People's Republic of Bangladesh
Ministry of Irrigation, Water Development
and Flood Control

Flood Plan Coordination Organisation

JAMALPUR PRIORITY PROJECT STUDY

Caisse Francaise de Developpement
and
Commission of the European Communities

FAP 3.1

FINAL FEASIBILITY REPORT

Annex 6 Social Impact Assessment

January 1993

Consortium

SOGREAH/ HALCROW/ LAHMEYER

in association with
Engineering & Planning Consultants Ltd.
AQUA Consultants and Associates Ltd.
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GLOSSARY

BBS	-	Bangladesh Bureau of Statistics
CLF	-	Civilian Labour Force
FH	-	Fishermen
HH	-	Household
LF	-	Large Farmers
LL	-	Landless
MA	-	Marginal
MF	-	Medium Farmers
SF	-	Small Farmers
SIA	-	Social Impact Assessment
WHH	-	Woman-headed households

SUMMARY

Aims and Objectives

The Guidelines for Social Impact Assessment (SIA) for the Flood Action Plan drawn up by FPCO indicate that: "the main aim of SIA is to provide data on social impact in a form that can be used in the overall multi-criteria assessment of a project on the basis of which a decision will be taken on whether or not the project should be implemented".

In accordance with the general objectives of the Guidelines, the SIA component of the study is aimed to assess, quantify and value the likely social impacts of development options proposed within the course of the study. At the pre-feasibility level, four alternative project Options (A to D), plus the without project situation, were considered and their social implications were discussed and reported in the Planning Report (R3) of April 1992.

At the feasibility stage, a more detailed assessment of the social implications of Options A (flood proofing) and B (controlled flooding) was made and the impacts on the incomes of different social groups were reported in the Interim Feasibility Report (R5). Although a development plan based on Option B has been agreed "in principle" by FPCO, the social assessment of Option B has been refined during the extension phase of the study and the possibilities for mitigation of negative impacts, for effective local participation, and for targeting project interventions to the poor have been investigated and recommendations formulated (R6).

The basic philosophy behind the SIA is the concept of sustainable development which aims to combine the need for sustainable economic growth with the need for a more equitable access to resources and distribution of incomes among the different strata of the local population. This approach goes beyond the restrictive concept of social optimum defined by W. Pareto in which a situation B is socially better than a situation A if nobody is made worse off during the evolution from A to B, irrespective of the increase in the equity gap which might result from the changes.

Thus, in the context of the proposed development options, the bottom line is that all the negative impacts have to be mitigated and that specific programmes, targeted on the most deprived social strata, have to be supported by the project so as to address the equity issue and to promote sustainable development.

The scope of the SIA studies covers consideration of areas falling inside the geographical limits of the project area and of areas falling outside (Char land, unprotected Set-Back land), their interaction and how this could change as a result of project interventions, particularly as a result of induced impacts.

The realisation that the flooding problem in these areas, which is more severe than in the mainland, could be made worse due to the combined effects of FAP 3.1 development proposal and other possible interventions, including the

construction of Jamuna Bridge, has prompted CCCE to support a subsidiary study aimed to investigate the existing social and environmental situation in the reach of the Jamuna river adjacent to FAP 3.1. Based on the findings of the study, which was carried out in close cooperation with Service Civil International (SCI), a comprehensive flood proofing programme for adjacent unprotected land has been formulated and presented in Annex 9 of this report.

Methodology

As outlined in the FPCO Guidelines for Project Assessment, SIA involves the six following steps:

- Identification of the social groups to be affected.
- Description of the bases of their livelihood.
- Estimation of the project impact on their livelihood.
- Estimation of the overall impact of the project on income distribution in the project area.
- Assessment of the likely changes in the general quality of life of people.
- Estimatation of the capital and recurrent costs of any mitigation measures.

To meet the requirement of the Guidelines, the social study has been divided into three different components including, a household census, a socio-economic survey and a local participation element.

Household Census and Socio-Economic Surveys

The household census, which was primarily designed to provide a reliable stratified sampling frame of households, was conducted on 19 randomly selected villages and more than 5,000 households were enumerated. From the census results, an estimate of the population of the project area was given and the main social groups were identified and numbered.

From the census list, 482 households were randomly selected and have been interviewed as part of the socioeconomic survey. During the survey, information pertaining to the occupation and employment patterns, sources of income, value of subsistence production and income was obtained. Based on these data, the bases of livelihood of each social group have been ascertained, average household incomes have been computed and the equity of income distribution has been analysed.

Impact Assessment

To measure the changes in the evolution of household incomes and those in the overall distribution of incomes which are solely due to the project, only the factors which are likely to be different under a "with" and a "without" situation have been considered, irrespective of all the other determinants of household incomes which will not be directly affected by the project.

Due to the nature of Option B, flood damage, cropping patterns, fisheries resources and employment opportunities for Farm and Non-Farm Labour are likely to be different and their effect on household incomes needs to be determined. Based on the forecasted changes in these four variables, household incomes and related distribution have been computed ceteris paribus (all other variables held constant) in the "with" and "without" project scenario and the impact of the project on incomes has been assessed.

People Participation

Because one of the key factors to ensure the sustainability of a development project is linked with the involvement and participation of local population in the project planning, implementation and maintenance, emphasis has been placed on eliciting the respondents views on the possible development options; what they believe to be needed and their perceptions of the effects on their livelihood.

Through group discussion and more formal interviews, a wide range of local people has been consulted, including farmers, fishermen, and Char land inhabitants. In addition, opinions of local administration representatives, of NGOs involved in the project area and of public representatives have been solicited and comments and ideas have been gathered.

