinic was made in or near their village it would be easy to go to that centre and to get the services in time.

General needs

In most of the area women wanted to do income generating work like sewing, cottage industry, poultry rearing etc. They need proper training for doing such type of works. Tube well are the most common need in the visited area. There is a breach on the way from *Konabari to Darerbari*. In rainy season women and school going children, girls in particular face problems.

Existing water related situation

Women of *Krishnapur, Jalfai (Charpara), Kazi (Patalpara)* demanded re-excavation of *Lohajang* river. They think that due to siltation water damages the crops. Women of *Jalfai (Charpara)* also demanded to dig the connecting *khal* of the *Lohajang* river along the side of

their village. Women of these areas think that due to siltation water of the river dries up. From *Kartik to Jaishtha* month women of these areas have to go at a long distance for bathing, cleaning etc. Serious skin diseases also have seen in *Bajitpur (Sahapara*) due to use of stagnant water.

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SUB-COMPARTMENT 9

9.1 INTRODUCTION

Sub-compartment 9 is at the north-western periphery of the *Tangail* CPP. It is a semi-circular area surrounded by embankment on the West along the *Dhaleswari* river and on the North and East along the *Lohajang* river. The earthen road from *Dalan* to *Baghil* forms the southern boundary. The total area is about 700 ha. The northern and western parts are high. Land slope is towards the South and South-East. This sub-compartment consists of more medium high land and about 30% of the farm land is low, affected by drainage congestion.

9.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

The early rainfall, starting in April-May, fills up the low farm land, initiating the early flood in the area. Due to the silted up channels, the excess run off cannot drain out to the river leaving the area water congested. The areas in the North and West in *Jugini, Ramdevpur* and *Gopalpur* are relatively high, sloping towards the East and South of *Beelbagil* and *Krishnapur* consisting of the lowest farm land. The channel from *Krishnapur* to *Singarkona beel* through *Dippur* is blocked causing drainage congestion.

In July river water from the *Lohajang* river enters the area through the *Jugini khal* in the North. Later flood water enters through the *Kalibari khal* in *Dippur* and spreads by overland flow. In 1991 the breach on the *Lohajang* river bank near the *Kalibari khal* during the peak monsoon, severely aggravated the flood due to onrush of river water with sand. The sudden flood damaged crop and sand deposit damaged farm land.

Due to the blocked drainage channel in the South, drainage stops early in October and parts of farm land even in the medium high areas in the North and West, remain congested. Most severely affected areas are the low farm land in *Beelbagil* and *Krishnapur*, considerable areas were under water even in March 1991. In some places, the water from the low land is pumped out to higher areas to make the land available for Irri cultivation. Due to late sowing, these crops are susceptible to be damaged by the early flood. About 20 acres of land under water in *Krishnapur* area will not be cultivated at all this dry season (1991/92).

To solve the drainage congestion of this area the *Jugini chak* and *Krishnapur chak* are to be connected to the *Kalibari khal*, which is to be re-excavated up to *Pasbeel* in SC-11 through *Dainna Choudhury*. The *Ghoshbari khal* in *Danna Choudhury*, South of Ex-Chairman *Abdulla Masud's* house is another channel for draining of this area. This *khal* has to be re-excavated up to *Singarkona beel* in SC-10 with provision of a culvert at the road crossing. The *Kalibari khal* may be opened to the *Lohajang* river with a regulator at the outfall, but sand deposit may block it quickly every year.

The *Jugini khal* from the *Lohajang* river up to *Beelbagil* has to be re-excavated for proper flushing and early drainage. No regulator is wanted on this *khal* as it would hinder

navigation. The link and *Maitalbari khal* from *Beelbagil* to *Jugini Daha* is to be re-excavated for efficient flow.

The *Lohajang* river was re-excavated in 1978-79. It has since been silted and need re-excavation again.

There is some boat communication in the monsoon since there is no proper entry or exit route from the *Lohajang* river. Small boats enter through the *Jugini khal* in the peak monsoon, but larger boats cannot enter as the *khal* approach is too narrow. The road net work is well developed. Problems caused by water hyacinth are not so serious in this area. There is a demand for an advanced embankment in *Shibpur* area to include appr. 15 homesteads and 8 ha. of land in the embanked area.

Breach

A breach of the embankment occurred at *Shibpur* in 1987, 1988 and 1989, causing considerable damage to crop and property. In 1990 and 1991 local people arranged for extra protection against the breach. Due to the river bend, the location is vulnerable and needs to be strengthened. There is no threat of erosion in the area as the river is appr. 100 m away from the embankment.

Ground water

Enough numbers of DTWs and STWs are operating in the area and ground water is adequately exploited. HTWs are used for drinking water and their numbers are enough except in *Gopalpur*, where a few more HTWs are needed. Iron content of ground water is comparatively less in this area. Discharge from the tube wells is normal except in drought years.

Conclusion

The low farm land in this sub-compartment is comparatively less. However, the low pockets in *Beelbagil, Jugini* and *Krishnapur* comprising about 30% of the farm land, are severely congested. Re-excavation of the channel from *Jugini Daha* to *Kalibari khal* to *Pasbeel* and re-excavation of the *Jugini khal* will solve the drainage congestion of the area. Underground water is adequately exploited for irrigation. HTWs are used for drinking water. In *Gopalpur* a few more HTWs are desired. The breach at *Sibpur* need investigation to find out a long term solution.

9.3 AGRICULTURE

Cropping pattern

The approximate gross area of the sub-compartment SC-9 is 701 ha. About 75% of the area occupying 526 ha is net cultivated land. The major crops grown in the area are T. Aman on

medium high to high lands and Irri/Boro (HYV) on medium high and medium low lands. TDW Aman is grown generally on medium low to low lands where flooding is to a maximum level of 3 m. Among the Rabi crops wheat is extensively grown. Mustard and pulse are grown in the area to a lesser extent due to late receding of water from the area. The cropping pattern practised by the farmers are as follows:

Crop Patterns

Land Type	*Kharif*-1	*Kharif*-2	Rabi	% net cultivated area (NCA)
F0-F1	Aus	T.Aman	Wheat/Pulse/Potato	30%
F1	Jute	T. Aman	Mustard/Wheat/Pulse	10%
F2	Jute	Aus+ B. Aman		10%
F1	-	T.Aman	Mustard/Irri/Braus	5%
F2	-	-	Irri/Boro (HYV)	20%
F2-F3+	-	TDW Aman	Boro (HYV)/Braus	25%

Average crop yield and price

Crops	Av. yield/ha.	Price/MT
B. Aus	1.2	5360/-
T. Aman (L)	2.4	6030/-
B. Aman	1.6	6030/-
TDW Aman	1.7	6030/-
Boro (HYV)	4.8	6030/-
Braus (late Boro)	4.2	6030/-
Jute	1.8	5360/-
Wheat	2.1	5360/-
Potato	11.0	5360/-
Mustard	0.7	12060/-(lentil)
Pulse	1.1	8040/-(khesari)

Use of fertilizers

The use of fertilizers in the area is traditional. Farmers use fertilizers in their crops with their own estimation according to their financial ability. Most of the farmers reported that they use fertilizers in comparatively higher doses in Irri/Boro (HYV), wheat and mustard. Due to lack of fund and credit facility farmers cannot apply the optimum doses of fertilizers in their crops. The average doses of fertilizers applied in their crops are as follows:

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)
Aus	140-160	50-60	-
T. Aman	150-170	60-30	50-60
Aus+Aman/B.Aman	140-160	-	-
TDW Aman	140-160	-	-
Boro (HYV)/Braus	280-300	200-220	70-80
Wheat	220-240	150-180	30-50
Potato	120-140	90-110	30-40
Mustard	120-150	90-110	40-50
Pulse	120-140	70-90	30-40

Farmers in the area said that they do not get any advise from any agricultural extension workers about the doses and method of application fertilizers and insecticides. They said that they would be able to obtain more yield of their crops if the agricultural extension worker would advise them for improved agriculture. They requested to inform the agriculture department to improve their activities in their area. At present farmers cultivated their land in a rather traditional way.

Irrigated crops

Farmers in the sub-compartment only irrigate the Boro (HYV) or Braus (Late Boro). They irrigate the Boro crops with deep and shallow tube wells available in the area. Part of the area near the *Jugini daha* and *Baghil beel* is irrigated by indigenous methods from these *beels*. In the surveyed and adjacent area the following STWs were reported by the farmers. No DTW is available in the area.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/Electricity
Khorda Jugini	STW 14 Nos.(1/2 cusec)	75 ha.	11 - 3
Ramdebpur	STW 4 Nos.(1/2 cusec)	25 ha.	4 - 0
Gopalpur	STW 10 Nos.(1/2 cusec)	50 ha.	8 - 2
Dalan Sibpur	STW 15 Nos. (1/2 cusec)	80 ha.	15 - 0
Krishnapur	STW 9 Nos (1/2 cusec)	45 ha.	4 - 4
	Total :	275 ha.	44 - 8

All the STWs in the area are privately owned by rich farmers or group of farmers. Farmers pay 1/4 of their crops as irrigation cost.

Share cropping

Share cropping is in practice in the area among the 10-15% of the farmers. The terms of share cropping is half of the production is taken by share cropper and half by the owner. Occasionally owners supply seeds to the share-croppers if the share-cropper arranges to carry the harvested crops to the owners house. If the products are not supplied to his house no inputs are given to share cropper.

Crop damage

TDW Aman and occasionally T. Aman, is affected by flood, damaging major part of TDW Aman and partially T. Aman by both early and late flood in the area. Flood occurs in the area by both rain and river water. Farmers reported damage of Aus at the flowering stage in the village *Khorda Jugini* on F2 type land. In *Krishnapur* the TDW Aman damage is extensive in the monsoon. In *Dalan Sibpur* Irri/Boro (HYV) which are lately transplanted in the low land due to late receding of congested water is affected by early flood. The *Jugini Khorda khal* in *Jugini Khorda, Kalibari khal* in *Ramdebpur, Dainna Ghoshpara khal* in *Dalan Sibpur* and *Jugini daha khal* in *Krishnapur* along with others in other areas are to be

re-excavated. Then the flood situation will greatly improve and the affected crops are expected to be saved.

Livestock

The major part of the livestock in the area are of local varieties. Very few hybrid cattle are available in the surveyed area. Farmers reported high cost for maintaining hybrid cattle. The area is reported to be short in livestock feed, specially during the period from February to April when they purchase straw @ Tk.80-100/- per maund. There is no livestock centre near the sub-compartment. Farmers go to Tangail for the treatment of sick cattle.

The yield of each milch cow is reported at 1-2 litre per day. Farmers use milch cow to plough their land due to shortage of cattle in the area. Medicare is poor in the sub-compartment. Farmers reported that the livestock assistant rarely visit their area. They mostly arrange treatment for their livestock by a private livestock surgeon or experienced farmers in the area. Cow pox, rinderpest, toe and mouth disease are common among the livestock. No epidemic in the recent years is reported in the sub-compartment. Artificial insemination is not popular in the area due to its ineffectiveness in various and, according to some, death of the cow while giving birth due to oversize calfs.

Poultry

Like in other areas the poultry in the sub-compartment mostly are of local varieties which live on scavenging in the households and fallow land. Chickens are prominent among the poultry. Ducks are available in the area in small numbers. Very few farm chickens are available in a limited number of household. Farmers expressed their inability to maintain the farm chickens with proper care and supplying costly foods to them. Ranikhet, fowlpox, tape worm is the common disease among the poultry. Occasionally mass vaccination is given by livestock department in the area.

Own observation

The F0 and F1 type land in the village *Khorda Jugini* is about 55-60% in *Ramdebpur* is 30% in *Dalan Shibpur* 35% and in *Krishnapur* only 10-12% of the cultivated area. The remaining area in the above villages belongs mainly to the F2 type with some F3 and F3+ land.

The major land type of the whole sub-compartment is of the F2 and F3 types (55-60%) while rest are of the F0 and F1 type i.e. high to medium high lands. Some B. Aus and T. Aman is grown on this land with Rabi crops in the winter along Boro (HYV)/Braus. B. Aman/TDW Aman is mostly grown on F2 and some F3 lands along with Irri/Boro (HYV) in the winter. Single Boro (HYV)/Braus is grown on F3 and F3+ land type. Farmers pump out water from these fields in late winter to transplant Irri/Boro(HYV).

The topography is gently undulating to gently slopy towards basin and nearly level land. The land slopes generally towards the South. Soils at the river bank are FSL and basin edge to basin is Sicl to Sic.

Livestock in the area mostly belong to local varieties with moderate to poor health. No extra grazing facility is available for them. Poultry mostly live on scavenging around the homesteads and fallow land. In very few homesteads some farm chickens are available.

Conclusion

In the sub-compartment high to medium high land occupy a considerable area where farmers grow Aus, Jute and T. Aman. Among the Rabi crops, wheat is the prominent crops on this land. Jute and deep water Aman is grown on some medium low land. The dominant crop in the sub-compartment is Irri or Boro (HYV) which is grown on medium high to medium low land preceding a crop like mustard or T. Aman in some land.

The medium low to low land in the sub-compartment is most affected by water logging, causing damage to B/TDW Aman seedlings in monsoon. Some low lying area is water logged for longer period where it is impossible to grow a Rabi. Even the cultivation of Boro (HYV) is delayed considerably where farmers pump out water and transplant HYV Boro/Braus. Among the Rabi crops, wheat is extensively grown in the area.

Medicare for both livestock and poultry is scare in the area. Livestock feed deficiency in the lean period is acute during the month of February to April. No HYV fodder growing programme by livestock department is available in the area.

Farmers showed less interest to get farm poultry in the area apprehending high cost to maintain them. They expect more medicare facility for their livestock and poultry.

9.4 FISHERIES

Water bodies

The available water bodies under the SC-9 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. Jognidah beel	1	20 acres approx	perineal	rui,katla,kalibaus,karfu, mrigal,sharputi,shol,boal, gojar,taki,puthi,baim,kaklia chela,tengra,pabda,koi,magur sing,calisha,tarabaim,tepa, batashi,bacha,bajri,baillya, bheda,mola. Fresh water- muscle-snails, bivalve-unio,kakra(crab), shrimp, frog etc.	250-300mts approxi-mately	khash Multi-ownership as well as few por-tion is khash	both the beel are most res-ourceful waterbodies & is used by the villagers for multi-purpose.
2.	Pond Shibpur village	3	3 acre approx	Cultured & cultu-rable	Major carps, minor carps, Tilapia nilotica,puti,etc.	Poor	Individual	Pond fish culture is very poor in the area

Jognidah *beel*

The *beel* is situated in the village *Khord-Jogini* Union *Baghil*, *Tangail Sadar Upazila* and is a Govt. khash property. The *beel* is reported to cover a total area of approximately 20 acres and is very deep which is suitable for fish. Almost all kinds of fresh water fishes are available in the *beel.* The leasing-out of the *beel* by the Govt. reportedly started in 1982 and is leased-in by a local fishermen committee called *Matsyajibi Samiti*. The samity has taken lease of the *beel* this year for Tk.9000/- for one year and this practice has been continuing since beginning at the rate of 20% increase for every successive year. As per the new *Jalmahal* rule of the Govt. anybody, even non professional fishermen, are allowed to take lease of the *beel.* In practise but the competition of taking lease in of the *beel* goes on among the fishermen communities.

As per report about 250-300 Mts of fish are caught annually from the *beel* and the said samity earns a lot of money by selling fish. Fishing goes on round the year but the month of November and December is reported to be peak fishing period. The fishermen society releases carp spawn every year during the monsoon into the *beel* and as a result they reported to get a good yield. The professional fishermen catch fish from the *beel* by different techniques. They use *Drug nets, Berjal, Kharjal, Jhakijal* during the post monsoon period (dry season). But during monsoon they use *Dharmajal* for fishing. A lot of small water hyacinth is present in the *beel* which keeps the water cool and its roots are also served as food for fish and the leaves are fodder for cattle. The dried water hyacinth of the *beel* is used as fuel by the public and in rotten form it is used as organic compost by the farmers in their fields.

The *beel* is not only used for fishery but people of the entire locality depend on the *beel* for various usages. During the dry season, when there is an acute scarcity of water, the villagers use the *beel* for bathing and for bathing their cattle, for washing cloths, and also for other domestic purposes. It is even reported that some people drink the *beel's* water. Ducks are found grazing in the *beel.* Many birds are also found grazing in the *beel.* The outskirts of the *beel* are under agricultural cultivation and people reported that their existence would be threatened during the dry season without the said *beel.*

There is a controversial report about the right of fishing in the *beel.* Villagers, other than the members of the *Matsyajibi Samity*, reported that they are not allowed to fish in the *beel* by the samity members even in full monsoon period i.e. in the open water bodies. The samity members on the other hand, reported that in spite of taking lease in of the *beel* they cannot establish their leasing right over the *beel* for fishing freely as the other villagers interfere in their fishing.

Even in the dry season in the water depth of the *beel* in the middle is more than 10 feet. The water enters the *beel* from the surrounding *Lohajang* river through *Jogini* canal and many riverine fishes are reported to migrate into the *beel* during monsoon. The *beel* is a suitable habitat for fish spawning and many fresh water fishes are reported to spawn in the *beel.*

Keshtopur *beel*

The *beel* is situated in the village *Keshtopur*, Union *Baghil* Upazila Tangail Sadar. As per people report the *beel* was Govt. khash up to 1963 and it came under multi-ownership in 1963. The *beel* is reported to cover approximately 7-8 acres of land and the depth of the water in the middle region of the *beel* is more than 6 feet deep in the dry season. The outskirts of the *beel* are under agricultural cultivation and the farmer use the surface water from the *beel* for irrigation.

During the monsoon the water from the surrounding *Lohajang* river enters through the *Jogini khal* and spreads over to *beel Baghil*. Much fish enter the *beel* along with the flood water. Fish already present in the *beel* spawn with the new rainfall in the month of May/June. Some migratory fresh water fish from the river, including *Boal* and *Shol*, are also reported to spawn in the *beel*. In addition to that eggs and fingerlings of carps also enter into the *beel* along with the flood water.

The *beel* is reported to have all common kinds of fresh water fishes which includes *taki, puti, koil, magur, sing, small shrimp, gajar, pabda, tengra, foli, rui, katla, bela* etc. along with crabs and fresh water muscles. Fishing goes on in the *beel* round the year and November to January is the peak fishing period. People in and around the area depend on the *beel* for various purposes like fishing, irrigation facilities, bathing themselves and cattle during the dry season, and duck grazing. A lot of water hyacinth is present in the *beel* which is reported to be used as cattle fodder compost and also serves as food for fish. People reported that about 100 mts of fish of different varieties are annually caught from this *beel* and is a good source of income. Professional fishermen are reported to catch fish in this *beel* on contract basis.

Professional fishermen

There are about 42 households of professional fishermen living in *Kathoa Jogini* village, under *Baghil* Union and *Tangail Sadar Upazila*. There is a *Matsyajibi Samity* in the village which has been functioning for the last 5/6 years. The samity is composed of approximately 350 members from the surrounding villages. The local professional fishermen go fishing to the *Dhaleswari* as well as *Jamuna* river in addition to the *beels, pagars* flood plain and ponds. Their socio-economic condition is reported to be poor and they cannot send their children to school for education. Women repair fishing nets and prepare new nets in addition to their household work. These professional fishermen are low cast Hindus and the live in this village since long. Fishing is their only profession and they maintain their families by the incomes from fishing. Fishermen are reported to go to *Jamuna* during monsoon for catching carp spawn and sell it to the pond owners. They have a special kind of net for catching carp spawns from the river.

The catch of the fishermen are sold either directly to the local markets and sometimes via middle man. The middlemen are known as *Nikari* and they are Muslims. Some of the professional fishermen reported that they are facing problems due to inadequate fishing facilities. They also face competition from Muslims. A lot of professional fishermen have left for India already.

Subsistence fishermen

About 5 households of subsistence fishermen live in *Baghil* and *Keshtopur* village. They are poor Muslim and they go fishing about 6 months of the year and are engaged in other occupation during the rest of the year. These subsistence fishermen catch fish in *beel Baghil, Pagars* and in the flood plain. They cannot go for capture fishing due to lack of fishing inputs. The subsistence fishermen catch fish mostly by cast net and push nets. During the dry season the subsistence fishermen catch fish by completely pumping out of the ponds. In the flood plain they catch fish using *Dharmajal.*

During flood plain fishery harpoons like *Konch, Tenta, Aro* etc. used by the subsistence fishermen. It is reported that due to poverty many poor people in the area are gradually becoming subsistence fishermen. The subsistence fishermen sell their catch to the market and they also eat some of their catch.

Fishing periods

Fishing goes on in the area round the whole year but the months of October to February are reported to be the peak period.

Fishing methods

Various fishing methods are in practice in the area. During flood plain fishery about 80% fishing is done by *Dharmajal, Berjal* and about 20% fishing is done by angling by harpoons like *Kouch, Aro, Juti* and *Tenta*. Flood plain fishery is done by professional, subsistence and occasional fishermen. Fishing in the early monsoon (May to June) is done by traps such as *Dhair, Khalkhale, Hosa* and *Darki*. At that time professional and subsistence fishermen take part in fishing.

Pagars, beel and pond fishing is done by *Berjal, Kharjal, Pushnet* and *Castnet* during the dry season. Such fishing is done mostly by professional fishermen.

Flood plain fishery

Since the area is medium to medium low land, flood plain fishery, is well practised. People reported that in the early monsoon (May end) flood water starts to enter through the *Jugini* canal from the surrounding *Lohajang* river and gradually spreads over the flood plain of the sub-compartment in the month of June. Most of the area remains under water for about 5/6 months.

By this time the flood plain is naturally stocked with different kinds of fish both from river, *pagars* and *beel* and the area becomes full of different size fish. During the post monsoon period (October - November) the flood plain water starts receding. The available fishes go downstream of the flood plain and stocked into the *pagars* and deep water bodies. Some fishes are reported to go back to the river along with the water and this time many people also are engaged in fishing with castnets. This time fish take shelter in road side ditches.

Fisheries practices

Both the culture and capture fishery is reported to exist in the area. Pond fish culture is very poor in the area.

Institutional facility

The institutional facilities for fisheries development is absent in the area. The upazila fishery officer, in spite of being informed by the villagers to visit the area for advising the villages, has not complied with the request.

Fish predation and fish diseases

Both fish predation and fish diseases are reported in the area. The fish predators are reported to be *kingfishers, snakes, boal, shol, taki, gazar, foli, chital, kite, frogs* and *tortoise* and fish production is declined in the area due to this predation as well as over-fishing.

Fish disease is a serious concern in the area. Almost all the fish species are under attack with this *Khoto* disease (*Epizootic ulcerative syndrome* disease) and a lot of fish are dying, thus causing a decline in fish production. This kind of disease is most common among snake headed fish such as *punti, calisha, sing* etc. About 80-90% of *taki* fish are diseased. As a result of fish dying, the water becomes polluted. Shrimps and carp are free from this disease.

Fish migration

Fish migration is reported to be relevant in the area. In the early monsoon (May/June) different kinds of fresh water fish migrate from the surrounding *Lohajang* river to the flood plain. Small carp fishes like *rui, katla, shol, boal, puti* etc. migrate from the river through the *Jugini* canal and spread over the existing *beel* and flood plain.

Own observation

Most of the area under the sub-compartment is medium, medium low and a minor part is of the low land type. Ponds are very few in number in comparison to its area and population. Pond fish culture is very poor in the area. A vast flood plain is available in the sub-compartment and two perineal *beels* called *Juginidaha* and *Beel Baghil* are present. These two perineal water bodies are very resourceful in the area and produce a lot of fish. Both professional and subsistence fishermen are found catching fish in this *beel.* The *beel* surface water is covered by water hyacinth and *topa shela*. Both water hyacinth and topa shela are good food for the fish. The water hyacinth is also used as cattle fodder and keeps the *beel* water cool which is good for bathing during the dry season.

Fish disease is found in the area and was confirmed by personal observation. Many birds like *herons, panikauri* and domestic ducks were found grazing freely in the water bodies. Many snails and bivalves were also seen in the *beel.* Many unidentified aquatic vegetation are found in the water bodies. During dry season the *beel* is easily approachable.

The *khal (Jugini* canal) which connects the *beel* with the surrounding river *Lohajang* was found dried and the river *Lohajang* was also found dry. During the dry season the two *beels* Juginidaha and *beel Baghil* seem to be the only water source in the whole area.

Conclusion

People are interested towards fishery and they want improved fish production facility in the area. As such they urged to help them by excavating new ponds in the area to boost up fish production by pond culture. They also urged to give them the knowledge of pond fish culture as the people are not familiar with this practice. They also urged to re-excavate the existing derelict ponds, road side ditches etc. to increase water bodies in the area in order to facilitate fish accommodation and fish multiplication. They also told that road side water sources will facilitate surface water irrigation during summer in addition to fish culture and duck culture.

There is a great public demand to re-excavate the existing silted canal connecting the surrounding river with the vast flood plain of the sub-compartment which will enable fish migration and thereby more multiplication in the flood plain and thus more fish production.

They also demanded to help them by providing facilities to dig-out *pagars* in the low laying area of the flood plain which will facilitate fish stocking during the post monsoon period. People in the area are seriously concerned about fish disease. They urged to control the fish disease as early as possible.

9.5 ENVIRONMENT - MALE

Biological

Arthropods

Insects causing damage to agricultural crops like pulses, jute, Irri, Boro, Mango trees were reported in the area. These destructive insect include - *Pamri, Mazra, Letho, Chenga, Chat (local name), Grasshoper, Mantis* etc. The *mazra* and *pamri* insects are reported to attack Irri/Boro during its flowering stage and causes seriously damage. Jute is attacked with *Changa* and the jute leaves are seriously damaged and as a result its growth is checked. Pulses are reported to be attacked with unidentified insects and the extent of damage is also serious. Besides some other insects like *honey-bee, butterfly* are also reported and they are useful insects.

Mollusca

Water bodies in the area are reported to contain economically important mollusces which includes fresh water muscles - *pila* and *unio*. Dry snail shell is the source of preparation of lime. Small snails also serves as food for duck and many aquatic birds.

Annelids

Annelids like *Earthworm, leach, nerrics* etc. are reported in the area. Earthworms increase the fertility of agricultural land and also known as natural tiller of land.

Fish

Many fresh water fishes are present in the *beels,* ponds and flood plain. Local people meet their fish consumption demand by fishing from the available water bodies.

Amphibian

Amphibia which includes *frog, toad and hyla* are reported in the area. Toads are available in the damp areas of the homestead forest and frogs are available in the shallow water bodies. Though both the frogs and toads are edible the locality people does not eat them. Once they had a high market value and people in the area used to catch and sell them. But now the Govt. has restricted the frog catching practice as the frogs are more important for maintaining ecological balance other than food value.

Reptiles

Tortoise population is reported to be absent in the area due to unknown reasons. People reported that tortoise are eaten by Hindus. The other reptiles like *Lizard, Guishap* both poisonous and non-poisonous snakes are also reported. *Guishap* is more economically important fauna as its processed skin is used for preparation of many things like *Purse, Belt* and also small bags. Besides guishap serves mankind by killing snakes.

Birds

Once the visited the area had a rich bird population but now their numbers has significantly decreased. Common birds like crow, *shalik,* raven heron, kingfishers, kites, owls, doyal, cuckoos etc. are reported. Herons are found in the marshy lands. Pigeons and doves are tamed by the people. People reported that guest bird like *Bele* duck visit the water bodies during winter, but due to public hunting by guns their visit in the area has reported to become less.

Mammals

Terrestrial wild animals

Jackle is very rare in the area and their number has decreased since the flood of 1988. *Mongoose* are reported to be abundant in the area and present in the homestead bushes. The other wild animals include *jungle cats, nangar, bagdasha* etc. are reported but their population has significantly decreased.

The rat menace is serious. During harvesting of sugarcane, wheat and paddy the rat problem becomes severe and they cause damage to the crops.

Domestic land animal

It is reported that the area once had large numbers of domestic animals and almost every households had dry cows, milch cows, sheep, goats, buffalos etc. Now the population of horse and buffalo are completely absent in the area. People reported that the main reasons of significant decrease of cattle in the area is due to lack of cattle feed and because of cattle disease. Cattle are reported to die in the area every year due to lack of medicare.

Others

Afforestation

It is reported that there is no afforestation programme launched either by appropriate Govt. agencies nor by any NGO. People plant trees in their homestead garden in early monsoon every year and the area is rich in homestead gardening. People enjoy the different seasonal fruits from their homestead garden and also meet their consumption demand from its resources.

Deforestation

People sell out their trees to the local wood traders in their days of need. The wood traders sell the wood to the brick field owners for use as fire wood. This practice goes on round the year, but in the months of February and March this practice peaks.

Human activities

Human habitation

People reported that new human habitation is growing in the area every year. About 3-5 new houses covering an average area of 20-25 decimal have been constructed in the last year. They told that this human habitation growth is going on in the area due to increased population and thereby decreasing the agricultural land. This practice is reported to go on in the village *Ramdebpur*, Union *Baghil* under *Tangail Sadar Upazila*.

Pollution

Both water and air pollution is reported in the area. As a result of stagnant water in the nearby homestead ditches the water is being polluted, making a suitable habitat for mosquitos. People complained about the mosquito problem. The unplanned way of construction of *kacha* latrine here and there, generates a very bad odour. Open sanitation is much practised and is a source of air and water pollution. People throw the household garbage, dead animal bodies, here and there, thus causing environmental hazards. There is

also a report of skin irrigation in the Irri and Boro field during harvesting from its water and it is reported to be caused by the use of fertilizers and insecticides.

Own observation

The visited area under the sub-compartment is high to medium low land area. The area seems to suffer from acute water scarcity problem during the dry season. The nearby homestead ditches, derelict ponds, road side *pagars* were seen completely dry. The households ducks were found moving along the road as there is no nearby surface water for them to graze. Both men and women were found to go to distant perineal water bodies *(Beel Juginidaha*) to bath and have their cattle bath. They also were found to fetch water by pitcher for household consumption other than drinking. The *beel Keshtopur* and *beel* Juginidaha are the only available water bodies during the dry season and is used for many purposes by the farmers like surface water irrigation etc.

Hand pumps were found in the area which ensures drinking water facilities for the public. Domestic animals were seen but in reduced number. Homestead garden is well developed and consists of common varieties of plants, shrubs and trees which provides good refuge for wild animals to live in. The communication system is not well developed in the area. Main public roads in most of the visited area were found occupied with cow-dung, plant leaves, remains of sugarcane etc. for sun drying. Among homestead gardening bamboo bush is well developed and it is an economically important plant. *Kacha* latrines are constructed here and there and open sanitation is also practised in the area. Birds were found in the bushes but their whole population seems to be declined.

Conclusion

People requested to solve their acute water scarcity problem during the dry season. They urged to re-excavate the existing derelict ponds, road side ditches and *pagars* and also urged to excavate new ponds in the area in order to increase water bodies to facilitate surface water irrigation, household consumption other than drinking, cattle bath, ducks culture etc. People asked help to boost homestead gardening by providing them saplings and seeds of valuable plants. Sanitation problem is a serious concern in the area and the people requested help by providing them with all necessary inputs for construction of *pucca* latrines in the area. People urged to provide them with cattle medicare facilities in order to save their valuable cattle wealth from seasonal disease havoc. They are also seriously concerned about their fuel scarcity problem and for which they requested to minimise their problem in the said sector if possible.

9.6 ENVIRONMENT - FEMALE

Homestead forest

In the visited area of SC-9 homestead forest is reported to cover an average area of (.1-.3) acres. Many kitchen gardens (seasonal) are seen in these areas having common varieties of

In the visited area of SC-9 homestead forest is reported to cover an average area of (.1-.3) acres. Many kitchen gardens (seasonal) are seen in these areas having common varieties of vegetables, even in the poor households. The homestead forest comprises the most common varieties of trees like herbs, shrubs, mango, jack-fruit, banana, palm tree, jambura, berry, hard fruit trees, bamboo bush, *temarin, karai, shimul, goava* etc. There are many types of animals like *mongoose,* snake, rats, *varanas,* lizard, *bagdasha* etc. which are living in the different varieties of bushes and trees.

People from *Khordajugni* think that after the 1988 flood, the number of foxes have decreased. They also think that the number of birds has decreased. They found out two reasons behind this, such as:

(a) People from the poor section, are selling matured trees, destroying their habitat,

(b) Some people from *Tangail* or some other city come to that area and they kill birds like *Balihash, Bak, Kana Hukka, Dove* using guns.

Fuel

The main sources of fuel are jute stick, remains of sugarcane, paddy, wheat, mustard, pulses, cow-dung, bushes, dried leaves of trees, water hyacinth and other garbage. But the people from the poor section (who have no livestock and paddy field) are reported to be serious scarcity of fuel. Poor women of the village *Dhalan Shibpur* told that due to damage of Aman, this year they did not collect straw and they are facing serious fuel problems.

Drinking water

There is a report of good number of hand pump (about 150) in *Khordajugni, Dhalan Shibpur, Krishnapur* and *Ramdevpur.* Generally tube well water is the main source of drinking water in this area, but there are few people (about 15-20 households) who drink open well water. The villagers have to go far for drinking water. The number of ponds are not so high (about 10-15). There are some (about 15-25) tube wells supplied by different NGOs and Govt.

Sanitation

In all visited area, public sanitation is reported to be very poor. There are a few *pucca* latrines in the rich households. The Grameen Bank supplied some inputs for construction of few (10-15) *pucca* latrines in *Khordajugni, Dhalan Shibpur.* Most of the people are using *kacha* (traditional) latrines.

Diseases

In the visited area, diseases like Diarrhoea, Dysentry, Malaria, Pox, Fever, Skin diseases occur. Most of the diseases occurred in the month of *Kartik, Chaitra, Falgun.* People think that the main source of diseases are open sanitation, and using bad quality water for household works, bathing etc. They also think cocks, hens, duck, flies are wandering in the

open latrines and they come to the houses, spreading germs of diseases. The air is also polluted in this area due to poor sanitation.

Rats

Rats and mosquitos are abundant. Rats are damaging wheat, rice, other crops, fruits and also household belongings. Mosquitos also create problems for human being and livestock in the visited area. There are other wild animals like fox, *bagdasha, mongoose* which kill baby goats and chickens.