The existing institutional settings in the project area have also been identified with the ultimate objective being to assess how a comprehensive and effective framework for local participation in project design, implementation and maintenance could be worked out. However, considering the prevailing social inequity, power structure and institutional set up of rural Bangladesh, local participation remains an idealistic concept with little tangible significance. In an exploitative environment, where the patron-client relationships are dominant, how can the poorest strata of the population raise their voices with an open and free mind to those on whom they depend for their survival? In this respect, the present governmental agencies charged with development activities need to adjust their approaches to integrate, to a greater extent, the population which is usually not concerned by development activities. In this respect, the mobilisation of NGOs to pursue awareness raising, community development and income generating programmes is foreseen as a component of major significance to build up self-reliance among the marginalised populations and to uplift their living conditions. Regardless of the development scenario chosen, the involvement of NGOs is, for the time being, one of the most practical answers to local participation and emancipation of the rural poor leading to sustainable development.

Project Area and Population Estimates

The study area is spread over twelve Thanas and has a gross area of around 180,000 ha, which includes 20,800 ha of river channels as at 8 March 1992. With the construction of the proposed embankment under option B, the study area can be split between protected land (65,800 ha) and unprotected land (93,237 ha) which includes both Set-Back Land and Attached Chars on both banks of the Jamuna and Island Chars. As shown in Table 6.S.1, the total population of both areas is 1.23 million of which 51% are in the protected area. However the Socio-Ecomonic studies mostly relate to the FAP 3.1 implementation area which excludes the set-back and attached land on the right bank. Hence the Socio-Economic study area is 134,759 ha containing a population of 1,058,496 people.

Social Stratification and Land Distribution

The ownership of agricultural land is the main determinant for the economic position of a household and the social structure of rural Bangladesh can be explained to a large extend by its agrarian structure and the related patron-client social organization. As shown in Table 6.S.2, agriculture land is very unevenly distributed in the proposed protected land. About half of the households in the project area have no land at all while some 37% have less than one hectare to sustain their livelihood. Because most of these households have expenditures greater than their incomes, they are caught in a process where they gradually have to deplete their fixed assets to finance their deficits. Eventually, when the amount of debt becomes large, this process will end by the mortgage and sale of their agricultural land. If the present tendencies of concentration of land ownership continue, an ever increasing amount of land will be owned by a small number of surplus households while the majority of households will become totally landless. As a result, a growing number of destitute households will fall outside the patron-client network since they have no possessions and no assets to offer. Unless appropriate measures are taken so as to develop their livelihood through specific income generation and education programmes, an increasing number of people will leave the area in search of a livelihood in the slums of the rapidly growing cities of the country.

In addition to the impact of the land concentration process, a purely demographic factor will contribute to further increase the number of landless households in the project area. Landless and marginal land ownering households have higher birth rates (5.2% and 4.3%) as compared to other strata (between 2% and 3%) and their population is increasing at a much faster rate (3.1%) than the average (2.1%).

Employment Patterns

In the Project Area, the Civilian Labour Force (CLF) has been estimated at around 230,000 persons of whom 22% are fully employed while 48% are not employed

throughout the year. Nearly 30% of the labour force (60,000 persons) are either unemployed or do not look for jobs although they would be ready to work if opportunities were available.

As shown in Table 6.S.3, activity and employment status vary significantly among land strata and follow a reverse trend. With the increase of the size of the landownership and of the related farm incomes, the participation rates (refined activity rates) decrease because these households do not need to mobilize their children and female members to support their livelihood. In case of landless and marginal landowners, participation rates are higher but most of them are underemployed or unemployed. This indicates that employment opportunities for the landless labour force are not sufficient to meet their demand.

Occupational Patterns

As shown in Table 6.S.4, the distribution of employed and underemployed labour force by main occupation shows that Agriculture Daily Labour and Farming are dominant. The importance of Agriculture Daily Labour is very high in the case of the landless labour force (75%) and decreases gradually with increasing land ownership. Farming is the main occupation of around 73% of small, medium and large landowners but only 4% of the landless labour force is engaged in farming as a primary activity.

Bases of Livelihood

If the distribution of the population by main occupation gives an idea of the main sources of household incomes, it does not provide a full picture of the structure of the household incomes. To have a precise idea of the bases of the household livelihood, the different income generating and subsistence production activities in which the household members are engaged need to be identified.

In the project area, the proportion of households involved in agro-forestry (79%), farming (60%), agriculture daily labour (57%), Livestock/Poultry production (52%), non-agriculture land exploitation (39%) appears to be very significant. Around 30% of the households are engaged in subsistence fisheries while only 7% can be classified as professional fishing households although most of them are fishing on a part-time basis. On average one household is engaged in approximately 3 different activities, this figure being higher in the case of large landowners (5) and lower for the landless (2.1).

Definition of Household Incomes

Household income, which refers "to material return in cash or in kind earned by the household members in exchange for goods and services" can be estimated from two different perspectives. The first approach, known as the "source method", intends to estimate rural incomes using production accounts of the households.

The aim is to measure how much was earned (in cash or in kind) by the household members during the reference year by summing the income obtained from each activities in which the members were involved. However, since rural households do not keep records of their activities, it is difficult to estimate income accurately for activities conducted on self employed basis. In addition, subsistence production activities which are undertaken for home consumption are not usually considered as income and there is a tendency to underreport these activities. In the context of the study, the subsistence production activities which have been considered and valued include:

- Agro-Forestry, i.e. production of banana, wood, fuel, coconut, fruits, betel nut, date, palm an bamboo,
- Non-Agriculture Land exploitation i.e. production derived from grass land, fallow land and kitchen garden,
- Open water Fisheries (river, khals, flood lands, beels),
- Livestock i.e. production of eggs, meat and milk.

The incomes earned from these activities were valued by recalling information from the household heads. Because this method suffers from the usual problem of faulty memory and leads to under-reporting of costs and under-reporting of incomes, the estimates of average incomes obtained are usually biased downward and the importance of subsistence production incomes could be under-estimated.

In an attempt to balance these imperfections incomes were also estimated from a second method which measures the level of incomes from the household expenditures. As expected, the estimates of the average incomes obtained from expenditures data are slightly higher. In order to consolidate the results derived from these two approaches adjustments have been made by including the residual differences under the "other sources" head of the income structure.

Household Income by Land Strata

The average amount of gross income per household in the project area is slightly above Tk 20,000 per year. The main sources of income are farming (40%), agriculture labour (22%). Non-agriculture labour appears to be a minor sources of income (less than 4%) while the importance of subsistence production activities such as agro-forestry (5%), livestock (3%) and fisheries (2%) is not very high though probably biased downward for the reasons explained in previous paragraph.

Significant variations have been found between strata as shown in Table 6.S.5. Landless households earned an average of slightly more than Tk 14,000 per year whereas large landowners have an average income of more than Tk 85,000 per year. The structure of income sources is also correlated to the size of landownership. The contribution of farming activities to household income rapidly

expands as land ownership increases from a mere 7% in case of landless up to 50% and more for small, medium and large landowners. The importance of agriculture labour sources follow a reverse trend, contributing some 50% to the landless households annual income. The importance of all other activities including agro-forestry, livestock production, homestead cultivation and fish culture except in open water fisheries increases with the size of landownership. Although farming is the dominant source of income for larger landowners, these households have a relatively more diversified livelihood than the smaller ones which enables them, among other reasons, to sustain a more stable living.

Household Income By Occupation

Farming households operate an average of 0.6 ha of land but significant variations among strata have been noted. Landless farming households, have an average holding of 0.2 ha whereas Medium and Large farmers operate 1.8 ha and 3.2 ha respectively. About 20% of farming households have access to part of their operated land through sharecropping arrangements. This percentage reaches 100% in case of landless, 50% for marginal farmers, 20% for small farmers and 2% for medium farmers.

As shown in Table 6.S.6, the average annual income of farming household is close to Tk 25,000, out of which nearly 60% is derived from farming activities. Agriculture and non agriculture labour sources account for slightly over 10% while the remaining 30% come from other sources. Behind this average pattern significant variations among land strata are observed both in the level of income and in its structure. While the upper farming households strata earned the majority of their living from farming activities, smaller landowners and landless farming households have to search for additional sources of incomes to sustain their livelihood.

Among the different professional groups likely to be affected by the project, farming households will probably end up better off. Average annual household incomes of daily labour (farm and non-farm) are already 40% lower than those of farmers, while the income of professional fishermen is between that of farmers and that of labourers, due to their greater participation in farming activities (24% of their income derives from farming). The situation of women Headed households is far more critical than any other households. With an income of only Tk 10,000 per year these marginalized households are 30% below even the average standard of landless households. From the above information it appears that to achieve sustainable development priority should be given to raise income of the lowest strata of the rural structure through appropriate targeted income generating poverty alleviation schemes.

Income Distribution

The distribution of income in the different professional groups considered highlights the fact that most of the daily labour and professional households are

concentrated in the lower income groups while the situation is more balanced in case of farming households. As shown in Table 6.S.7, the worst situation is found in case of women headed households with more than 80% of them living with less than Tk 10,000 per year.

Distribution of Incomes by Land Strata

The pattern of the income distribution by land strata shown in Table 6.S.8 underlines a strong correlation between the level of income and the size of the landownership. Around 85% of the landless and 75% of the marginal households are earning less than Tk 20,000 per year whereas this proportion is below 20% in case of medium landowners and nil in case of the largest ones. As a whole, nearly 70% of the households (around 80,000 households) are concentrated in the lowest income classes and, as such, can be regarded as highly vulnerable because they are likely to be deficit households. For the landowners falling within this category this would normally mean that they are already engaged in a gloomy process of dispossession which could ultimately end by the sale of fixed assets, including land. As a result, landlessness in the project area is likely to increase in the future.

This surplus number of landless households will have to search for employment opportunities either on farm or off farm leading to a fiercer competition among the poor in the rural labour market. The all-important question is whether or not employment opportunities will increase at the same pace as the landlessness process, so as to absorb the growing surplus of labour force. Given the present pace of economic development in the project area, this is most unlikely and a more realistic scenario is that out-migration to urban areas will be taken up by a significant number of the deprived households.

Here again, in order to achieve sustainable development, priority should be given to raising the incomes of the lowest strata of the rural population through appropriate targeted income generation and poverty alleviation schemes.

Land/Income Relationship

In the project area, the income of each household is strongly correlated to the amount of agricultural land owned. The result of the regression analysis indicates that there is a linear relationship between the two variables:

$$Y = a X + b$$

where,

Y = Annual Household Income (in Tk/HH)
X = Amount of Agricultural Land owned (In Ha/HH)
a = 14,169 (significant with 99.9 % confidence)
b = 15,861 (significant with 99.9 % confidence)

This analysis highlights that the key determinant to the income of the household, and thus to its livelihood, is land ownership. Any reduction in the amount of land owned by each household has an adverse effect on its income and on the sustainability of its livelihood.

Social Impact Assessment

The basic philosophy behind this SIA exercise is the concept of sustainable development as opposed to a narrow mitigatory approach to disbenefits. As explained earlier, sustainable development cannot be achieved until and unless the poorest strata of the rural communities, including destitute, homesteadless and landless households, women headed households, and marginal landowners are involved in the economic development process.

In assessing the social implications of the project (Option B), the focus has been placed on measuring the impacts of the project on households incomes; on identifying whether or not the project is likely to contribute to raising incomes, especially of the poor, and on whether or not the equity issue has been addressed.

Social Benefits

The social benefits induced under option B would be of two types:

- Short-run benefits: They are linked to the construction phase and will provide direct incremental socio-economic benefit to the large population of labourers. The effects are additional employment therefore increase of incomes and better scope for higher consumptions, improved diet and reduction of dependency.