9.7 SOCIO-ECONOMIC SITUATION - MALE

Major non-farm activities

The people in the area (*Khorda Jugni, Ramdevpur, Shibpur* and *Krishnapur*) who are involved with the major non-farm activities are (a) daily labourers (both agricultural and non-agricultural) approximately 45%, (b) transport (rickshaw and van) workers 12%, (c) service holders 07-08%, and (d) weavers 05-06%. Others are engaged with petty and seasonal business and miscellaneous activities. There are also some professional households like the cane and bamboo worker, the barber and the carpenter.

There are about 250-300 landless families in the surveyed area of whom about 20-25% even do not own their homestead land.

Social and institutional aspects

Employment patterns

In the farm households mainly family labour is used except during sowing and harvesting of HYV Boro paddy. There are some (20-25) big farmers (in *Krishnapur, Khorda Jugni* village) who keep labourers at their houses on a yearly basis for their farm activities. They totally depend on hired labourers.

The majority of the daily labourers in the area (including the marginal farmers) engage in agricultural work in the locality and also outside when it is the lean season for agriculture in the area. Others try to find work in Tangail town and its suburban areas or even go to Dhaka city. Those who find work in town area mainly engages themselves in construction works, brick-field work, house repairing work and so on.

Out-migration of labour from the area happens every year except from *Krishnapur* village. The rate of out-migration is highest in *Khorda Jugni* followed by *Ramdevpur* and *Shibpur*. There is also some in-migration of labourers, mainly from the adjacent char areas during harvesting time of HYV Boro in the area.

Wage rates

The wage rate for the agricultural labourers in the area are as follows:

Sl.#	Village	Wage - Lean Season/Peak Season				Remarks
		Tk.	Meal	Tk.	Meal	
1.	*Khordajugni*	20	one	25-30	one	
2.	*Ramdevpur*	20	one	30-35	one	
		30	-	-	-	
3.	*Shibpur*	20	one	25-30	one	
4.	*Krishnapur*	20	one	25	one	

The rickshaw pullers can earn Tk.40-50 (excluding the rent of the rickshaw) per day while workers involved in weaving can earn on an average Tk.35-40 per day. The rate for the carpenters in the area is Tk.60-70 with one light lunch.

Organized groups

In the surveyed area, the Grameen Bank, SSS and SDS have their activities aimed at developing the socio-economic condition of the people. They have their organized groups of both male female and children in the area. Besides the above mentioned group, there are some *samity*/club founded locally by the youths and students of the area. These are mainly social welfare type *samities* and at least one is found in each of the surveyed villages.

Transport and communication

All the villages in the surveyed area have good internal roads and are well connected with a few important roads passing through the area. The roads in the area are useable by rickshaw and van, but due to absence of bridges/culverts in two places rickshaw/van cannot cross those points particularly during the rainy season.

Markets

The people of the surveyed area go for marketing in the hats and bazaars are listed below with other information like hat/bazaar day attendance etc.

Sl. No.	Name of the Market (Hat/Bazaar)	Hat/Bazaar Day		Attendance	
		Hat	Bazaar	Hat	Bazaar
1.	*Jugni* (Hat)	Monday	Everyday	8/12000	8/900
2.	*Baghil* (Bazaar)	-	-do-	-	6/800
3.	*Dharer Bari* (Hat)	Friday	-	1.5/2,000	-
4.	*Chitkibari* (Hat)	Wednesday	-	1000/1200	-

General needs

The main demand of the people in the area is paving and direct linking of the road from *Tangail* to *Omarpur via Baghilbazar* with a bridge on the road at *Shibpur* point. The paving of the road and its direct linkage, as viewed by the people of the area, will not only improve

their road communication system but this road will also increased transportation of business items from *Shohagpur* market to Tangail and vice-versa which will be beneficial to the local businessman and also to the rickshaw and van pullers. A bridge over *Jugini khal* on the northern side of the embankment has also demanded by the people of the area for their year round easy movement particularly for marketing in the *Jugini* hat.

Demand for extension services, particularly of agricultural and livestock, was also raised by the people. To increase drinking water facility in *Krishnapur (Purbapara)* village the people demanded installation of more hand tube wells.

Own observation

Existing water related situation

Drainage congestion problems are reported in the *chaks* of the surveyed villages. The southern *chaks* of *Khorda Jugini* village has no drainage congestion problem but the village's main *chaks* in the western side have acute drainage congestion problems. The extent of problem in the *chaks* of *Krishnapur* and *Shibpur* are also similar to the western *chak* of *Khorda Jugni*, but it is not so acute in the *chak* of *Ramdevpur*. Flooding also does not cause any problem to the *chak* of *Ramdevpur* except during abnormal high flood and they favour retaining the normal flood. However, the drainage congestion problem that occurs in the *chaks* of the area are primarily by rain water which causes damage to HYV Boro paddy and also hampers cultivation of the next crop. The situation is further aggravate by riverine water that cannot get out (immediately) due to the siltation of drainage canals of the area and therefore, the *chaks* in the area suffers from drainage congestion.

There is an unique water related problem in the area which is related to the *Jugini Daha*. The *Jugini Daha*, a leased-out permanent water body, is flooded each year during the monsoon (as the *Daha* has no raised bank around it) and merged with the low lying adjacent areas. In this circumstance, the owner of the plots of the low lying areas adjacent to the *Daha* are often prevented to catch fish even in their water above their own land by the lessee of the *Daha*. The logic of the lessee behind this is that since they have released fish fry in the *Daha* the fishes will be available in the adjacent areas are their fish which came out with the flooding of the *Daha* and spread outside. So, no fishing is allowed adjacent to the *Daha*. This attitude of the lessee has deteriorated the relationship between the lessee and the land owners adjacent to the *Daha*.

Socio-economic situation

The people of the surveyed area are primarily engaged with agriculture. Other than agriculture, people of *Khorda Jugini* are engaged in diverse occupations. This village is also the biggest in respect of size and number of households. Economic condition of *Krishnapur* is by far the best in the area followed by *Khordajugini* and *Ramdevpur*, while the economic condition of *Shibpur* people is the worst. Number of big farmers with more than 10 acres of land have been found highest in *Krishnapur* village and the second and third position occupied by *Khordajugini* and *Ramdevpur* respectively. On the other hand, the number of landless families are highest in *Khordajugni* village and it is lowest in *Krishnapur* village.

Educationally, the people of *Khordajugni* and *Krishnapur* are almost in the same position but both are above the other two villages. The rate of out-migration of labourers is also highest in *Khordajugni*, while the lowest rate of out migration prevails in *Krishnapur* village.

Peoples opinion (about solving water related problem)

The solution suggested by the people in the area regarding the drainage congestion problem is mainly re-excavation of silted up canals of the area. People of the area, particularly from *Shibpur* and *Krishnapur* think that the re-excavation of *Kalibari khal* (which is quite dead now) and its connection with the Lohajang will help solve their drainage congestion problems. They have also proposed another solution i.e. to drain the excess water from the area through the same *Kalibari khal* to *Ghoshbari khal.* Some people from *Khordajugini* opined that with the proper re-excavation of *Jugini khal* to drain water into the *Lohajang* (in the North) from the *Jugini chak* will be possible. But they have rejected the idea of placing a sluice gate on the *Jugini khal* about which they were told by some BWDB staff sometime back.

Conclusion

Beside taking measures for removal of drainage congestion problem in the area, the *Tangail-Omarpur* roads development via *Baghil* bazaar also needs attention as this road plays an important role in the economy of the people of the area. With the paving of the road and a bridge on it at *Shibpur* point and its connection with *Omarpur* as demanded by the people of the area, will not only improve the road communication system but will turnout as the main business route between *Tangail* and *Belkuchi* upazila of *Sirajganj,* which will ultimately be beneficial to the people of the area as well as of other areas alongside the CPP area.

Peoples view about constructing any sluice gate on the *khals* or even on the *Lohajang* on the North to be considered with due importance, as they have some reservation about the sluice gates and also along the possible sites.

9.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

Women of SC-9 are mainly doing household work. Besides their households work, some women are engaged in different types of work in this area. Among them, some are working professionally. There are 230-250 women making *Biri Thonga* in *Ramdevpur* and *Dhalan Shibpur* village and they earn in cash. Even young girls (aged 9-15) are doing this work.

A few women (about 10-12) in the visited area are engaged in service like family planning volunteers, teachers, nurse etc. in *Khordajugini, Ramdevpur, Dhalan Shibpur.* There are a few women involved in weaving. Women are also doing weaving work as part of their household work. There are many women (50-60) who are working in the paddy field (gathering seedlings and picking potatoes), outside of their house in *Khordajugini,*

Ramdevpur, Dhalan Shibpur. They earn either in cash or kind. There are 10-15 women who are sewing cotton wrapper but this work is seasonal. A few women (about 3-5) are engaged in sewing in their village, earning cash. There are 10-12 women in *Ramdevpur* village engaged in fine mat work. Some women (10-15) of the visited area, are engaged in work like road maintenance programme (RMP) or work as *Dai* (trained from CARE). Women (10-12) from the landless families work in rich households during and after harvesting of paddy.

Wage rates

Women *Biri* worker earn Tk.5-6 per day. From 1000 *Biri Thonga*, they earn Tk.2 only. Women who are doing paddy work earn Tk.10-15 per bundle of 140-150 seedlings of paddy and those who pick potatoes earn in kind. For a whole day they get 4-5 kg potatoes. Cotton wrapper worker earn Tk.15-30 per wrapper, according to size. Sewing workers earn Tk.10-15 per day. But the earning is less in the lean seasonal. The RMP worker earn Tk.550-600 each month. Family planning volunteers and teachers earn Tk.1000-1500 each month. Women who work in the rich household during the after the harvesting of crops, earn in kind. They get 1-2 saree, 1-2 mound paddy etc. for 1-2 months work. Fine mat working women earn Tk.5-15 per day.

Education and literacy

In all the visited villages there are some educational institutions like, primary and high schools, madrasas either in the village or in the bordering villages. Communication is more or less good, though in the rainy season there are problems in *Khordajugini, Ramdevpur, Dhalan Shibpur*. The literacy rate of the visited villages is shown in the following table:

Sl.No.	Village	Literacy Rate	Ratio of Boys	Ratio of Girls
1.	*Khurda Jugni*	25-30%	60%	40%
2.	*Ramdevpur*	20-25%	65%	35%
3.	*Dhalan Shibpur*	30-35%	55%	45%
4.	*Krishnapur*	20-25%	65%	35%

Organized groups

There are different organized groups such as local NGO, Krishi Bank, BURO, SDS, BRDB etc in the visited villages. The list of this 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.	Khordajugni	1. Grameen Bank	1	30	1	30	
		2. BRDB	1	45	-	-	
		3. SDS	1	25	1	20	
		4. BURO	-	-	1	30	
		5. Richshaw Samity	1	50	-	-	
		6. Jubak Samabaya Samity	1	25	-	-	
		7. Mahila Samity	-	-	1	25	
2.	Ramdevpur	1. Grameen Bank	1	30	3	90	
		2. SDS	1	25	1	20	
3.	Dhalan Sibpur	1. Grameen Bank	-	-	6	180	
		2. SSS	-	-	6	30	
		3. SDS	1	25	1	20	
		4. Uttarpara Juba Club	1	45	-	-	
		5. BRDB	1	55	-	-	
5.	Krishnapur	1. Grameen Bank	1	30	1	30	
		2. SDS	1	30	1	25	
		3. Purush Samity	1	55	-	-	

Public facilities

Public facilities like Union Council Office, Post Office, F.P clinic, Health clinic etc. are available around the area within one and two mile distance from the villages. Women of these villagers find it is very hard to walk, especially in the rainy season, for receiving the service like EPI programme and family planning etc. Women of *Khordajugini, Dhalan Shibpur* told that they do not get proper services from the health clinic of *Jugini Hatkhola* for their children and also for themselves. Women of the surveyed area also told that they do not get family planning materials in time. Family welfare visitor do not come to their villages frequently.

General needs

Women of the visited area have to go quite some distance for drinking water, washing, bathing etc. The common need of almost all of the visited villages is drinking water. They think that if the Govt. and different NGOs distribute tube wells by instalment, it will be a great help for them. Women also demanded sanitary latrine inputs from different NGOs. Medical facilities like livestock, children hospital are also their (most of the visited villages) general needs. Women of *Dhalan Shibpur, Ramdevpur* think that they have to go far for treatment of their child and livestock. In all the visited area, serious skin diseases (locally called *Khujli*) have seen among men, women, children. Women of these areas need proper treatment of this disease. Women of *Dhalan Shibpur, Khordajugini* requested a bridge or culvert on the way to *Khordajugini-Baghil, Darabari* and *Dhalan Shibpur - Jugini hat*. There are two or three breaches on these roads. This causes serious problems, especially in the rainy season.

Existing water related situation

Women of *Khordajugini* told that there is a programme to make embankment along the side the side of the river *Lohajang*. They think if the embankment is made many problems will arise such as many human habitation and crops land will damage, navigation will stop. Due to normal flooding, every year the crop land gets fertile. If the embankment is made this will also totally stop. Women also think that the level of land in *Khordajugini* is high. So there is no need to make an embankment. They told that if an embankment is made, water will not pass through the *Khordajugini khal.* They told that the use the water from the month of *Ashar to Kartik* for households works, washing, bathing etc. There is a need to re-excavate the canal only, not to enlarge the embankment.

Women of *Dhalan Shibpur* told that the level of some areas in their *chak* (crop land) is low. So the water cannot pass. For this reason the cultivation of HYV Boro declines. They need to make a proper drain through their farm land to the nearest canal.

SUB-COMPARTMENT 10

10.1 INTRODUCTION

Sub-compartment 10 is on the western periphery of the *Tangail* CPP and is bounded by the *Charabari-Jugini* earthen embankment-cum-road along the *Dhaleswari* river on the west, *Charabari to Baghil* earthen road on the East and *Dhalan* to *Baghil* earthen road on the North. The total area is about 500 ha. The western part is higher and consists of a densely inhabited area along the embankment. Land slopes towards the East, comprising mostly farm land of which about 40% is low and affected by drainage congestion.

10.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

The early flood is caused by rainfall, starting in April. Due to the silted up *khals* the excess run off cannot drain out to the river and the low farm land are filled up. Thereafter, in July, river water enters and aggravates the flooding. The major entry route of river water is through the *Goramara khal* from the South, which first fills the *beels* in the SC-11 and then spreads north and north-east to the low farm land of *Fatepur, Alsakanda, Dainna Rampal, Choubaria, Singarkona* and *Dalan* of sub-compartment-10. In the peak of the monsoon river water enters from the *Lohajang* river through the *Kalibari khal,* north of *Dainna Choudhury.* Overland flow from SC-9 in the North also enters this area. In 1991 there was a break of the *Lohajang* river bank near the *Kalibari khal* and the onrush of water with a large quantity of sand damaged crops and farm land. This breach needs to be closed before the next monsoon to avoid a recurrence.

The two small regulator at *Fatepur* and *Darjipara* are usually kept closed during the early flood entry period. Even when they are opened at a later stage, their influence in the flooding of the area is quite insignificant due to their small capacity, and since the area is already flooded from the East and North.

Local people are unhappy about these regulators due to loss of navigation, small size of the openings, reduced fish and silt entry. The *Fatepur khal* was connected to the *Goramara khal.* Since the construction of the regulator the *khal* has been filled up at some places and has been converted into farm land and homesteads. The remaining part of the *khal* close to the entry through the regulator, is like a stagnant pool. People use it for garbage and sewage disposal. The rotten water and stench creates an unhygienic situation in the area, till overland flow in the peak monsoon flushes it out.

These two regulators are only capable of controlling flood entry and very little drainage takes place through them. Even before the construction of these regulators, drainage through there which was not significant. There is demand from a section of people to construct another bigger regulator with a lower sill level beside the small one at each site and for re-excavate the *khals* to ensure adequate flow through the *khals,* both for flushing and drainage. Another section of the people wishes to replace the regulators with bridges to facilitate navigation. The system of control by fall-boards is difficult and complicated. Labour cost and theft are problems.

The central part of the farm land of all the villages are low and constitutes the drainage congested area. About 40% of the farm land is in this category and about 15% land was still under water in late February 1992. At some places the congested water is pumped out by shallow pumps for Irri cultivation. Usual drainage flow is towards the East and South-East through the *Goramara khal* in SC-11. All the low farm land *(chaks)* are interconnected through internal link channels, which are silted up causing the drainage congestion. Re-excavation of the channels up to the outfall at the *Lohajang* river will relieve the water logging problem of this area.

The following are the important link channels in the area requiring re-excavation:

(i) *Gopalpur khal* from *Dalan chak* to *Singarkona beel* flowing beside *Montaz Munshi's* house and *Kuran's* house (about 1km.). Parts of the *khal* has been filled up and converted into farm land.

(ii) *Choubaria khal* from *Gram Choubaria* to *Chak Guradi* - about 500m.

(iii) *Rampal khal,* one branch from *Pasbeel* to *Dainna Rampal* - about 700m., and another branch from *Dainna Rampal* to *Goramara khal (Binnafur khal)* - about 800m.

(iv) *Goramara khal* from *Darjipara* to *Santosh* (SC-11) - main drainage channel.

(v) *Choto Binnafur khal* beside *Amir Khan's* house upto *Goramara khal* - about 600m.

(vi) *Fatepur khal* upto *Goramara khal.* Parts of this *khal* has been filled up and converted into farm land and homesteads.