- Longer-run benefits: They are linked to the developmental consequences of the project. They are generated gradually as a result of the projet investment and operation with the construction of the embankment, one of the major benefits is the prevention of flood damage in the protected land, including protection of human lives, livestock, household assets, infrastructure and standing crops which would contribute to increase the security of livelihood. Other benefits included effects on agricultural production and productivity household incomes, saving, investment and consumption patterns that can generate multiplier effects in other sectors of rural economy (trade, transport.....). This will also result in improving the non-agriculture sectors such as higher scope for employment in maintenance of structure and trade which will positively affect the poverty alleviation.

Another positive social impact is that the poorest households which used to borrow money, sell fixed assets, mortgage and/or sell land to recover from flood damage would become less vulnerable since the risk of loss of livelihood as a result of

floods will be much reduced. Eventually, the landlessness and pauperization process could be reduced.

Social Disbenefits

The following potential social disbenefits may be associated with the proposed project:

- loss of agricultural and/or homestead land due to land acquisition for embankment construction
- loss and/or reduction of livelihood due to alteration of openwater fisheries resources
- increase flood risk in unprotected areas (Char land and Set-Back land)

The reduction of openwater fisheries resources will adversely affect the livelihood of flood plain professional fishermen through a direct loss of cash income, but this effect will be mitigated by the promotion of fisheries in the protected area. Subsistence fishing households will be affected through a reduction of their nutritional status since they will loose a significant part of their animal protein intake.

Land acquisition will affect a significant number of households, thereby reducing their agricultural income and increasing their socio economic vulnerability. For the households living on the existing embankment, the loss of their homes as a result of the construction of a new embankment could be a major negative impact. For this reason a resettlement programme, linked to the multi-purpose use of embankment, is envisaged and will be further dveloped at the detailed design stage of the embankments.

The increased flood risk in unprotected areas is an issue of major significance which has to be taken into consideration when assessing the social implications of Option B. This question is addressed in the Char study (Annex 9) where mitigation measures in the form of flood proofing are proposed.

Impacts on Household Incomes

Impacts on household incomes have been measured by comparing the forecast incomes of different social groups in the future without project [WO] and with project Option B [B] situations. The results of this comparison are shown in Table 6.S.9. As explained above in the methodology, these projections have been made based on the expected changes in cropping patterns (given the agricultural studies reported in Annex 5), in the increased volume of farm labour employment and non-farm labour employment (for O&M).

Because the [B] situation is based on and improvement of the total agricultural and fisheries productivity in the project embanked area, the incremental income influence of [B] compared to [WO] is significant (+9.5%). The projections shown in Table 6.S.9 are only valid to assess the incremental impact of one scenario over the other one and should not be regarded as a plausible estimate of the future evolution of rural incomes.

This being said, a significantly increased amount of recurrent unskilled labour cost in O&M work (Tk 15 million per year) created by the project will give additional employment opportunities for non-farm daily labour. The average income of households from this occupational group would rise by 17.8% provided that the member of households engaged in this activity is constant, which is not likely. Other sections of the labour force, especially from underemployed farm labour would probably take a share of these incremental job opportunities created by the project. As a result both farm labour and non-farm labour are expected to provide additional incomes.

Farming households are expected to be better off (+11.8%) due to an increase in their farm incomes. However, this pattern is not uniform in each land holding strata. The amount of incremental farm benefits is proportional with the size of landownership and large farmers are the first gainers in both absolute and relative terms. This seems to be a direct consequence of the existing share cropping system which does not allow for a fair remuneration of the tenant farmer own labour. The return to the sharecroppers own labour is usually below the labour market price, which indicates that the sharecropping system is one of the major tools used for the exploitation of the rural poor.

Professional fishermen are expected to be better off as a result of the fisheries mitigation programme. Their annual household incomes would increase by some Tk 4000 in case of [B] as compared with the [WO] situation. In the future [WO] situation, for which no specific fisheries programme has been assumed, the income of this professional group is expected to decrease as compared to the existing situation, as a result of the general declining trends in openwater fisheries resources in Bangladesh.

The Equity Issue

The projected changes in the average income of each land holding strata, shown in Table 6.S.9, show that, under Option B, the lower classes are not expected to benefit from the project to the same extent as the higher classes. Although the average income is higher in all strata, the incremental income in the [B] situation is higher in the case of large landowners (+12.3%) than in the case of landless, marginal and small landowners (+7.0% on average). As a result, the share of landless households and marginal landowners in the total income would decrease, whereas the share of large landowning households would increase. This would contribute to increasing the equity gap somewhat as shown by the value of the income concentration index (gini coefficient) which is likely to raise from 0.228 (WO) to 0.243 (W). Despite the fact that it will provide an additional income to the

households, Option B does not intend to address the issues of increased landlessness or the widening equity gap.

Likelihood of Social Conflicts

As a result of the project implementation, four categories of people would be likely to be adversely affected if no mitigation is provided:

- Those who are going to lose land in the land acquisition process
- Those presently sheltered on the existing embankment who are going to be displaced
- Those living in unprotected land (Char land & Set-Back land) who are going to be subject to an increasing flood risk
- Those who are going to loose part of their protein intake (subsistence or occasional fishing households) due to the reduction of openwater fisheries resources

The likelihood of conflicting situations between direct beneficiaries (farmers) and the disbeneficiaries identified above depends on how far the project will be able to involve these groups of people through specific targeted programmes aimed at providing them with appropriate compensating measures and to involve them in project activities in a positive manner. If these groups have the feeling that they are not left out and that their concerns have been heard by development planners and properly dealt with, they will be more likely to accept the project proposals. Unless this is done, the emergence of social conflicts, which could go as far as cutting the embankment, cannot be ruled out.

Local Participation and Public Opinion

i) Public Representatives

The role of the Union Parishads in coping with the natural disasters such as flooding is limited by the level of material assistance that they receive from government resources. Because the level of this assistance is usually insufficient to enable a quick recovery after disasters, the Union Parishads have a tendency to prefer strategies which are likely to minimize damage. Most of the Chairmen interviewed have indicated a clear preference for Option B because it offers the maximum guarantee of protection against both early and peak floods.

In addition to protecting human lives, livestock, standing crops and infrastructure, Option B is expected to contribute to raising agricultural productivity and to improve overland communications. The increase in employment opportunities has been quoted as a very important positive impact of this option as compared to the Option A.

All of the interviewed Chairmen expect that the majority of the population would benefit from the project if Option B is implemented. They do not foresee any major disbenefits and the likely fisheries decline is perceived by them as a minor issue in comparison to the flood control benefits.

ii) NGOs

Option B has enjoyed a broad acceptance among the interviewed executives of NGOs, because it appears to offer the best guarantee to secure human lives, standing crops and infrastructure. The major negative impact quoted is the likely reduction in openwater fisheries due to the limited quantity of flood waters which would be allowed into the project area. The livelihood of professional fishermen is expected to be seriously altered and the nutritional standard of the poorest households, which are usually very much dependent upon fish for their animal protein intake, will be badly affected.

Even if all the households benefit from the protection against flood hazards, the incremental agricultural benefits will be directed mainly to the landowners with limited benefit for the landless households. This will only increase further the equity gap between those who have access to the land and those who do not.

One NGO (SCI) has raised its concern over the possible adverse effects that Option B could produce for the people living on the Char land. The main issue is that if embankments are erected along the Jamuna, the water level might significantly rise in the river thus increasing the possibility of Char land being inundated.

Within the scope of the charland study presented in Annex 9, the incremental flood risk linked to the proposed Option B has been investigated. The results obtained from FAP 25 simulation indicate that the combined effects of Jamuna bridge and the confinement of the Jamuna by embankments could lead to a significant increase of peak flood levels in the southern part of the study area (0.5 to 0.7 m)

Another NGO (Action Aid) newly based in Gothail Bazaar (in the North West part of the project area) has started a nutritional survey and they have already identified deficiencies in iodine and Vitamin A as a result of too little diversification in food intake.

iii) People's Views

Farmers identified flooding as a very acute problem. They feel that with full protection, they will undoubtedly be able to increase crop production. With option B, they foresee that 90% of the people in the Project Area will be benefitted.

Fishermen held that direct losses to flood plain fisheries are bound to occur as a result of controlled flooding or full flood protection. This situation, according to them, may be counterbalanced by stocking catfish and carp in the water bodies in collaboration with the DOF. Their choice between Options A and B was hesitant

in a few cases but they favor both, probably indicating that any intervention was considered by them as better than none.

The Char inhabitants feel that their hardship will become more acute in the case of Option B, because their lands will not be available for cultivation so early in the cropping calendar or due to increased flood risk.

Summary of the Social Impact Assessment

Option B is expected to minimize flood damage to crops, livestock, household assets and public infrastructure and thus would contribute to create a more secure environment with better road communication and transport facilities. This general improvement in the area would have a positive impact on economic development as a whole and on the agricultural sector in particular. The socio-economic benefits of Option B are expected to be derived from the reduction of livelihood vulnerability to flooding, from the likely rise in farm incomes and from the induced increase in farm and off-farm employment opportunities.

However, the negative impacts of this option have to be underlined. Unprotected land (Char land & Set-Back land), where the flooding problem is already worse than in the mainland, would be subject to an increased flood risk. Subsistence fishing households would loose a valuable sources of animal protein. The issue of people being displaced as a result of the embankment construction is another sensitive impact which would have to be considered. Unless carefully dealt with, in the manner proposed in other parts of this report, these negative impacts could affect the overall social feasibility of the project.

Social Considerations in Project Design and Implementation

To achieve the ultimate objective of sustainable development, the project has to carefully consider direct benefits to the population as a whole and not restrict itself to the relatively privileged strata of the rural society.

To pursue this goal, specific targeted programmes should be included in the project design so as to address the equity issue and the negative social impacts which might otherwise be induced by the project. This approach has to ensure the active participation of all the population, with specific attention to those households who are likely to be worse off (those in unprotected land, subsistence fishing households, displacees) and those who are not likely to benefit directly from the project (destitute households, women headed households).

For unprotected land, a flood proofing and development project has been proposed and is outlined in Annex 9. With respect to households living on the embankment, a resettlement and housing programme has been recommended. An improvement in income of professional fishing households will be achieved through proper management of the remaining water bodies (beels and internal rivers) which could be stocked with valuable commercial fish species. In order to address

the need for sustainable development, a specific social support and income generating scheme targeted to rural poor has been recommended.

Based on the above social considerations, the following measures are envisaged:

- A resettlement programme for displacees, destitute and homesteadless
- Flood proofing and a development project in the unprotected land
- Social support for the non direct beneficiaries of the project through income generating activities.
- Raising of public awareness and motivation through the development of an effective local participation system aimed at improving the communication between the beneficiaries, the non-beneficiaries, and the project planners and implementers.

Resettlement of Displacees and Homesteadless Households

The project should provide for a specific support programme for homesteadless households living on the existing embankment, who are to be displaced as a result of the construction of the new embankment.

The land acquisition procedures recommended by FAP 15 will need to be considered. However the following three categories of people will require special attention:

- Those who lose all their land including their homestead
- Those who lose only their homestead but not all their agricultural land
- Those who have no land and who reside on the existing embankment with no legal right to do so

An estimate of the number of homesteadless households affected by the embankment by Thana is:

Sarishabari	675
Madarganj	3090
Islampur	1768
Dewanganj	493

	6010

This estimate will need to be updated with the help of the local authorities and NGOs during the detailed design phase.

Compensation is to be made for those who will lose land and an additional support programme is considered necessary for the homesteadless.