(vii) *Dainna Choudhury khal* from *Singarkona beel* to *Pasbeel* - 1.5km.

The embankment on the West along the *Dhaleswari* river is of poor section at many places and needs re-sectioning. From *Fatepur* to *Charabari*, the river is quite for outside (500 m. to 1km.), and there is a demand for advancing the embankment towards the river. Such an advanced embankment would include 500-600 families in the embanked area.

Rampal khal and *Goramara khal* were re-excavated in 1978-1979. No other *khal* was excavated in this area in recent years.

Boat communication is scarce in this area during the monsoon since there is no exit due to the *Fatepur* and *Darjipara* regulators. Many boats of all sizes used to ply in this area transporting people and freight far and wide. Now a few small boats are used in peak monsoon for movement of people and small freight from house to house. Adequate road communication facility is available the area.

During monsoon sometimes water hyacinth creates a problem for Aman paddy.

Erosion

There is erosion from the *Dhaleswari* river in front of the *Goalpara* and *Darjipara* area. Erosion has been going on for the last 10 years and the river reportedly shifted about 1km. Eastward. Last year about 20 m land was washed away. At present the river bank is about 300m. away from the embankment and there is no immediate threat.

Ground water

There are plenty of STW's and DTW's in the area and exploitation of underground water resource for irrigation of Irri paddy is adequate. HTW's are used for drinking water. In some areas e.g. *Fatepur* and *Rampal*, there is demanded for more numbers of HTW's. Iron content of the underground water in this area is relatively high, but that does not pose any problem for drinking and irrigation. The iron in the irrigation water leaves a reddish crust on the farm land which is flushed out by monsoon flooding. There is no complain of any appreciable discharge problem from the tubewells except in drought years.

Conclusion

The low farm lands of this sub-compartment are in the eastern part. The western part along the embankment consists of relatively higher land and this is mostly habitat area. The low farm land are flooded and congested initially by the early monsoon rainfall and later river water entry increases the water level. Due to the silted up channels drainage is hampered in the early and late monsoon periods. This area drains out through SC-11. The main route of drainage is through the *Goramara khal.* Re-excavation of this *khal,* including a number of link channels will relieve the drainage congestion in this area.

Ground water resource is adequately exploited for irrigation by DTW's and STW's. Drinking water is obtained from HTW's, but more numbers are required in some areas such as *Fatepur* and *Rampal*. The embankment on the West along the *Dhaleswari* river need to be strengthened and re-sectioned at some places.

10.3 AGRICULTURE

Cropping pattern

The gross area of the sub-compartment SC-10 is approximately 518 ha out of this about 415 ha are net cultivated land. The land type according to flood depth is F0, F1 is situated along the village periphery and basin edge. The land on the basin sites are of F2 and F3-F3+ in the deep basins. The present major cropping patterns practised in the sub-compartment are as follows:

Crop Patterns				
Land Type	*Kharif*-1	*Kharif*-2	Rabi Annual	Approx. % of non-cultivated area
F0-F1	B. Aus	TA-L/HYV	Mustard/Wheat/Potato -	15%
F0-F1	B.Aus/Jute	TA-L/HYV	Mustard/Wheat/Pulse -	10%
-	-	TA-L/HYV	Boro(HYV)/Braus -	10%
-	-		- Sugarcane+Lentil (Rabi)	5%
F2	TDW Aman	-	Boro(HYV)/Braus	25%
F2	TDW Aman/ B. Aman	-	Mustard,Boro(HYV)/Braus	15%
F3	-	-	Mustard/Boro(HYV)/Braus	10%
F3-F3+	-	-	Boro (HYV)/Braus	10%

Average crop yield and price

The average yield of different crops obtained by the farmers and their price at the farmgate level is a follows:

Crops	Av. yield/ha.	Price/MT
B. Aus	1.6	5360-6030/-
T. Aman (L)	1.8	5360-6030/-
T. Aman (HYV)	3.5	5360-6030/-
TDW/B. Aman	1.7	6030/-
Boro (HYV)	4.8	6030/-
Braus	4.2	6030/-
Jute	1.6	4690/-
Wheat	2.5	5360/-
Mustard	0.8	12060/-
Pulse (Lentil)	1.0	12730-13400/-
(Khesari)	1.2	6700/-
Sugarcane	35.0	620/-

Use of fertilizers

Farmers in the sub-compartment use fertilizers usually in lower quantities than the required quantity for different crops. They reported high price of fertilizers is the reason of applying low quantities of fertilizers. Comparatively higher doses are applied for Irri/Boro (HYV). The following doses of fertilizers are usually applied to different crops in the area.

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)
Aus	130-150	90-110	40-50
T. Aman (L)	160-180	110-120	50-60
T.Aman (HYV)	240-260	130-150	60-70
TDW Aman/B. Aman	150-160	-	-
Irri/Boro (HYV)	230-260	150-170	70-80
Wheat	240-250	130-150	40-50
Pulse (Lentil)	150-170	80-90	-
Sugarcane	190-200	150-170	70-80

Farmers reported that the agricultural extension workers in the area do not give them any instruction regarding the application of fertilizers and for improved practice of agriculture. No major pest and insect attack is reported in the area. Occasionally they apply *Basudin* and *Dimicron* to Irri to control pest and insects if attacked.

Share cropper

It is reported about 10-15% of the farmers lease-in land. Land owners do not supply anything to the share croppers but take 50% of the production.

Irrigated crops

The only crop irrigated in the sub-compartment is Boro (HYV) or Braus (late Boro). Other crops like Aus, TDW Aman and T. Aman are grown under rainfed condition. Rabi crops, mostly mustard, wheat, potatoes etc., are grown depending on the availability soil moisture. Boro (HYV) and Braus are irrigated by DTWs and STWs. Most of the DTWs are managed by KSS and all the STWs are privately owned. Out of the total numbers of DTWs available in the area 2 in village *Fatepur* and *Dainnya Rampal* are burried pipe system and installed by GTZ. All the DTWs run by electricity and the STWs by diesel.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Fatepur	DTW 4 Nos.(2 cusec) (1 No. burried pipe system)	120 ha.	Electricity
	STW 3 Nos. (1/2 cusec)	15 ha.	Diesel
Ailsa Knada	DTW 1 No. (2 cusec)	25 ha.	Electricity
	STW 3 Nos.(1/2 cusec)	16 ha.	Diesel
Chaubari and	DTW 1 No. (2 cusec)	22 ha.	Electricity
Dhalan	STW 1 No.	65 ha.	Diesel
Dainnya Rampal	DTW 1 No. (2 cusec) (Burried pipe system)	25 ha.	Electricity
	STW 2 Nos. (1/2 cusec)	12 ha.	Diesel
	Total :	300 ha.	

Farmers pay 1/4 of their production as irrigation cost except one DTW in village *Dainny Rampal* where Tk.9/- per decimal is paid as irrigation cost, reported by farmers.

Crop damage

In the sub-compartment the major crops affected by water congestion are Broadcast and TDW Aman. Due to early flood by heavy shower seedlings of Aus and deep water Aman are affected. Throughout the whole sub-compartment the agricultural land of the *Maisha Kanda* and *Dhalan* village are less affected by flood or drainage congestion as the major area is belong to F0 and F1 type.

A very small proportion of land belongs to the F2 type. Aus, Jute, T. Aman both local and HYV are grown in this area. Deep water transplanted Aman (TDW) is greatly affected in *Fatehpur*, *Ailsakanda*, *Dainnya Rampal*, *Chaubari* etc. Farmers in these are have reduced the cultivation of TDW/B.Aman to a greater extent due to such water congestion in the

monsoon. The source of flooding is first of all rainfall and then river. Flooding from the *Lohajang* river enter the area and damages mostly TDW Aman paddy. In the last year due to formation of a breach in the river bank of *Lohajang* a large area of the northern part of *Dainnya Rampal* and *Dainnya Choudhury* was affected by flood damaging TDW Aman to a greater extent.

Farmers requested to re-excavate some filled up canals to remove water congestion from the area in the pre- and post-monsoon. The longer period of water logging hampers timely plantation of Boro (HYV) and delays the growing of Rabi crops in the area. Improved drainage condition will help farmers to grow the above crops timely and make the TDW/B. Aman cultivation more secure.

Livestock

Cows and bullocks are used in the area as the draft animals in the area. Farmers find no other alternatives but to use their milch cow to plough their lands due to shortage of draft animals. The health situation of the cattle are not satisfactory due to shortage of livestock feed. They mostly graze on fallow land and road side. Farmers purchase straw to feed their cattle during the period of deficiency @ Tk.70-80/- per mound.

Medicare is provided by the Milk Vita centre at *Fatehpur* and one livestock centre at *Binnafur*. Some farmers are the members of the *Prathamic Dugda Utpadan-kari Society* and they get the free medicare from Milk Vita. They supply milk to Milk Vita @ Tk.9/- (for low grade) to Tk.16/- (high grade). The grade of milk is determined by the Milk Vita on the basis of the percentage fat in the milk. The average yield of each milch cow in the area is reported to be 2-3 litres per day. Almost all the cattle are of local varieties. *Ectoparacities, Rinderpest* and Cow pox are the common diseases among livestock. It is reported that almost every year some cattle die instantaneously due to attack with an unknown disease.

Poultry

Poultry in the area is mostly of local varieties. Among the poultry, chickens are prominent. Beside supplying of some rice bran, wheat/rice residue they live on scavenging. Local fowl lay about 15-20 eggs in a month while the farm fowl lay 30-35 eggs in a month. Some farmers get some farm chickens but they are in a very few in number. Ducks are available in the homesteads near the water source. They are fed snails and bivalves collected from nearly water bodies. Ranikhet and tape worm is the common disease among the poultry. No poultry farm is available near the sub-compartment.

Own observation

About 15% of the area belongs to high land (F0 type) while approx. 25% of the area is F1 type land. Out of the remaining area 40% is F2 and 20% of the area is F3 to F3+ type. Land of F0 and F1 flood type is used mostly for growing Aus, Jute, T. Aman and F2 to F3 and F3+ for Boro (HYV) or Braus (late Boro). In the dry season approximately 60% of the area is used for growing Rabi crops, among which wheat and mustard are prominent. In some low lying area Braus (late Boro) plantation was only possible by pumping out water from the area. The general topography is gently slopy to nearly level and slopes toward the

East of the sub-compartment. Soils on the higher elevation is FSL to Sil and basin edge to basins are SICL to Sic in texture.

Conclusion

The area is mostly under Irri/Boro (HYV) cultivation. In some low lying area water logging exists for a longer period delaying the growing of Rabi crops. In some area farmers pump out water to transplant Boro (HYV)/Braus. Lack of funds compels farmers to use fertilizers in lower doses than the optimum. Rain and riverine water in the monsoon affect mainly the Broadcast TDW and mixed Aus and Aman seedlings in the lower area. In some area T. Aman also affected due to rise of water due to late flooding.

Livestock in the area is not much developed. For the lack of livestock feed, farmers have to buy straw at a high price in the lean season (February to April). The average yield from milch cow is 2-3 litres per day. Due to shortage of cattle, farmers use milch cows as draft animals. Rinderpest, ectoparacities and cow pox is the common disease among the livestock. Medicare is provided by *Fatehpur* Milk Vita and *Binnafur* centre. Poultry are mostly of local varieties. Very few farm poultry are found. The major part of the poultry are chickens. Ducks are also available in some household near water bodies. They mostly live on scavenging. Ducks are provided with some snails, bi-valves etc. collected from *beels* and other water bodies. Medicare of poultry is poor.

10.4 FISHERIES

Water bodies

The water bodies under the sub-compartment-10 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. Choubari beel	1	5acres approx	perineal	minor carps, koi, magur,shol boal,sing,puti,chela,pabda, bele, calisha,gajar,taki, buthum,small shrimp etc. Fresh water muscles - lamellidiens and snails Crabs and Toads	8-10 mts approxi-mately	individual ownership	resourceful water bodies
2.	Pagars: i. Fatehpur ii.Choubari	2 3	1.5 acres approx	Perineal	Taki,shol,boal,gajar,sing, magur,puti,pabda,foli, calisha,tengra,chanda,chela, koi,snails,crabs and toads.	20-30 mts approxi-mately	Individual ownership	Perineal smallwater bodies and are quali-tatively most resourceful in the area
3.	Pond: i. Choubari	5	2 acres approx	Cultured source are cul-turable	Major and minor carps, Tilapia etc.	Poor	Individual ownership	Pond fish culture is less deve-loped in the area

Professional fishermen

There are about 5/7 household of professional fishermen living in the village - *Dorjipara, Union - Dainnya* and Upazila Tangail Sadar since long. They are Hindus and depend entirely on fishing. The women work in the house and repair fishing nets and traps and they also do other household work. The children cannot go to school for education due to poverty.

They generally go fishing in the surrounding flood plain during monsoon and in *pagars*, nearby *beel* and ponds during part of the year. Due to lack of fishing nets they cannot go to Jamuna river for fishing but they go fishing in *Dhaleswari* river. They use *Berjal, Kharjal, Moijal,Castnet, Karentjal, Harpoons* like *Konch, Eko, Tenta, Aro, Traps* such as *Dhair, Darki, Ahuka, Hosa* and *Polo* for fishing. They catch fish during the monsoon in the flood plain using *Dharmajal, Berjal* and *Castnet*. In the early monsoon they use traps like *Dhair and Darki*. During the dry season they go fishing in *pagars* using *Berjal* and *Castnet* and in ponds they use *Berjal* and *Castnet* etc.

Muslim subsistence fishermen of the locality do not allow the professional fishermen to fish freely in the flood plain claiming that the said flood plain belongs to themselves or their relatives. The fishermen in the area are seriously concerned about the fish disease which decreasing the fish population in the area.

Subsistence fishermen

There are about 50 households of subsistence fishermen in the area. (*Fatehpur, Dorjipara and Choubari*). They are reported to be poor Muslim and have adopted this professional thinking it to be more beneficial. They catch fish from flood plain, *pagars* and pond. They rarely go for riverine fishing. About 6 months of the year they go fishing and do other work for the rest of the year.

They do not have sufficient fishing materials like different kinds of nets, harpoons, traps etc. They said that they cannot afford to purchased fishing gear due to poverty. In most of the cases they use castnet, hosa, push net and traps.

Fishing methods

Different fishing methods are reported to be practised in the area. During the monsoon fishing is done in the flood plain by *Berjal, Castnet, Koijal, Karentjal* and by different types of harpoons like *Konch, Eko, Tenta* etc. About 70% of flood plain fishery is done by *Dharmajal, Berjal* and *Jhakijal* by both professional and subsistence fishermen. The rest is done by *Karentjal, Harpoons* and by means of angling by casual fishermen.

During the post monsoon period the *beel* fishery is done by *Castnet, Dharmajal, Berjal, Pustnet* etc. and the extent of use of this type is about 90% by professional and subsistence fishermen. In the early monsoon fishing is done by *Dhair, Darki, Ahuka* etc. Exclusive fishing of *pagars* and ditches in the dry season is done by low-lift irrigation pumps. Hand picking is also practised to a lesser extent. Man powered and wind operated sail boats are used for fishing in the river by professional fishermen.

Flood plain fishery

The area is mostly high to medium low land type. Flood plain fishery is practised in the area. Flood plain fishery starts from June and continues upto September in the area. The agricultural land remains under water for about 4 to 5 months during monsoon and this time different variety of fishes are available in the flood plain. The fish from the surrounding river *Dhaleswari* migrate to the flood plain through *Fatehpur* and *Dorjipara khal* but the extent of migration is minimum. People reported that the two sluice gates *(Kapathkhali)* on *Fatehpur* and *Dorjipara khal* are an obstruction for the riverine fish migration to the flood plain in the area. People reported that whatever fish is left after fishing in the *pagars* during dry season, spawn as soon as the monsoon rainfall starts. As soon as the flood water starts receding the available fish in the flood plain go down to the deep water and naturally stock the *pagars*.

Fisheries practices

Both the capture and culture fishery are in practice in the area. As per people report the pond culture fishery is poor.

Institutional facility

The institutional facility, as reported, is completely absent in the area. The upazila fishery officer never visits the area and the people feel deprived of this facility.

Fish predation and fish diseases

Both this problems are reported in the area. Fish predation is mostly by snakes, *boal, kingfishes, herons, frogs* etc.

Fish disease is the serious concern in the area. Both fishermen and public reported about the severity of fish diseases. They told that the majority of the fish population is attacked with this disease, locally known as *Khoto Rog*. The villagers reported that about 80% of snakeheaded fishes are attacked by this disease. But the shrimps and carp fishes are free from this disease. They reported that the fish disease in the area has caused a lot of damage for fish production.

Other problems

As per report over-fishing and the use of minimum mesh size nets and scarcity of burried females fish are also the problems. Due to over-fishing in the *pagars* the brood fishes becomes scarce in the area.

Fish migration

Migration of fish take place in the area but at a very minimum lavel. Due to the construction of two sluice gates in *Dorjipara* and *Fatehpur* canals, fish from the surrounding *Dhaleswari* river cannot smoothly migrate to the flood plain in the area during the monsoon.

Fishing periods

Flood plain fishery is during monsoon (June - September). Fishing in the river and culture ponds goes on round the year. The months of October to February are reported to be the peak period for *beel* and *pagar* fishery.