A housing programme proposed for those living on the unprotected land (Char study, Annex-9) could be undertaken outside the project to provide flood-proofed housing. In areas of high population concentrations the embankment will need to be provided with a berm on the land side for new settlement and the institutional arrangements for BWDB to give the right of occupation on the berms will need to be addressed. Extra costs in connection with resettlements are included in the quantity and cost of the embankment.

Flood proofing

The unprotected land falling outside of the main project area which should be considered for a flood proofing programme has been estimated in the Char Study (Annex 9). Some 602,000 people would need to be covered by the programme, which is proposed to include a pilot phase and a main phase to be executed over an 8 year period. FAP 3.1 includes an option to support the implementation of the pilot phase of the programme.

Local Participation for Non-Direct Beneficiaries in Protected Land

The vulnerability of those who will not benefit directly is serious in all aspects of life. Many are economically weak, physically weak, less educated, have little bargaining power, are victims of patron-client relationships, receive fewer facilities for health and nutrition and experience great difficulty in obtaining credit.

A strategy to reduce the foreseen social inequity is presently being implemented by most of the NGOs, to some extent by the BRDB rural development section and by Grameen Bank in financial terms.

Within the framework of the project, a support programme needs to be provided to involve 6000 mainland households in the following activities.

- Income Generating Activities (credit facilities)
- Social Services (health, education, sanitation)
- Awareness Raising (training, group formation)

Three NGOs could be supported for 5 years to implement this rural development programme, one in Islampur - Dewanganj, one in Jamalpur - Melandaha and one in Sarishabari - Madarganj.

Including the investment, staff, social services, credit and consumables an amount of Tk 2.675 million /NGO /year is estimated to be needed for this.

The total requirement : 2.675 X 3 X 5 = Tk 40.125 million

The cost of this programme has not been included in the project costs.

BRDB has a good track record in this field and could support these interventions. The deployment of their services has yet to be fully utilised and at present, under RD 12 financed by CIDA, there is provision for extension.

Public Awareness and Local participation

An institutional framework and local participation in the planning, design, implementation, operation and maintenance of the investment is considered essential. Consideration of the opinions of the affected people in a balanced way and the harmonious involvement of different social groupsis a requirement for successful project.

The following issues will need to be addressed during the preparation of the detailed design work programme and cost estimate:

- Identification and mapping of the land required for permanent and temporary expropriation
- The mechanism for land compensation assessment and payment
- The resettlement of displacees.

The implementation of the above task needs the direct involvement of the following organisations:

- the Land Settlement office
- the Local Parishad
- the Engineering Department
- the local NGOs

The operation and maintenance of the project will require institutional arangements and structures which will be supported by local committees and NGOs.

The project should develop the capabilities of Government, Semi-Government and Non-Government officials so that a significant amount of the project running cost will be self-managed and self-sustaining. This requires local administration officials and community representatives to be motivated and to identify with the project aims and objectives. To acheive this the follwing goals should be achieved:

- To develop better two-way communication between the FAP planners and local communities and individuals.
- To improve the dissemination of information through media support.

- To develop community committment to participation in the proper implementation of the development work.

- To instigate a community-based approach to address the marginalised population in order to draw them into in the development process.

- To develop an information network for heightening awareness and motivation of people in the implementation of FAP work.

The administrative setup required to achieve the above objectives needs appropriate arrangements which can be taken up by an NGO specialised in such communication work. planners.

This specialized NGO could best operate in 3 "Centres" located close to the proposed embankment, one in the northern part (Islampur), one in the middle part (Madarganj) and one in the southern end (Sarishabari). The financial support required for this will need to be be phased from the beginning of the detailed design phase for a period of three years.

The cost of establishing one information centre has been prepared in consultation with an NGO which has already developed a similar system for improved communication.

Total Cost for three years (inc coordination) : Tk 11 million

The cost of the local participation process has been included in the cost estimate for engineering cost and Technical Assistance programme.

Summary Tables

Table 6.S.1 Land Area and Population in the Study Area

	Protected	Unprotected Land (Total)			Total
		Island Chars	Attached-Set-Back	Total	
Area (ha)	65,804	38,744	54,493	*93,237	*159,037
Population	631,023	118,060	484,533	612,603	1,233,626
No of Households	123,247	19,327	95,008	114,335	237,582
Density	959	305	889	646	776

Source: estimates from FAP 3.1 Household Census (Protected Land) and from Char Land Study (Unprotected Land). Land areas taken from classified Landsat imagery of 8 March 1992.

* Does not include 20,801 ha of main river channel water areas as at 8 March 1992.

Note: The Socio-Economic studies in Annex 6 exclude the attached and set-back land on the right bank (see Char land study, Annex 9) giving a study area of 134,759 ha with a population of 1,058,496.

Table 6.S.2 Land Distribution and Social Stratification

Land Distribution (in acres)	Landless 0-0.05	Marginal 0.06-0.5	Small 0.51-2.50	Medium 2.51-7.50	Large > 7.50	All
No of Households	61,747	17,378	29,333	12,571	2,218	123,247
% of Households	50.1%	14.1%	23.8%	10.2%	1.8%	100.0%
Household Size	4.49	4.83	5.43	7.10	9.53	5.12
Population	277,415	83,935	159,277	89,255	21,142	631,023

Source: estimates from FAP 3.1 Household Census (Protected Land)

Table 6.S.3 Activity Status and Employment Patterns

(population figures in thousands)

Employment Patterns	Total	%	LL	MA	SF	MF	LF
Civilian Labour Force	230.5	100.0%	111.6	29.0	53.3	31.1	5.5
Employed	51.6	22.4%	11.5%	8.4%	28.9%	54.6%	69.6%
Underemployed	112.1	48.6%	57.0%	61.7%	45.3%	18.6%	13.7%
Unemployed	4.6	2.0%	1.0%	1.9%	2.1%	4.1%	9.8%
No Looking for Job	62.2	27.0%	30.5%	28.0%	23.7%	22.7%	6.9%
Refined Activity Rate	51.5%		59.3%	50.7%	46.3%	44.1%	33.3%

Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)

Table 6.S.4 Distribution of Employed and Underemployed Labour Force by Primary Occupation (figures in thousands)

Main Activity of CLF	Total	%	LL	MA	SF	MF	LF
Total	163.7	100.0%	76.5	20.3	39.5	22.8	4.6
Farming	59.8	36.5%	4.3%	34.7%	74.5%	73.2%	72.9%
Business/Trade	5.9	3.6%	1.8%	5.3%	5.7%	4.2%	4.7%
Services	8.6	5.3%	1.8%	2.7%	5.0%	16.9%	20.0%
Daily Labour (Farming)	71.1	43.4%	75.3%	45.3%	9.2%	2.8%	0.0%
Daily Labour (Non-Farm)	6.0	3.7%	5.7%	4.0%	2.1%	0.0%	0.0%
Transport	1.6	1.0%	1.4%	1.3%	0.7%	0.0%	0.0%
Others	10.6	6.5%	9.7%	6.7%	2.8%	2.8%	2.4%

Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)

Table 6.S.5 Annual Household Income By Land Strata (in Tk household)

Sources of Income	ALL		LL	MA	SF	MF	LF
Farming	8,326	40.9%	7.3%	32.5%	52.4%	64.6%	63.1%
Daily Labour (Farm)	4,484	22.0%	49.4%	26.1%	5.7%	1%	0%
Other Labour/Employment	1,956	9.6%	7.6%	10.2%	8.5%	18.4%	14.7%
Agro-forestry	934	4.6%	2.8%	4.0%	5.4%	5.5%	3.3%
Business/Cottage/Trade	739	3.6%	3.4%	3.2%	5.0%	2.0%	5.6%
Daily Labour (Non-Farm)	677	3.3%	5.8%	6.4%	2.6%	0.0%	0.0%
Livestock/Poultry	575	2.8%	1.7%	3.2%	3.6%	3.6%	2.7%
Fisheries	407	2.0%	3.0%	2.9%	2.3%	0.3%	0.0%
Non-Farming Resources	276	1.4%	0.8%	1.6%	1.5%	1.3%	3.4%
Fish Culture	57	0.3%	0.1%	0.0%	0.1%	0.6%	0.5%
Other Sources	1,938	9.5%	18.1%	9.9%	12.9%	2.8%	2.3%
Household Income	20,368	100%	14,329	16,187	21,277	42,357	85,280
Average Household Size	5.12		4.49	4.83	5.43	7.10	9.53
Income Per Capita	3,978		3,189	3,351	3,918	5,966	8,949

Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)

Table 6.S.6 Household Income by Occupation and Income of Women-Headed Households (in Tk/household)

Sources of Income	Day Labour (Farm)	Day Labour (Non-Farm)	Farming	Prof. Fishing	Women Headed
Farming	6.3%	2.8%	59.4%	25.6%	34.8%
Fishing	2.7%	0.4%	2.4%	65.1%	0.0%
Agriculture Labour	55.3%	0.9%	7.2%	4.1%	1.4%
Non-Agriculture Labour	8.8%	95.3%	3.1%	1.5%	4.9%
Other	27.0%	0.6%	27.9%	3.7%	58.8%
Average Household Income	14,072	14,492	24,019	16,654	10,190
%	100.0%	100.0%	100.0%	100.0%	100.0%
Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)					

Table 6.S.7 Distribution of Household Income for Different Professional Groups and for Women Headed Households

Income Classes	Day Labour (Farm)	Day Labour (Non-Farm)	Farming	Prof. Fishing	Women Headed
< 10000	33.2%	36.4%	22.4%	20.0%	83.3%
10001 - 20000	49.7%	54.5%	29.3%	60.0%	10.0%
20001 - 30000	12.6%	9.1%	17.0%	16.7%	3.3%
30001 - 40000	2.5%	0.0%	14.9%	3.3%	2.3%
40001 - 50000	2.0%	0.0%	8.5%	0.0%	1.1%
+ 50,000	0.0%	0.0%	7.9%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)					

Table 6.S.8 Distribution of Household Income in each Land Strata

Income Classes	Landless	Marginal	Small	Medium	Large	All
< 10000	32.5%	24.8%	11.4%	2.2%	0.0%	22.7%
10001 - 20000	52.0%	49.2%	46.6%	17.8%	0.0%	45.9%
20001 - 30000	10.7%	20.6%	21.0%	26.6%	2.3%	16.0%
30001 - 40000	2.2%	3.2%	16.2%	22.2%	9.1%	7.8%
40001 - 50000	2.2%	2.0%	3.8%	16.6%	10.1%	4.2%
+ 50,000	0.4%	0.2%	1.0%	14.6%	78.5%	3.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)						

Table 6.S.9 Income Impact Assessment (in Tk/HH)

Impacts on Income	Reference	[WO]	[B]	Increment
1- Household Income				
Farming Household	24,019	24,012	26,856	11.8%
Day Labour (Farm)	14,072	14,040	14,982	6.7%
Daily Labour (Non-Farm)	14,492	14,486	17,064	17.8%
Professional Fishermen	16,654	15,253	19,171	25.7%
Women Headed Household	10,190	10,205	10,913	6.9%
2- HH Income By Land Strata				
- Mean Stratum Income				
Landless	14,329	14,290	15,096	5.6%
Marginal Landowners	16,187	16,153	17,429	7.9%
Small Landowners	21,277	21,266	23,374	9.9%
Medium Landowners	42,357	42,478	47,846	12.6%
Large Landowners	85,280	85,542	96,022	12.3%
All Households	20,368	20,361	22,291	9.5%
- Share of each Stratum				
Landless	35.2%	35.1%	34.0%	-3.1%
Marginal Landowners	11.2%	11.2%	11.1%	-0.9%
Small Landowners	24.8%	24.8%	25.1%	1.2%
Medium Landowners	21.2%	21.3%	22.0%	3.3%
Large Landowners	7.5%	7.6%	7.8%	2.6%
All Households	100.0%	100.0%	100.0%	
3- Equity Gap				
Gini Coefficient (*)	0.227	0.228	0.243	6.6%

Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)
Note: Increment refers to the increase provided by Option B in comparison to the WO situation.