Own observation

The area is mostly high to medium and medium low land type. Both professional and subsistence fishermen are living in the area. The women of professional fishermen were found repairing nets in their houses. The condition of their dwelling houses was found to be poor. Only a very few excavated ponds are available in the area but many road side ditches were found. The road side ditches, canals connecting flood plain with the surrounding *Dhaleswari* river were found completely dry. The subsistence fishermen were found fishing in the *pagars* by *Dharmajal*. Pond fish culture is very poor in the area. Only in a very limited number of ponds (2/3), are under carp culture but the catch is very poor.

From the fish caught from *pagars* by subsistence fishermen most of the fish had been attacked with disease. About 80% of the snakeheaded fishes are attacked with *Epizootic ulcerative syndrome* diseases. Many dead fishes were found floating on the surface of the *pagars*. Many small children were found fishing in the *pagars*. Frogs were also found in the *pagars*.

Conclusion

There is a demand to excavate more *pagars* in the low laying area, and re-excavate the existing *pagars* in order to increase water bodies in the area which will facilitate more fish availability, fish spawning and also surface water irrigation.

The majority of the people urged to re-excavate the existing two dried up canals (*Fatehpur* and *Dorjipara*) connecting the flood plain with the surrounding *Dhaleswari* river in order to facilitate fish migration. People in the area are seriously concerned about fish diseases. They urged to control the fish diseases. As regards pond fish culture they demanded to help them by excavating more pond followed by pond fish culture in order to boost up more fish production in the area.

10.5 ENVIRONMENT - MALE

Biological

Arthropod

Destructive insects like *Mantis*, *Grasshopper*, *Chat*, *Changa*, *Nanda* and *Mazra* are found in the agricultural land. Paddy is damaged by *mazra* and *pamri poka* and jute is damaged by *changa* when it is fully grown up. Valuable crops are reported to be damaged annually by

the insect attack. Crabs availability in the water bodies are also reported. Crabs are eaten by Hindu people.

Mollusca

Many molluscan like snails of different sizes and Bivalves are reported to be present in the area. The snails are the food for ducks and also a source of lime. Bivalves which includes *unio* (*Jhinuk*) are less in number in comparison to *pila.*

Amphibian

Amphibian which includes Toads, Frogs, *Hyla* are available in the water bodies. It is reported that their population is increasing in the area since the indiscriminate catching of frogs has stopped. Frogs had a high export value.

Reptiles

Reptiles like snakes (both poisonous and non-poisonous), *lizard, tortoise, guishap* are reported. The tortoise population is significantly decreasing in the area. *Guishap* is reported to be very useful as it kills snakes and has also market value. The skin of guishap (varanus) is used as raw materials for preparation of purse and belt.

Birds

Common varieties of bird are available in the area but their population is gradually decreasing. Once the area was quite rich in bird population but their number has now significantly decreased due to unknown reasons in Raven, crow, cuckoo, dove, pigeon, boi, kite, crow, kora etc. People reported that a lot of birds are killed by hunters. Guest birds do not visit the area. The domesticated bird like dove, and pigeon are eaten by the people.

Mammals

Terrestrial wild animals

Wild animals like *Bagdasha, bats, nangor, mongoose, jackle, jungle cat* etc. are present in the homestead forest. Mongoose are reported to be abundant in the area and is useful to mankind as it kills many poisonous snakes. The number of jackles has considerably decreased in the area after the flood of 1988. Rats are a serious concern in the area and it have become a great problem for the people causing damage to agricultural crops.

Domestic land animals

Buffalo and horses are absent in the area. High yielding varieties of cattle are present but only a few. Dry cows and milch cows are present but their population is decreasing due to fodder scarcity. But the number of sheep and goats are considerable.

Others

Public sanitation

Sanitation system is less developed in the area. Traditional latrines are present in most houses and are used by women but thet are built in an un-plan way which generates bad smell. Open sanitation is practised by the children and adult male members of the households.

Afforestation

There is no report of Govt. and Non-Govt. afforestation programme in the area. People in plant trees in the rainy season, including mainly timber yielding and fruit yielding trees.

Deforestation

Deforestation goes on in the area round the year. A group of timber traders buy trees from the owners of the homestead forest and process it for using in the brick-field as fire-wood and also for furniture making. The well-to-do people also use trees as fire-wood in their houses. The extent of deforestation is increasing.

Human activities

Agriculture

The majority of the people are engaged in agriculture in addition to other occupation like fishery weaving and trading. Winter crops are extensively grown in the area. Kitchen gardening is rare. It is reported that majority of agricultural crops are damaged by natural calamities like excessive rainfall and flooding.

Human habitation

Human habitation is reported to be increasing. Over the last 2/3 years about 5 new houses (covering an average area of 20-25 decimal) have been constructed. So gradually the agricultural land is decreasing as a result of new habitation growth due to increased population.

Pollution

Water pollution is reported in the area. Due to scarcity of water in the area during the dry season people depend on very small sources of water. As a result of extensive use like bathing, washing etc. The water bodies are polluted and many people are reported to suffer from various skin diseases.

The un-planed construction of traditional latrines along the road side generates a bad smell and thereby pollutes the air. The people reported that the dead bodies of many animals like cow, dog, chicken, cat etc. are left here and there in the area and which is a source of pollution.

Own observation

The visited area seems to be high to medium label land. The homestead forest is well developed and consists of common varieties of plants, shrubs and trees which provides good shelter for wild animals like Jackle, mongoose, owls, herons etc. Kitchen gardening is rare in the visited area. Bamboo bushes are very well developed and they are found in almost every homestead. Many road side ditches, and derelict ponds were found completely dry and there is acute scarcity of water in the area.

Hand pumps are available but seems not sufficient to ensure drinking water. Domestic animals like cow, bull, cat are present but in reduced number. Rural electric supply (*Palli Biddut*) is available in the area and most of shallow tube well and deep tube well are operated by *Palli Biddut*. Traditional latrines were found to be constructed in a very unplanned way and the same is a great environmental hazards in the area. Open sanitation is a common scene in the area which is also an environmental threat and is a source of many diseases. There is no brick-field in the area but the practice of deforestation is noticeable. Due to lack of water people were found going to distant water bodies for bath and for washing cloths. Many people have given up the idea of duck cultivation due to the water problem.

The bird population has significantly decreased in the area. The transportation system is not so well developed in the area. Only a few vans and bicycles were found to run in the area.

Conclusion

There is a public demand to provide them with sufficient water bodies to meet their domestic water consumption needs. They urged to excavate some ponds *pagars* and re-excavate existing road side ditches, derelict ponds etc. in order to increase surface water bodies to enable them to use the water for various domestic consumption during dry season.

People in the area is seriously concerned about fuel scarcity and they demanded to solve their fuel problem. They urged to help them to boost up homestead gardening and in this respect they demanded to supply them with the necessary seeds and saplings of trees. The people also demanded to solve their sanitation problem by supplying them the necessary inputs for constructing *pucca* latrines. They requested to improve the transportation system.

10.6 ENVIRONMENT - FEMALE

Homestead forest

There is no natural forest in the sub-compartment. Homestead forest is well developed in most parts of the area. This It is reported to cover an average area of (.1-.3) acres in each homestead. The homestead forest comprises the most common varieties of trees like herbs, shrubs, mango, banana, bamboo bush, jack-fruit, palm tree, jambura, berry, hard fruit trees, *tamarin, karai, shimul, guava, lichi* etc. Many kitchen gardens are seen in these areas having

common varieties of seasonal vegetables. Animals like rats, mongoose, snake, varanas, lizard are living in between the different varieties of trees.

Fuel

The main sources of fuel are cow-dung, bushes, dried leaves of trees, pulses, remains of paddy, wheat, mustard, pulses, sugarcane, water hyacinth etc. People from *Maishakanda, Darjipara, Diannya Rampal, Fatehpur* (who have no livestock and paddy field) are reported to be serious scarcity of fuel.

Drinking water

There is a report of good number of tube wells (about 90) in *Fatehpur* and *Dhalan*. But the condition of tube wells in *Maishakanda, Dorjipara* is not satisfactory (about 20). In *Dainnya Rampal* (part of the village under the SC-10 and *Chak-Chowbaria* there are about 27 tube wells. The villagers have to go far for drinking water in most of the villages. Sometimes people drink water from open wells and also from the river *Dhaleswari* in *Dorjipara, Maishakanda*. Most of the tube wells in the visited area are privately owned and some (about 15-20) tube wells are supplied by different NGOs. People, especially the poor section, have requested to supply more tube wells in their area either by the government or by NGOs.

Sanitation

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

Diseases

Diseases like Diarrhoea, discentry, skin diseases occur in the visited area in the month from *Kartik to Falgoon*. Most of the people think that the main source of diseases is open sanitation. Their view is that always cocks, hens and fly are wandering in the open latrine. Bed smell is coming from these open latrines and air is polluted due to *kacha* latrine.

Rats

Both inside and outside of the homesteads, rats are abundant, causing damage to food stuff and household goods.

Other animals

There are other wild animals like *fox, bagdasha, mongoose, mag* (locally called) are seen in the visited area. But people from *Fatehpur, Darjipara, Maishakanda* told that after 1988 flood, the number of wild animals have decreased.

10.7 SOCIO-ECONOMIC SITUATION - MALE

The households in the surveyed area of *Fatehpur, Maisakanda, Choubaria, Dannya Rampal* and *Dhalan* village are engaged with major non-farm activities are: service approx. 5%, petty business 4-5%, transport work 10% and agricultural and non-agricultural works (Earth cutting, chopping woods, construction works, brick-field works etc.) 55-60%. A few carpenter 7-8 households) and weavers (3-4 households) are also found in the surveyed area.

From the total daily labourers in the surveyed area 12-15% are reported landless. The rate of landless households is highest in *Fatehpur*, while it is lowest in *Choubaria* and *Dannya Rampal* village.

Social and institutional aspects

Employment patterns

In the farm households mainly family labour is used. Hired labour is used only during peak the peak agricultural season (sowing and harvesting of HYV Boro). About 50% of the day labourers in the area are marginal farmers who prefer to work in the farm household of the area or in the adjacent villages when they finish their own agricultural work. Others find their work mainly in the town during the lean season for agriculture in the area. Labourers from outside (mainly from the adjacent char areas) also come to the area during harvesting of HYV Boro.

Out-migration of labourers is reported from all the surveyed villages except *Choubaria*. The rate of out-migration is highest in *Maishakanda* followed by *Dhalan, Fatehpur* and *Dannya Rampal*. In-migration of labourers is not reported in *Fatehpur* and *Dhalan* village.

Wage rates

The wage rate for agricultural labourers in the surveyed area are as follows:

Sl.#	Village	Wage - Lean Season/Peak Season				Remarks
		Tk.	Meal	Tk.	Meal	
1.	*Fatehpur*	20-25	one	30-35	one	*Daily labourers working hour is 9:00 am till 6:00 p.m. if works from early morning then two meal is provided
2.	*Maisakanda*	25	one	25-30	one	
3.	*Choubaria*	20	one	20	two	
4.	**Dannya Rampal*	20	one	25	one	
5.	**Dhalan*	20	one	20-25	one	

The day labourers who do earth cutting work get Tk.30-35 for their work from 6:00 a.m. to 1:00 p.m.

The carpenters wage in the area is Tk.60-70 in all season with one light refreshment.

Organized groups

The Grameen Bank, SDS and SSS are the main organizations with both of male female and children's groups. The KSS of BRDB have been found only in *Dannya Rampal* village. This KSS of 70-80 members own a deep tube well and about 15 women are found to be active members of this KSS. They have their share in the DTW and also have land within the command area of the DTW. Beside the NGO and Semi-Govt. groups there is at least one group/samity in each of the surveyed villages who have organized themselves of their own. The objectives of these clubs are similar, mainly income generating in nature and with some social welfare motive.

Transport and communication

All the surveyed villages in the sub-compartment have a good road communication system. The internal village roads in the area are also in a good condition and useable by rickshaw and van. Only the road from *Choubaria* towards *Baghil* has a breach in it (half mile away from *Choubaria*) that creates some problem for rickshaws and vans during the rainy season. Apart from this all the other roads in the area remains useable by rickshaw and van throughout the year.

Markets

The people of the area used to go to the markets in the surrounding areas are as follows:

Sl. No.	Market/Bazaar	Hat day	Bazaar day	Attendance	
				Hat day	Bazaar day
1.	*Binnafor*	Sunday	Everyday	2/3000	500-600
2.	*Porabari*	Tuesday	"	8/10000	600-800
3.	*Charabari*	-	"	-	600-700
4.	*Begun Dala*	Friday	-	5/6000	-
5.	*Baghil*	-	Everyday	-	500-600
6.	*Jugni*	Monday	do	6/7000	600-700
7.	*Dharerbari*	Friday	-	3000-5000	-

General needs

In respect of education, health, communication and marketing the people of the area have no grievances. But only demand was placed by the people of *Choubaria* and its adjacent areas is to put a bridge or some drain pipe in the washed away part of the road that runs from the embankment (in the western side) towards *Baghil* via their area, in order to facilitate their movements during the rainy season. They also demanded for the supply of electricity in their village particularly to run the deep tube well in their area.

Existing water related situation

Except the *chak* of *Choubaria* village all the *chaks* of other villages have some drainage congestion problems. Primarily the *chaks* inundates by early monsoon and with the rise of

the river water level, flood water enters into the *chaks* via different *khals* in the eastern side and over land flow of the *Lohajang* cause the drainage congestion.

The damage to the crops in the area mainly occurs by rain water and flood water hampers cultivation of next crops. The *khals* with the sluices at *Fatehpur* and *Binnafor* (*Darjeepara*) carry flood water into the *chaks* of *Fatehpur, Maisakanda/Alisakanda* village, but only so little that this does not cause any damage to the crops in the area.

The internal *khals* (including *Goramara, Maithalbari* etc.) which flow to the East and connect with the *Lohajang* also have lost their optimum drainage capacity as they are silted up. Therefore, the area suffers drainage congestion problems. Beside drainage congestion the *chak* of *Dannya Rampal* was also affected by flooding last year when the *Lohajang* over topped and washed away some part of *Tangail-Baghil* road. This event damaged almost totally the DWT Aman, *Chamara*, in the *chak* of *Dannya Rampal* and other adjacent *chaks* too.

Most of the people in the area say that they see no benefit from the sluices from them since their construction. They rather expressed their view against the existence of these sluices. They are very much annoyed with these structures even 8/9 years after their construction.

They further informed, that they would not support or even allow the construction of these sluices if they would have knew before hand what was being constructed. The major problem they face with the sluices particularly, the one in *Binnafor (Darjipara)* is riverine traffic, which has been totally stopped leaving hundreds of families both inside and outside in a disastrous economic condition. The people of the area still feels the inconvenience in their economic activity that has resulted from the closure of the *khal* with the sluice. Although there are committees for sluice gate operation, they have never performed their responsibility. In fact, one man nominated by the BWDB for each of the sluice site households, operates the sluices. But they have not been made officially responsible for operating the sluices.

Socio-economic situation

Economically the people of *Choubaria* and *Dannaya Rampal* are in a better position than the people in *Fatehpur, Maisakanda* and *Dhalan*. The main occupational activity of the people of *Choubaria, Dannya Rampal* and *Dhalan* village as observed are mostly involved in agriculture. People of the other two village viz. *Maisakanda* and *Fatehpur* are attached with diverse occupational activities both in the locality and outside. Most of the transport workers and other non-agricultural day labourers of the area are found in these villages. Out-migration rate of labourers is also higher in the said villages.

Peoples opinion (about solving water related problem)

In order to remove the drainage congestion problem of *Fatehpur, Alisakanda* and *Maishakanda chak* people of the area suggested to re-excavate the canal (the *Maithalbari khal)* that connects the *chak* with the *Ghoramara khal.* For draining excess water from their *chak*, the *Dannya Rampal* people urged to re-excavate the *Rampal khal* upto *Binnafor khal.* They have also mentioned to take necessary steps to raise the Tangail-*Baghil* road at some

points which will protect them from the damage of flood from the *Lohajang* (as it happened last year).

To remove the drainage congestion problem from the *chak* of *Dhalan*, the people of the area suggested two alternatives. One is the re-excavation of the *khal* (which has been dead for more than 25 years) that had a link between the *chak* and the *Ghoramara khal* via *Singarkona* and *Pasbeel*. The other one is to re-excavate the channel that connects the *chak* with the *Dhaleswari* river in the West. But the people of the area are concerned to see implementation of their first proposal as they apprehend that blood shed may happen with the execution of the proposal. Because the silted up canal meanwhile have become private property and owned by a lot of people, who will not allow the re-excavation of that *khal*.

Conclusion

The main problem of the area is water logging in the *chaks* and drainage congestion problem due to the siltation of some of the *khals* in the area. This problem has a negative affect on the economy of the area and hampers the normal economic development. To improve the present socio-economic condition of the area the re-excavation of canals program has to be undertaken.

Measures should also to be taken to protect the area and the crops in the *chaks* in the north-eastern side of the sub-compartment from flood damage by re-sectioning and strengthening of the road *(Tangail-Baghil* road) along side the *Lohajang* river. Since the sluices are there, steps may be taken to form an effective committee to operate the gates and also to look for the interest of the outside people (as much as possible) who feel worst affected by the gates.

10.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

Under the SC-10, the visited area are *Fatehpur, Maishakanda, Darjipara, Chak Chowbaria, Diannya Rampal, Dhalan*. In every village women are mainly involved in household work. Some women (10-12) from *Fatehpur, Darjipara, Diannya Rampal* are doing service like family planning volunteers, Road Management Programme (RMP), NGO worker etc. In the visited area the number of weavers is not very high.

There are many women (30-40) from *Fatehpur, Diannya Rampal, Darjipara* who are working in the paddy field (gathering seedlings, potatoes) outside of their house and they earn in cash or kind. Some women (25-30) in *Diannya Rampal, Darjipara* are making *Biri Thonga*. Women sew cotton wrappers, but this work is seasonal. Women (10-20) from *Fatehpur, Chak Chowbaria, Dhalan*, who are from landless families, find work in rich homes during and after the harvesting of paddy. A few women (5-6) are engaged in the work like *Dai* (trained from CARE, BRAC). Some women (10-15) from *Fatehpur, Diannya Rampal* are engaged in making fine mat, wood baskets etc. Few women (10-15) are making jute wires in the visited area and they earn in cash or kind.

Wage rates

The wage rates for different occupational women labourers in the visited area are as follows:

Sl. No.	Type of Occupation	No. of labourers	Without Meal		With Meal	
			Tk.	Meal	Tk.	Meal
1.	*Biri Thonga*	25-30	4-6	-	-	-
2.	*Cane worker*	10-15	10-15	-	-	-
3.	*Jute Wires*	10-15	5-20	-	5-10	one
4.	*Seedling*	30-40	10-15	-	5-8	one
5.	*Cotton Wrapper*	10-12	15-30	-	-	-
6.	*Post harvesting work*	10-20	10-12	-	-	three
7.	*Dai*	5-6	20-30	-	15-20	one
8.	*RMP*	5-7	500-500	-	-	-
9.	*Family Planning Volunteers*	2-4	1000-1500	-	-	-

Education and literacy

There are some educational institutions in the village or in their bordering villages. Communication is also good, though there are problems in the rainy season, particularly in *Dhalan* village. There is a breach on the way to *Baghil*.

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

Sl.No.	Village	Literacy Rate	Ratio of Boys	Ratio of Girls
1.	*Fatehpur*	25-30%	60%	40%
2.	*Maishakanda*	10-15%	70%	30%
3.	*Darjipara*	10-15%	70%	30%
4.	*Chak Chowbaria*	20-25%	65%	35%
5.	*Diannya Rampal*	20-25%	60%	40%
6.	*Dhalan*	30-35%	55%	45%

Organized groups

In all the visited area there are different NGO, Semi Govt. and autonomous activities have been found. The following table represents the list of these organizations and groups:

Sl. No.	Village	Organization and Samity	No. of Groups with Member				Remarks
			No.of group	Male	No.of group	Female	
1.	Fatehpur	1. Grameen Bank 2. SSS 3. SDS 4. Fatehpur Sramik Samity	3 - 1 2	90 - 35 80	1 4 1 -	30 100 35 -	
2.	Maishakanda	1. Grameen Bank 2. SSS 3. SDS	1 - 1	30 - 30	2 4 1	60 130 25	
3.	Maishakanda	1. Grameen Bank 2. SSS 3. SDS	1 - 1	30 - 30	2 4 1	60 130 30	
4.	Chak Chowbaria	1. Grameen Bank 2. SDS 3. Agni Bina Club 4. Janata Samity	1 1 1 -	30 30 54 -	1 1 - 1	30 30 - 16	
5.	Diannya Rampal	1. Grameen Bank 2. BRDB	2 1	30 25	1 -	30 -	
6.	Dhalan	1. Grameen Bank 2. SSS 3. SDS 4. Dalan Shamajik Unnayan Juba Shangha	4 4 1 1	100 100 30 35	4 4 1 -	120 120 30 -	

Public facilities

Public facilities like Union Council Office, Post Office, FP Clinic, Health clinic etc. are available around the area within a two to four mile distance from the villages. Women of these villages think it is very hard to walk such long distances especially in the rainy season for receiving the service of family planning. From most of the villages there is a common complain against Family Welfare Assistance because women of these areas do not get family planning materials in time. Women think that if a family planning clinic existed near or in their village it would be easy to move to that centre and to get the services in time. Women of the visited villages, told that most of the time they (patients) return home from health clinic without medicine.

Development needs

Women in the visited area have a common need for drinking water. Many women have to go a long distance for drinking water, washing, bathing etc. Some poor women of *Fatehpur* village think that if they join in a local NGO as Society for Social Service (SSS), they will get a tube well.

Women of the area like *Alishakanda, Darjipara, Chak Chowbaria, Fatehpur* need work. They consider their husband's earning insufficient for their family expenditure. They depend on their husbands earning for their minimum demand. They think they can also contribute something for their family. But there is no scope for work in their locality. They need

training and want to learn sewing work, fine mat work, cottage industry work etc. Women from *Alishakanda* said, they sell bamboo at a cheapest rate because of their poverty. They know that from this bamboo they could made different size of fine mats, baskets etc. but they themselves do not know the process of making these items.

Women of *Chak Chowbaria* have a demand to construct a culvert or bridge on the way to *Diannya Chowdhuri - Omarpur*. So they can easily move from their village to *Tangail*. Medical facilities like livestock, children hospital are also their

Existing water related situation

Women of *Fatehpur* told due to the *Fatehpur* sluice gate, water remains in many places of the canal in the months *Sraban-Bhadra*. The water flow of the gate at that time is also little. So the dirt does not get washed away by the water. Before making the sluice gate this dirt used to be washed away.

They have another complain namely that few people from *Alishakanda* have filled the canal with mud and built houses in the canal. So the water could not pass and the dirt is not flushed out. At that time a bad smell, mosquitos, flies etc. disturb the people.

Women from *Fatehpur, Darjipara, Maishakanda* also feel that due to this gate there is a problem of inland navigation. Country boats and trade boats used to go up to Tangail and *Karatia* with goods before making the gate. Women also have a soft corner or sympathises for the sufferings of the people outside of the embankment, who take shelter on the embankment during flood. Women of this area also told about the scarcity of fish. They think that before constructing the sluice gate they got more fish then now.

Women of *Diannya Rampal* think that the *Binnafair khal* and the *Gabadi khal* (connecting *khal)* should be re-excavate. Due to siltation of these canal, water from the low land could not drain out and the farmers could not sow the HYV Boro in time.

In *Fatehpur, Maishakanda, Darjipara, Dhalan*, serious skin diseases have been seen among the women and children. There is a scarcity of ponds in the area. Men, women and children are using one or two ponds for washing and bathing. People also use these ponds for bathing their livestock. So the water becomes dirty especially in dry season.

SUB-COMPARTMENT 11

11.1 INTRODUCTION

Sub-compartment 11 is bounded by the earthen road cum embankment from *Tangail* town to *Baghil* bazaar along the *Lohajang* river on the North, *Baghil* bazaar to *Charabari* earthen road along SC-10 on the West, *Charabari* to Tangail town paved road along SC-12 on the South and East. The total area of this sub-compartment is about 1100 ha., sloping southward, of which about 60% is low farm land affected by drainage congestion.

11.2 HYDROLOGICAL SITUATION

Riverflow: flooding and drainage

The early flood in June is caused by the early monsoon rainfall. Due to the silted up channels the excess run-off cannot be drained out to the river. The low farm land is inundated. River water entry starts in late June and early July. The major entry route is through the *Gaizabari khal* and *Digalia khal* from the *Lohajang* river in the South-East and water spreads through the *Goramara khal, Chillabari khal* and by overland flow filling the entire southern part.

The flow through the two regulators on the West at *Fatepur* and *Darjipara*, in SC-10 do not have any appreciable influence on the flooding of this area due to their small size (1 m x1.3 m box). The *Darjipara* regulator is on the *Binnafar khal* flowing South to the *Goramara khal* and *Gaizabari khal*. The *Kalibari khal* on the North of *Dainna Chowdhury* is a major intake from the *Lohajang* river filling the northern part.

In the monsoon of 1991 a breach in the bank of the *Lohajang* river on the North of *Kalibari khal* contributed much to the flooding of this area. Much of the flood water of this area flows from the SC-9 and 10 in the North-west through a link canal from *Sapua* to *Dainna Chowdhury*. The level of the embankment from *Baghil* bazaar to *Tangail* town is not high enough and is sometimes overtopped by flood water during the peak monsoon.

This sub-compartment is severely affected by drainage congestion due to the silted channels and about 60% of the area is low farm land, suffering from drainage congestion. About 25% of the area is still under water in late February 1992, making this area unavailable for cultivation.

There is strong demand for immediate re-excavation of the channels to relieve the drainage congestion in this area. The main *khals* requiring re-excavation are: (a) the *Goramara khal* from *Darjipara* through *Binnafar, Sakrail, Santosh, Aloa Bhabani* to *Baratia* outfall at the *Lohajang* river in SC-11, 12 and 14, (b) *Gaizabari khal* from *Santosh* to *Kagmari*, (c) *Digalia khal (Chailabari khal)* from *Sakerail* to *Digalia*, (d) *Chillabari khal* from *Panskahonia* to *Santosh*. *Chillabari khal* is closed at its entry from the *Lohajang* river because flood water brought to much sand. But this *khal* drains out the adjoining areas flowing south to *Gaizabari khal*. The outfall of the *Borrowpit khal* beside the *Tangail-Baghil* road is blocked and needs to be re-excavated and cleared. The *Kalibari khal* on the North is

to be re-excavated with a regulator, since there is complain of large sand inflow from the *Lohajang* river damaging the farm land. A larger regulator at *Darjipara* on *Binnafar khal* may help drainage (see SC-10).

A few internal link channels should be excavated, e.g. one from *Singarkona beel* to *Pasbeel,* from *Pasbeel to Barabeel,* from *Barabeel* to *Goramara khal, Sarkarbari khal* beside *Harezuddin* house from *Sakrail chak* up to *Battala.* A few culverts are to be constructed to facilitate proper flow of water e.g. one in *Charapara* (*Choto Binnafar*), one on the North of *Lakhipur chak* and one at *Sakrail* to allow drainage from *Khanpur* area to *Digalia beel* and then to *Digalia khal.* The embankment cum road from *Tangail* to *Baghil* bazaar should be resectioned and the level be raised above flood level.

Boat movement is scarce since there is no exit or entry route from the river. During peak monsoon small county boats are used for internal movements of people and freight. Before the construction of the *Darjipara* regulator, the *Binnafar khal* was open and large boats used to ply through this area, facilitating the cheap movement of people and freight. Loss of navigation facility is one major reason that people are unhappy about regulators. When it was suggested that a regulator may be constructed at the intake of the *Lohajang* river, a considerable number of people were against the idea for fear of loss of navigation facility and fish migration. However a large group is also in favour due to the advantages of controlled flooding.

Water hyacinth poses a serious problem in the monsoon and post monsoon period. These aquatic plants survive in the *beels* and *pagars* in the dry season. During the monsoon they multiply fast and spread out. Sometimes large colonies accumulate on paddy fields, damaging the paddy. In the post monsoon the hyacinth settles on farm land, delaying the availability of the land for cultivation. Extra cost is involved for cleaning. However there are beneficial uses of water hyacinth, e.g. as fodder, mulching agent and fertilizer, therefore people are not in favour of wiping out then completely.

Goramara khal, Digalia khal and *Gaizabari khal* were excavated under FFW programme in 1978-1979. In 1990, due to severe drainage congestion problem in *Barabeel* and *Darapita beel* area, local people on their own initiative re-excavated *Goramara* and *Gaizabari khals* up to the *Lohajang* river to save their crops. The *Lohajang* river was re-excavated in 1978-1979.

Erosion

The erosion problem near the intake of *Chillabari khal* is serious. The erosion started since 1988 flood. Remedial measures should be taken up early to safeguard against any possible breach.

Ground water

Ground water is exploited adequately. The numbers of DTW's and STW's operating in the area is enough. HTW's are used for drinking water. But their numbers are not adequate at all locations. Iron content in ground water does not pose any problem for drinking or irrigation.

In the late dry season less discharge from the tube wells is found, but this does not affect the normal requirements.

Conclusions

The SC-11 is severely affected by drainage congestion due to silted channels. Flooding starts in June and the major source is early monsoon rainfall. Thereafter river water enters from the *Lohajang* river through the existing *khals* on the South East and North. Re-excavation of the main *khals* e.g. *Goramara khal, Gaizabari khal,* Digalia *khal* and *Chillabari khal,* along with a few internal link channels will relieve the area from drainage congestion. A regulator on the *Kalibari khal* on the North and a few culverts will be required.

Ground water is adequately exploited and its quality and quantity is satisfactory implying adequate recharge.

11.3 AGRICULTURE

Cropping pattern

The gross area of the sub-compartment SC-11 is 1114 ha out of which about 940 ha is the net cultivated area. The major cropping pattern according to the land pattern on the basis of the present flood depth situation are given below. The major part of the area, about 60%, belongs to F2 while 15-20% of the area belongs to F1 and approximately F0 and F3 covers about 10% each. The major crops grown in the area are Boro (HYV) or Braus (late Boro). T. Aman (local) and some HYV T. Aman is grown on high and medium high land. TDW Aman is grown on F2 to F3 land. Aus and Jute are also on some high and medium high land. Sugarcane along with lentil are mostly grown on high land. Among the Rabi crops other than paddy, wheat and mustard are prominent.

Crop Patterns

Flood Category	*Kharif-1*	*Kharif-2*	Rabi	Annual	Approx. % of cultivated area
F0	B. Aus	-	Rabi (Mustard,Wheat,Pulse)		10%
F1	B.Aus/Jute	TA (L)	Mustard/Wheat/Potato		10%
F1 - F2	Jute	TA(HYV)	Mustard/Potato/Wheat		10%
F0	T. Aus	TA(L)/HYV	Mustard/Wheat		5%
F0	-	-	-	S.cane + Lentil	5%
F1 - F2	B/TDW Aman	-	Mustard,Boro(HYV)/Braus		30%
F2	-	-	Mustard,Boro(HYV)/Braus		20%
F3	-	-	-	Braus	10%

Average crop yield and price

Crops	Av. yield t/ha.	Price/MT
B. Aus	1.8	5360/-
T. Aus (HYV)	2.5	6030/-
T.Aman (L)	2.2	6030/-
T.Aman (HYV)	3.0	6030/-
TDW Aman	1.7	6030/-
B. Aman	1.6	6030/-
Boro (HYV)	4.6	6030/-
Braus	4.0	6030/-
Jute	1.6	4556/-
Wheat	2.0	5360/-
Mustard	0.9	12060/-
Potato	9.0	3200/-
Pulse	1.0-1.1	13400/-(Lentil) 6970/-(Khesari)
Sugarcane	28.0	670/-

Use of fertilizers

Farmers use fertilizers below the optimal doses because lack of fund does not allow them to do more. The amount of fertilizers they are using in their fields is determined according to their experience and tradition. Farmers also reported although they feel that more fertilizers application is necessary to apply in some crops. They also reported that extension workers never taught them to practice improved and scientific method of cultivation. These workers occasionally do some demonstration plots in the area but the purpose of those demonstrations is not explained to the farmers.

In the sub-compartment the average use of different fertilizers in different crops are in the range of following doses per ha;

Crops	Urea(kg/ha)	TSP(kg/ha)	MP(kg/ha)	Cow-dung(kg)
B. Aus	90-110	70-90	15-20	-
T. Aus	120-130	90-100	20-25	-
T. Aman (L)	140-150	90-120	30-40	-
T.Aman (HYV)	170-180	90-120	40-50	-
TDW/B. Aman	110-130	-	-	-
Boro(HYV)/Braus	160-180	90-110	50-60	-
Wheat	120-140	90-100	30-40	-
Mustard	-do-	-do-	-do-	-
Potato	-do-	-do-	-do-	-
Sugarcane	150-180	110-120	40-50	10,000

Irrigated crops

The only irrigated crops in the sub-compartment are Boro (HYV) and Braus (late Boro). All the other crops are grown under rainfed condition in the *Kharif* season and depend on the available moisture in the winter season. Some area near the water sources are occasionally irrigated by indigenous method as in the case of some vegetables. In the surveyed area the following DTWs and STWs were available to irrigate the Boro (HYV)/Braus.

One DTW in the village *Choto Binnafar* was installed by GTZ providing buried pipe irrigation to about 30 ha of land. Besides that 7 DTWs and 29 STWs are available in the area.

Village	DTWs/STWs (Cusec)	Irrigated Area (ha)	Run by Diesel/ Electricity
Dainnya Chowdhury	DTW 1 No. (2 cusec)	20	Electricity
	STW 10 Nos.(1/2 cusec)	50	6-Electricity 4 Diesel
Dainnya Sibram	DTW 2 Nos.(2 cusec)	40	Electricity
	STW 4 Nos.(1/2 cusec)	20	1-Electricity 3-Diesel
Bara Khanpur	DTW 1 No. (2 cusec)	30	Electricity
	STW 3 Nos.(1/2 cusec)	15	2-Electricity 1-Diesel
Choto Binnafar	DTW 2 Nos.(2 cusec)	40	1-Electricity 2-Diesel
	STW 4 Nos.(1/2 cusec)	20	1-Electricity 3-Diesel
Sakrail	DTW 1 No. (2 cusec)	30	Electricity
	STW 5 Nos.	25	Diesel
Charpara	DTW 1 No.	20	Electricity
	STW 3 Nos.	15	Diesel
	DTW 8 & 29 STW	Total : 325 ha.	

All the DTWs are owned and managed by KSS and Grameen Bank. In the village *Dannya Chowdhury*, the Grameen Bank takes 1/4 of the production as irrigation cost. In the villages *Dainnaya Sibram, Bara Khanpur, Sakrail* KSS take Tk.10/- per decimal. It is Tk.22/- per decimal in *Choto Binnafar* and Tk.15/- per decimal in *Charpara*. All the STWs charge 1/4 of the production from the farmers as irrigation cost.

Crop damage

The low lying area is mostly affected by flood from river as well as by rain water. Poor drainage condition delays the plantation of Boro (HYV) and Braus. In some low lying area water logging situation continues for a longer period. Farmers are forced to pump out water to transplant Boro (HYV). Sometimes medium high land where T. Aman is grown is also affected by water congestion and this partially damage this crop. Due to slow drainage of congested water farmers cannot grow Rabi crops in time. Many fields remain fallow in the Rabi season due to water logging. TDW Aman is greatly affected in the area along with some Aus seedlings. In the village *Dainnya Chowdhury* water enters the area from *Baghil, Saigergona, Choabari, Goalpara* due to breeches in the road. Also through *Bathiajuri, Gaori* water drains into the area which cannot go out.

Water hyacinth damages TDW Aman in a large scale. In *Dainnya Sibram* water enters from *Lohajang*, inundating the area in *Baisakh* and *Jaistha* affecting the young seedlings of Aus and mature Boro (HYV). In the village water enters through *Kalipur khal* to the eastern part and through *Santosh khal* to southern and western part of the area. Farmers are of the opinion that if water is drained out early, timely sowing of Rabi crops would be possible. In *Choto Binnafar* water comes from *Raksit Belta* and *Gadurgati* flooding the low lying area. Therefore farmers are not planting TDW Aman in the area. The southern part of *Choto*

Binnafar and *Charpara* are mostly high to medium high land while the rest are medium low lands where Boro (HYV) and TDW/B. Amans are grown.

Farmers demanded timely drainage of congested water from low lying area of the sub-compartment to safeguard the TDW Aman and to save young seedlings of Aus and mature Boro (HYV) from early flood.

Livestock

Farmers in the area reported a shortage of draft animals. Some power tillers compensate this deficiency. But the farmers reported that the cost of ploughing of land is high. Power tiller charges Tk.4-5/- per decimal for ploughing two times while the cost for ploughing with 2 pair of draft animals is Taka 2.40.

In the area livestock feed deficiency is acute from the month of February to April i.e. until the harvesting of Boro (HYV)/Braus. During the peak period farmers buy straw @ Tk.100/- per mound to feed their cattle. Cattle in the area mostly suffer from rinderpest, cow pox, toe-disease etc. Farmers do not get free medicare. There is a livestock hospital and A.I. centre in *Santosh* and *Binnafar*. A.I. is ineffective in some cases. Without paying any incentive to livestock staff, proper treatment of cattle and A.I. cannot be expected. Most of the farmers go with their sick cattle to *Adi-Tangail* for good treatment. In the sub-compartment last year some cattle died because of an unknown disease.

Poultry

Poultry in the area are of local varieties. Among the poultry chickens are prominent. Some ducks are available in villages near water bodies. It is reported that women carry the ducks for their feeding to a nearby *beel* in the morning and bring them home in the evening. A duck lays 20-25 eggs in a month while a local varieties of hen lays 15 to 16 eggs in a month. Some farm poultry are available in a few household of medium and big farmers. Raniket and tape worm is the common disease among the poultry. The livestock department staff occasionally give mass injection to the poultry.

Own observation

About 50% of the area is medium low to low land belonging mostly to F2 and to the F3 category. About 20% of the area are high land (flood category F0). The rest of the area belongs to medium high land, flood category F1. The general slope of the area is towards the South to South-East. The landscape is mostly gently undulating to gently slopy towards the basin and some irregular land pattern is also found. About 40-45% of the area is estimated to be under Rabi crops other than Boro paddy (Irri). Among the Rabi crops, mustard and wheat are extensively grown. Sugarcane and lentil are grown as a mixed crops on the higher land.

Soils of the area are mostly heavy textured like Sic while some medium to light textured soils Sicl to Sil occur on ridges and around the village periphery. The health of the livestock is moderate to poor. Moreover proper medicare is not available in time. Hybrid cattle are rare. Poultry are mostly scavenging birds. Very few farm poultry are available.

Conclusion

Irri/Boro (HYV) or Braus is the main crop grown extensively in the area. Poor drainage condition in the low lying area compel farmers to pump out water from their fields to transplant Boro (HYV) and thus make the production cost higher than that of other farmers. TDW Aman is extensively affected by both early and late flood causing disinterest to grow this crop. Farmers in the area are eager to grow more Boro (HYV) which give higher production. There is a heavy demand for the expansion of irrigation facilities. In some villages considerable area is available for growing T. Aman but these are occasionally subject to damage by flood. Drainage during the monsoon would facilitate farmers to grow T. Aman (HYV) in place of local variety. Improved drainage of the water logging area in the pre- and post-monsoon will help farmers to extent the area of Rabi crops.

The livestock health situation is moderate to poor. Milch cows are used as draft animals. Each milch cow yields 2-3 litres of milk per day. Some farmers supply milk to *Milk Vita* as per the existence rate in the market. The area has a shortage in draft animals. Poultry are mostly of local varieties. They live on scavenging around household and fallow lands. Medicare for both livestock and poultry reported to be poor.

11.4 FISHERIES

Fisheries resources

Water bodies

The water bodies under the SC-11 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. Ghatakbari beel ii. Bara beel iii.Sakrail beel	 1 1 1	170 acre approx	perineal	katla, kali baus, carfue, Black Shrimp, Kakra(crab); Khalisha, Gojar, Guchibaim, Gainnya, Gurachingri, Rui, Chanda, Chela, Chang, Tengra Dankina, Dhela, Tara Baim, Puti, Pabda, Phali, Batashi, Bacha, Boal,Magur,Sing,etc. Shellfishes-Fresh water muscles-Lamellidiens and snails including pila globossa.	680 approxi-mately	individual	the beelis qualita-tively most resourceful
2.	Pagars: i.Sakrail ii.Dainnya Sibram iii.Chotto - Binnafair	 2 3 4	2.5 acre approx	Perineal	Koi,Magur,Shol,Boal,Puti, Taki,Gojal,Sing,Baim etc.	10 mt approxi-mately	Individual	Resourceful
3.	Pond: Dainny Sibram Dainnya - Choudripara Sakrail Choto Binnafair	 1 6 40 7	55 acres approx	Few are culturing and few are cul-turable	Major and minor carps, Tilapia etc.	Poor	Individual	Pond fish culture is not deve-loped in the area

Ghatakbari *beel*

This is a perineal water body in the village *Dainnya Sibram* covering a total area of 1.5 acre of land and this is connected with *Lohajang* river on the northern side through *Ghoramara khal.* This *beel* is a very important water body in the area as the villagers as well as professional and subsistence fishermen catch fish from the *beel* round the year. The professional fishermen from *Porabari* catch fish in this *beel* and earn their livelihood. About 5-8 subsistence fishermen of the same village also catch fish from this *beel.* Moreover the villagers in general catch fish from this *beel* and meet their own fish consumption demand.

Different kinds of fish are available in the *beel.* Many ducks graze in the *beel* during the dry season and the most difficult time of the year. People in the area also get the surface water irrigation facility from this *beel* for their agricultural crops on the outskirts of the *beel.*

The water hyacinth serves as food for fish as well as fodder for cattle. Moreover the water hyacinth is used as organic manure by the farmers in compost farm to the agricultural field. The canal connecting the *beel* with the *Lohajang* river has been silted up. The *beel* is owned by the public and is easily approachable from the village.

Bara *beel*

This is also another important *beel* in the village *Dainnysibram* under the sub-compartment covering a total area of .3 acres approximately. The *beel* belongs to the public but they allow free fishing for everybody. Fishing goes on in the *beel* round the year with satisfactory catch. So the *beel* is of prime importance to the people of the locality.

In the dry season when there is a acute scarcity of water in the area the people uses the *beel* for bathing themselves and their cattle. The *beel* also helps to facilitate surface water irrigation to the outskirts agricultural crops. The *beel* is reported to have a lot of snails, bivalves (uni), water hyacinth etc. The snails are used as food for ducks and the water hyacinth is used as cattle fodder as well as in the form of compost manure. The *beel* is connected with its surrounding *beel* the *Ghatakbari beel* through a small canal.

Professional fishermen

There are about 3-5 households of professional fishermen, who live in the village *Sakrail* since long. They generally go fishing in the *beel,* nearby rivers, *pagars* and ponds. They do not go to Jamuna and *Dhaleswari* river for fishing as they do not have the necessary inputs for this type of fishery. The professional fishermen are low cast hindus.

Subsistence fishermen

There are about 10-12 households of subsistence fishermen living in the village *Dainnyasibram.* They go fishing in the nearby *Ghatakabari* and *Bara beel.* The number of subsistence fishermen in the area is gradually increasing and they are from Muslim background.

Fishing methods

Various fishing methods are practical in the area. In the monsoon period, *Dharmajal, Berjal, Karentjal, Jakhijal* are used in flood plain fishery by both professional and subsistence fishermen. Harpoons such as *Konch* and *Tenta* are also reported to be used in the flood plain but its percentage is very low. In capture fishery the professional fishery uses *Fashal, Maijal, Berjal, Kharjal.* During the dry season the *pagars* fishery is done by both cast net and sometimes low lift irrigation pumps. During the dry season people uses *polo* in the shallow water of the *beel*, but during the early monsoon people use *Darki, Dhair, Hosa* etc.

Flood plain fishery

Since most of the area under the sub-compartment is medium low to low level land the flood plain fishery is well practised in the area. The vast area remains under water for about 5 to 6 months of the year (May to October). At that time the flood plain of the area is naturally stocked with different kinds of fish.

As per report of the villagers the flood plain area is a good habitat for the brood fish to spawn. Fish, fry and eggs from the surrounding river migrate to the flood plain via the canal. The fry and eggs start growing in the flood plain. Some fish spawn in the flood plain as it provides suitable grounds for spawning. The month of May (late) and June is reported to be the fresh water fish spawning period. This time the whole fish population moves freely in the flood plain and they find a good food supply.

In the post monsoon period, i.e. with the receding of flood water the flood plain fishes go down to the available deep water bodies like *beel, pagars* and homestead ditches. Some fish spieces go back to the river via the same *khal.*

Fisheries practices

Both culture and capture fishery is reported. Pond fish culture is very poor in the area.

Institutional facility

People reported that there is no institutional facility available in the area either from the Govt. or from NGOs.

Fish predation and fish diseases

There is a report of fish predation in the area and it causes a lot of damage of fish production. Many predators *Aoir, Boal, Shol, Gojar, Baille, Taki, Frogs, Snakes* take part in predation of small fishes.

Almost all the species of fishes are attacked with disease. The people in the area called this disease *Khoto rog* which causes the body of the fish to rot, and ultimately the fish dies. This disease is extensively found among snakeheaded fish, but small shrimps are free from disease.

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Fish migration

The nearby river *Lohajang* is the main source from where the fish migrate to the flood plain through the *khal*. This migration starts late in May and continues throughout the whole monsoon period. The buried female fish spawns in the flood plain after migration.

Own observation

There are 3 *beels* in the sub-compartment. A good number of ponds, *pagars* and road side ditches are available. Many ducks were found grazing in the shallow water of the *beel* as there is no available homestead water bodies. The *beels* were found to contain water hyacinth. It was found from their catch that about 80% of snake headed fish are attacked with disease. The fishermen do keep the diseased fish byt they throw them back in the water. Birds were flying over the water bodies, picking up the dead fish. A good number of frogs of small size were also found in the water bodies. From the fish catch of the villages it was observed that the small shrimps are free from fish disease.

The area was found having a good number of ponds but pond fish culture is very poor. Only a few ponds were found under fish culture. The canal connecting the *beel* with the river was found to be silted up. People were irrigating the agricultural crops from the surface water of the *beel* using traditional methods.

Conclusion

People urged to increase the surface water by re-excavating the existing derelict ponds, road side ditches and preparation of more *pagars* in the area. They told that the water bodies will provide them fish round the year and anybody who wishes to fish can do it without any problem and meet his fish consumption demand. They put much emphasize on *pagar* development which will be helpful to accommodate fish and thereby multiplication of fish by reproduction will enhance the fish production in the area.

They also requested to re-excavate the existing *khals* connecting the *beel* with the surrounding river to facilitate fish migration during monsoon. People are very much concerned about the fish disease and they requested to solve this problem.

11.5 ENVIRONMENT - MALE

Biological

Arthropods

Arthropods animal like mosquito, house-fly, grasshopper, mantis, butterfly, honey-bee, cockroach etc. are found in the area. In addition many destructive insect and pest like *Nanda poka, Mazra poka, chang/chat* and *Pamri poka* are also present. The *mazra poka* damages the paddy and *changa* damages jute. The *Changa poka* is extensively found in the rainy season.

Mollusca

Snails and bivalves are also found. Snails of different sizes are present in shallow water bodies and are food for ducks and are used as bait in angling. In addition to that the dry shell of snails are burnt to prepare lime. Snails outnumber the Bivalves *(unio)*.

Annelids

Many annelidas animals like leech and earthworm are reported in the area. Leeches are available both in small bushes and water bodies. Many other identified annelidian animals are also reported in the area.

Fish

Different kinds of fresh water fishes are reported in the area but the population is gradually decreasing due to disease and overfishing.

Amphibian

The visited area has toad, frogs and *hyla*. There is no report of commercial catching of toads/frogs. Previously frog catching was a regular practice in the area and people used to earn money at the rate of one taka/per frog.

Reptiles

Guishap (varanus) are present but their population is reported to be decreasing. *Guishaps* help controlling the snake population in the area. They have a high market value since its skin is used for preparation of money bags, belts and many other fancy items. Both poisonous and non-poisonous snakes are found. The tortoise population is almost zero. Lizards and *Anjan* are present in the homestead and bushes.

Birds

Common varieties of birds, are present in the area, but in reduced numbers. People reported that due to lack of bird food (rice, corn, etc.) in the area they have migrated to other places. Moreover the human intervention (like hunting in the bush) in the homestead forest has reduced the bird population. Birds like Dove, *Shalik, Boi,* Cuckoo, Crane, Kingfisher, Kite, Pigeon etc. are present. Guest birds like *Kal-dighiri, Bele duck* visit the *beels* of the area in the winter season. They are sometimes hunted by people usings guns.

Mammals

Terrestrial wild animals

Homestead forest are well developed in the area, having a common varieties of plants, shrubs and trees which provide a habitat for wild animals. Wild animals like Jackles, Jungle cats, *mongoose* and *bagdasha* are present. The jackle population has significantly decreased

in the area since 1988. But *mongoose* are abundant in the area and helps much in controlling poisonous snake of bush area.

Rats

Rats are abundantly present and damage public and public property. Rats damage particularly agricultural crops like sugarcane, wheat etc.

Domestic land animals

Once the area was rich in domestic animals include dry cows, milch cows, horses, buffalos, sheep, goats, etc. Now-a-days, due to lack of livestock feed and cattle disease, their population has significantly decreased.

Cattle disease

A lot of cattle died in the village *Dainnya Choudhuripara* in September 1991 due to cattle disease. The disease could not be identified by the vaternary doctor but people in the area have identified it as *Pet fula* disease. Due to high cattle mortality in the area poor farmers now find it difficult to plough their land because of the lack of draft animals. People suspected the cause of this disease is the grassland in the post monsoon period.

Others

Afforestation

There is no afforestation plan in the area. Last year CARE supplied valuable saplings of timber plants. People plant trees at their own homesteads.

Deforestation

Deforestation of homestead forests, road side bushes etc. is a regular practice in the area. Both matured and immature trees are cut. People sell trees to wood traders who take the wood to the market and the brick-fields. The majority of small trees are reported to be used in the brick-field as fire-wood. There is no brick-field in the area but these are two brick-fields in the neighbouring areas.

Human habitation

Every year about 2-3 new houses are built, covering about 30 decimal. The rate of growth of new human habitation is reported to be more in the village *Sakrail*. This gradually decreases the agricultural land.

Pollution

Pollution is a common problem in the area. People do not build latrines according to a plan. Open sanitation is practised by the children. Open sanitation, throwing out of homestead garbage here and there and stagnant water in the road side ditches are a source of both air and water pollution. People use insecticides (*Bashudin/Dimacron*) to avoid insect attack.

Own observation

Homestead forest is well developed in the area comprising common varieties of trees. The homestead gardens and the bamboo bushes are well developed. Very few birds like *Shalik, Dove, Herons* were found in the area. Road side ditches and many derelict pond were found completely dry.

There is an acute scarcity of surface water. During the dry season people in the area face a lot of problems for grazing ducks and for other domestic consumption due to lack of water. A few hand pumps ensure drinking water but their numbers seems to be inadequate. The area seems to have an acute fuel scarcity problem. Plant leaves, many small shrubs and cow-dung in various forms are used. The transportation system is not so developed and few vans and bicycles were found plying the road.

Conclusion

People in the area greatly demanded to provide surface water facilities in the dry season through re-excavating the existing homestead derelict ponds, *pagars* and road side ditches which will facilitate surface water irrigation, grazing of ducks and bathing of cattle etc. They urged to help them doing homestead garden development by supplying the necessary seeds of winter crops and saplings of timber yielding plants. They are very much concerned about cattle disease and they earnestly requested to ensure medicare for their cattle. They also requested necessary inputs for construction of *pucca* latrines.

11.6 ENVIRONMENT - FEMALE

Homestead forest

Homestead forest is reported to cover an average area of (.1 - .2) acres in each homestead in this sub-compartment. The homestead forest comprises the most common varieties of trees like herbs, shrubs, mango, jackfruit, litchi, banana, bamboo bush, palm tree, date tree, jambura, berry, hard fruit trees, *tamarind, karai, shimul, guava* etc. In between the trees and bushes many types of animals like rats, *mongoose,* snake, *varanas,* lizard etc. live.

Fuel

The main sources of fuel are jute stick, remains of sugarcane, paddy, wheat mustard, pulses, cow-dung, bushes, dried leaves of trees, water hyacinth etc. People from the poor section (who have no livestock and paddy field) face a serious scarcity of fuel.

Drinking water

There are 120-140 hand pumps which are the main source of drinking water. There are some households in the visited area like *Charpara, Shakrail* which are use open-well water for

drinking. In some villages, people have to go a quite a distance for drinking water. There are some (10-15) tube wells which are supplied by different NGOs in some visited villages.

There are few *pucca* latrines (15-20) in the richer households. Most people use kaccha (traditional) latrines. Some NGOs also have supplied inputs for construction of few *pucca* latrine in the visited villages.

Diseases

Diseases like Diarrhoea, Disscentry, Malaria, Skin diseases have occurr. People think that the open sanitation is the main source of diseases. Most of the diseases occurred in the month of *Ashwin-Kartik*. Air is also polluted in this area due to *kacha* latrine. Cocks, hens and flies are wandering in the open latrine.

Rats

Rats damage rice, wheat, other crops, fruits and also household belongings. There are other wild animals like, fox, *bagdasha, mongoose,* jungle cat, mog, gaora, etc. People complain that foxes and *bagdasha* kill baby goats and chickens.

11.7 SOCIO-ECONOMIC SITUATION - MALE

Major non-farm activities

The households in the surveyed villages (*Dannya Sibram, Dannya Chowdhury, Basa Khanpur, Sakrail, Choto Binnafor* and *Charpara*) of SC-11 are engaged in diverse non-farm activities like service, weaving, bidi making, fishing, carpentry, petty and seasonal business, oil crushing, wood sawing, transport driving, agricultural and non-agricultural work etc. But the activities differs from village to village, e.g. households of *Sakrail* village are engaged in almost all the activities mentioned above while households of other villages are confined to limited activities. About 50% of the non-farm households are daily labourers, followed by transport workers about 15%, service holders about 8%, petty and seasonal businessmen about 8%, bidi maker about 7% and rest others.

Social and institutional aspects

Employment patterns

Mainly family labour is used in the farm households. A few big farmers and some service holders engage labour on a yearly basis for their agricultural work. But during peak season of HYV Boro the use of hired labour is common.

Both in-migration and out-migration of labourers is found. In comparison to in-migration, out-migration (to distant places) does not occur so much. As the sub-compartment is adjacent to Tangail town the majority of the day labourers from the area find their work (during lean

season) in Tangail town or its outskirts. They mainly engage in construction work, in brick-field work and in rickshaw/van pulling.

Wage rates

The wage rate for the agricultural labourers in the area ranges from Tk.20-25 with one meal during lean season and Tk.25-35 during peak season. One meal is provided to the day labourers in all seasons and in all the villages. The fishermen assistants usually work in a group and are paid with a share of total fish catch or a part of contract money if engaged to catch fish for others. Their earning ranges from Tk.30-35 during the lean season and Tk.45-55 during peak season for fishing. The bidi makers wage is also given on contractual basis and depends on individual performance. By working from morning to evening a bidi maker can earn Tk.30-40 per day. A carpenters wage is Tk.50-60 with one meal, throughout the year.

Organized groups

The villages in the surveyed area have a few organized groups and only a couple of organizations have activities in the area. Grameen Bank, BRDB and SDS are active but there groups are not found in all the villages. The Grameen Bank has groups in *Basa Khanpur* (one female), *Dannya Chowdhury* (2 female and one male) and in *Charpara* (2/3 female) village. The BRDB has one KSS group in *Sakrail* and another in *Choto Binnafor* village. SDS mainly deals with the young children, and has activities in *Dannya Sibram, Dannya Choudhury* and *Sakrail* village.

There are also some samities formed by the villagers themselves. An example is *Khanpur janata samity* formed by the villagers of *Basa Khanpur* and all 104 households of the village have someone who is a member of the *samity*. Savings and mass-education are the present activities of the *samity*.

Some poor people, mainly landless from *Charpara* village have formed two *samities*. Their main objectives are saving and loan disbursement. In total 75 members are there in the said two samities.

Transport and communication

All the surveyed villages in the sub-compartment have a good connection to the wider road communication systems. The internal roads of the villages (except *Sakrail, Dannya Choudhury* and *Charpara*) are also good and rickshaw/van can use the road almost throughout the year. The internal roads of *Sakrail, Dannya Choudhury* and *Charpara* are also good but inundates during the rainy season and remain under water for 2/3 weeks. Then people of the locality face some problem using the road.

Markets

The area has a good number of markets with weekly hat days and every day bazaar. Moreover Tangail town being situated nearby and with good road connection, people of the

area frequently visit Tangail town for buying their daily necessities and also selling their products. The list of the markets in the area with hat and bazaar day are given below:

Sl. No.	Market/Bazaar	Hat day	Bazaar day	Attendance	
				Hat day	Bazaar day
1.	*Binnafor*	Sunday	Everyday	4/5000	800-1000
2.	*Porabari*	Tuesday	"	8/10000	1200-1500
3.	*Jugni*	Monday	"	7/8000	800-1000
4.	*Charabari*	-	"	-	500-700
5.	*Baghil*	-	"	-	600-800
6.	*Dharerbari*	Friday	-	2/3000	-
7.	*Tangail*	-	"	-	?

General needs

The people in the northern and central part of the sub-compartment, particularly from *Dainnya Choudhury, Dannya Sibram* and *Basa Khanpur* village demanded to raise and pave the road from *Tangail* to *Baghil* bazaar, which is the main road they use for their business trips to go further north (up to *Sirajganj*) and to *Tangail* town. This road therefore plays an important role in the economy of the people of the area. The village roads that go under water during the monsoon in *Sakrail, Dannya Choudhury* and *Charpara* village also need to be raised.

In respect of education the young children of *Charpara* and *Choto Binnafor* suffer to some extent as there is no school within 1 mile from these villages. Extension service for agriculture and livestock have been found inadequate in the whole area. These need to be strengthened as expressed by the people of *Sakrail* and *Choto Binnafor* village.

Own observation

Existing water related situation

The *chaks* in the central part of the sub-compartment, particularly of village *Dannya Sibram, Dannya Chowdhury, Basa Khanpur/Khanpur* and *Sakrail* suffer drainage congestion problem. Both rain water and flooding from the rivers causes inundation and water logging. As a result, damage of HYV Boro has become almost regular and at the subsequent stage (after harvesting Boro) growing of another crop is also greatly hampered. The *chaks* of the villages *Choto Binnafor* and *Charpara* in the southern part, particularly that of *Charpara* inundates mainly by rain water. Due to unplanned road construction and keeping no provision for drainage like culvert or drain pipe on the roads, the *chak* of *Charpara* is suffered with water logging and congestion.

The drainage congestion problem in the whole surveyed area of the sub-compartment occurs mainly due to the different silted up *khals* in the area viz. the *Ghoramara khal,* the *Santosh khal,* the *Gajabari khal* and the *Kalipur khal.* About the sluice gate in *Binnafor* on the *Binnafor/Ghoramara khal* the people of *Dannya Chowdhury* stated that the sluice is of no use to them. The *khal* and the sluice does not help to drain the excess water. They also said that

the sluice has stopped navigation and closed an important riverine trade route. This has affected marketing of agricultural goods for which they suffer economic losses.

Socio-economic situation

Educationally the people of *Sakrail, Dannya Chowdhury* and *Basa Khanpur* are more advanced than the people of *Charpara, Choto Binnafor* and *Dannya Sibram*. In respect of the economic condition the people of *Choto Binnafor, Sakrail, Dannya Choudhury* and *Basa Khanpur* are in a better position than the people of *Dannya Sibram* and *Charpara*. Both economically and educationally the people of *Charpara* are in a worst position. And the people of *Sakrail* have been found politically the most conscious.

Peoples opinion (about solving water related problems)

The people of *Dannya Sibram* suggested to re-excavate the *Katakhali khal* and to connect it with the *Ghoramara khal,* which also needs re-excavation. This will solve the water congestion problem. Re-excavation of *Ghoramara khal* is also demanded by the people of *Dannya Choudhury*.

The people of *Basakhanpur* think that the re-excavation of the *Gajiabari khal* and the *Diglia khal* and a sluice in the month of *Gajiabari khal* will help remove their water congestion problem. The people of *Sakrail* requested to excavate a new channel between their eastern *chak* and re-excavation of *Santosh khal* for drainage of water in their northern *chak.* To remove water congestion problem in the *chaks* of *Choto Binnafor*, the people of the area suggested to construct a sluice gate on the *khal* under the bridge at *Gadurghati*. To meet the water demand during the the dry season, for their household works and bathing of their livestock, they urged for the excavation of water reservoirs in the area.

To remove water congestion problems in the *chak* of *Charpara* the people of the area demanded drain pipes only in two places of their newly constructed village road.

To check over-topping of the river *Lohajang* in the northern part of the sub-compartment and inundation of some internal village roads (in *Dannya Chowdhury, Sakrail* and *Charpara* village) during the monsoon, the people of the area requested for raising of the *Tangail-Baghil/Jugni* road and their village roads. This will also prevent breaches and sand deposits at the northern side of the sub-compartment and will facilitate easy movements.

Conclusion

The main problem of the surveyed area is drainage congestion that causes due to the siltation of some of the *khals* of the area. For the improvement of the socio-economic condition of the people of the area, the *khals* re-excavation is very much needed as expressed by the people of the area.

11.8 SOCIO-ECONOMIC SITUATION - FEMALE

Employment patterns and activities of women

Women of the visited area are mainly doing household work. Besides their household work, there are 80-90 women from *Sakrail, Dannya Shibram, Dinnya Choudhury* who make *biri thonga*. A few women in the visited area are doing weaving work. There are 5-10 women from *Dinnya Chowdhury* who are engaged in making fine mats. A few women (10-15) of the visited area are engaged in work like road management programme (RMP), BURO, *Dai* (trained from CARE). There are 25-35 women, who are working in the paddy field (gathering seedlings) outside of their house, in *Charpara, Dinnaya Chowdhury, Khanpur, Basa* and they earn in cash. There are 25-30 women in *Khanpur* and *Basha* engaged in pottery works and they earn in cash or kind.

Some women (10-15) from poor households are engage in post harvesting work in richer households. A few women (5-8) in the visited villages sew cotton wrappers *(katha)* and earn in cash.

Women Biri workers of the visited area earn Tk.4-5 per day, by making 2000 *biri thonga*. Fine mat workers women earn Tk.10-12 per day but this is also seasonal business. Road management program workers earn Tk.480-500 per month. Weaving women earn Tk.5-8 per day. Cotton wrapper worker earn Tk. 15-25 for per *katha*, but this is also seasonal work.

Education and literacy

The educational institutions and facilities of the visited villages are sufficient. The distance of schools, colleges and madrasas is about 1 to 3 kilometres from each village. Communication is also good, though in the rainy season there are problems in *Khanpur, Basha, Dinnya Chowdhury*.

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

Sl.No.	Village	Literacy Rate	Ratio of Boys	Ratio of Girls
1.	*Dinnya Shibram*	15-20%	60%	40%
2.	*Dinnya Chowdhury*	20-25%	55%	45%
3.	*Basha*	25-30%	55%	45%
4.	*Khanpur*	20-25%	60%	40%
5.	*Shakrail*	30-35%	60%	40%
6.	*Choto Binnafor*	15-20%	65%	35%
7.	*Charpara*	10-15%	70%	30%

Organized groups

In all visited area, there are some organized groups of different NGOs, societies, which are shown in the following table:

Sl. No.	Village	Organization and Samity	No. of Groups				Remarks
			Male		No. Female		
			No.	Member	No.	Member	
1.	Dannyasibram	1. SDS 2. Diannya Shibram Purush Samity	1 1	35 55	1 -	30 -	
2.	Diannya Chowdhury	1. Grameen Bank 2. SDS 3. RMP (CARE)	1 1 -	30 30 -	2 1 1	60 30 5	
3.	Khanpur	1. Grameen Bank 2. SDS 3. Khanpur Janata Samity	1 1 1	30 35 104	1 1 -	30 30 -	
4.	Basha	1. Grameen Bank 2. SDS	2 1	60 30	1 1	30 30	
5.	Shakrail	1. Shakrail Mohila Samabaya Samity (BRDB) 2. Shakrail Krishak Samabaya Samity (BRDB) 3. Shanirvar Samity 4. Shakrail Jubak Samity 5. Shakrail Purbapara Samabaya Kallan Samity 6. SDS	- 1 1 1 1 1	- 40 40 150+ 40+ 30+	1 - 1 - - 1	30 - 35 - - 30	Just started
6.	Choto Binnafair	1. Grameen Bank	1	30	4	120	
7.	Charpara	1. Grameen Bank 2. SSS	- -	- -	2 5	60 25	

Public facilities

Public facilities like Union Council Office, Post Office, FP Clinic, Health Clinic etc. are available around the area within two and three miles distance from the villages. But in some respects such as F.P. clinic, health clinic, women would prefer shorter distance and they also need helpful services from FWA.

Development needs

Women of *Diannya Shibram* need Grameen Bank activities very much. They want to be the member of *Bhumihin Mohila Samity* and also need loan for paddy husking business, small business etc. On the other hand, women of *Diannya Chowdhury* demand to construct a *pucca* road from *Baghil* to *Tangail*. School going girls of this village face problems in the rainy season going to school. Women also think that this road will help them in easy movement to *Tangail, Baghil* in all season.

In respect of education, health communication, women of *Khanpur, Basha* have to go to *Bara Binnafair*. On the way, there is a breach near *Nabdapara*, and women and girls students face problem in the rainy season at this spot. So they need a culvert at that point of this road. Women of *Shakrail* think if the price of *biri thongas* increases, then many women

get will involve in this occupation. They will get more incentive and can play on important economic role for their family. Now they (60-70 person) earn Tk.4/- per day by making 2000 biri thonga besides their household works.

Women of *Choto Binnafair, Dinnaya Shibram, Diannya Chowdhuri, Basha, Khanpur* are getting family planning services from *Bara Binnafair* family planning centre. They think that the service of this clinic is too irregular. Sometimes they come back from the clinic without medicine and they have to buy contraceptives themselves.

Women, particularly the landless, of *Choto Binnafair* and *Charpara* need work, like making *biri thonga*. They say their husbands are day labourers and they have not enough time to bring the materials of biri for their wives. The biri factory is situated in *Dighalia*. Women think it is too far to go there. So if the factory is were clos to their villages, they could get the materials themselves. Women of *Choto Binnafair* said that if a the bridge on the *Ghoramara khal* would be constructed, then the people of this area and even the people from *Dhaleswari* char could be able to move frequently to Tangail.

Existing water related situation

Women of *Diannya Shibram* demand the re-excavation of *Katakhali* or *Ghoramara khal*. There is low laying farming land of *Diannya Shibram* people in *Bara beel*, near the *Katakhali khal*. For years, due to siltation and in the absence of re-excavation, the level of this *khal* became higher than the level of that *beel* and water cannot drai-out. As a result most of the year, there is water congestion. This congestion problem causes late sowing of HYV Boro production, hampers Aman cultivation and also leaves no chance for Rabi crop.

On the other hand, women of *Diannya Chowdhuri* think that in their *chak* (farming land) water comes through this channel, *Lohajang, Kagmari, Santosh, Barabeel, Diannya chak*. The level of this *chak* is lower and water cannot drain-out. *Ghoramara khal* also passes besides this *chak*. The women of this village also suggested the re-excavation of this *khal*. Women of both of this villages think, before the siltation of this *khal* they got more crops, such as HYV Boro, Aman, Rabi. Now they get only one crop HYV Boro and sometimes they have to cut unripe crop due to early flooding. They also think there are some household head in both of these villages who have enough crop land, yet due to unsettled and risky crop patterns caused by water logging, they had to change their occupation, becoming rickshaw or van puller, day labourer (inside/outside of the village), earth cutter etc. Women of landless families think that if more crops are grown, they can work for the richer families (land holders) and earn in kind.

In *Diannya Shibram* serious skin diseases have seen among the men, women and children. People of this area use the water of *Ghatakbari* and *Barabeel* for bathing, cleaning etc. Women think that the water of these *beels* cannot drain-out through the *khal* and they have to use the dirty water. Women of *Shakrail* demand to re-excavate of the connecting *khal* of *Chillabari khal* in that village. They also demand to re-open the mouth of this *khal*. Now they get only one crop as HYV Boro.