(*) This is a concentration index which intends to indicate the degree of inequality in the distribution of a given variables (such as income) among different group an increase in the coefficient means that a smaller share of the total income is obtained by the lowest income groups while the shares of the highest groups have increased. In other words, it means that the level of income concentration is higher and that the social prices of income distribution has become more inequitable.

In the context of the study, the impact of the different options on the income distribution among land ownership groups could be ascertained and thus, their relative shares have been measured. Therefore in the study, the Gini coefficient provides an index of the income concentration among different landownership groups. An increase in the Gini coefficient means that the shares of the biggest landowners has increased while those of the landless and marginal landowners have decreased.

1 METHODOLOGY

1.1 Objectives

The purpose of the investigations is to assess the likely social impact of the projection of the JPP on different social groups (farmers and non-farmers). The investigations will also seek to elicit the respondents views on the possible developments; what they believe to be needed and the effects on their livelihood of various interventions.

The broad objectives of the social study which has been carried out under the Project are to assess the likely impacts of the Project on the livelihood of each social group and to associate the local population and institutions with the Project planning process through the participation methods. More precisely, the objectives were:

- to identify the social groups likely to be affected by the project,
- to identify the range of possible impacts of the project on each social group,
- to determine the base of livelihood for each social group in the [WO] situation,
- to measure quantitative and qualitative changes which are likely to occur in the [W] situation,
- to identify the institutional frame work likely to play a vital role in the project implementation, operation and maintenance.
- to gather people's views and perceptions of the proposed options in participatory manner
- to assess the social and institutional feasibility of the proposed options

To meet these objectives the following investigations have been carried out:

- Household Census which includes the enumeration of 19 villages and a pilot survey
- Socio-Economic Survey
- Local Participation

1.2 Household Census and Pilot Survey

1.2.1 Objectives

The objectives of this survey were to design a reliable stratified household sampling frame, to estimate the total population in the Project Area and quantify main social groups and to obtain necessary information to determine the sample size required for the in-depth survey.

1.2.2 Design of the sampling frame

In order to cover the whole Project Area, the following steps have been used to design the household sampling frame:

- Listing of all villages included in each selected Union and sample selection. The sample selection has been based upon the lists of villages available from the National Census of 1981. The validity of the lists has been cross-checked with lists of villages available in each Union and amendments made whenever required.

  Based on these verified lists, 6 villages have been randomly selected in each location, keeping in mind that each selected Union should be represented by at least 1 village. An additional village has been included in Sarishabari upazila (AEZ 7) since the randomly selected village appeared to be of a rather small size. In total 19 villages have been surveyed (see Appendix A). The locations of these 19 villages are shown on Figure 6.1.1

- A full Household Census has been carried out in the sampled villages. Every household in the selected villages has been enumerated and the following information collected: name of the father, name of the household head, primary occupation, agricultural land owned and number of household members. This information has been used to stratify the households according to land tenure pattern (landless, marginal, small, medium and large farmers) and primary occupation (agriculture, business, service, daily labour, rickshaw and others).

  A total of 5,362 households have been enumerated and form a reliable sampling frame from which samples for any kind of household-based surveys can be selected (see Table 6.1.1).

1.2.3 Determination of the sample size

A preliminary socio-economic survey was carried out using the systematic sampling technique (every 10th household has been interviewed). As a result 523 interviews were been made.

The main objective of the survey has been to obtain information on household income for major social groups, which forms an essential base for detailed investigations on livelihood.

With the data available from the pilot survey, the distribution of household income has been characterized, the mean household income for the entire population and the associated standard error has been estimated as shown in Table 6.1.1.

The minimum sample size for a relative sampling error d = 10% is calculated as follows:

n = (z*s) (square)/(d*Y) (square)
= $(2*16963)^2/(10\%*16963)^2$
= **411**

In order to ensure that fishermen and women headed household were properly represented the sample size was increased to 542 household.

The distribution of sampled households among each AEZ and social groups is given in Table 6.1.2.

1.3 In-Depth Survey

The second phase of the study (in-depth survey) describes the present livelihood in each social group, measures the likely impacts of the Project in relation to the present livelihood and compares the situations with and without project impact.

Indicators covered in the in-depth survey include:

- Household characteristics: no of members, no of males, no of females, no of children, birth, mortality, migration, religion, education etc.
- Household livelihood: assets productive/ nonproductive, income, consumption, saving pattern etc
- Household perceptions with respect to flood

The results of the in-depth survey are described in Sections 2 and 3 of this Annex.

1.4 People Participation

To achieve the long term sustainability of flood control and water management projects the key is to have the active participation of the

affected social groups in all the phases of the project design. implementation and operation and maintenance.

Consequently, the approach to address the situation in JPP should include the combined effort of the local officials, the NGOs and the local poor people from the earliest phases in the following manners:

- The institution frame work and local participation for planning. design, implementation operation and maintenance of the investment should take account of the opinions of the affected people in a balanced way and should promote the harmonious involvement of the different social groups.

- The strengthening of the support services to boost the production objectives through a continuous process which ensures, through the institutional framework, proper distribution of the benefits of improved resource exploitation.

- An approach which addresses the equity issue in respect to beneficiaries who have little assets, and implementation of regular support by the development agencies to avoid widening of the gap.

Under this component the majors institutions, either governmental or non-governmental, formal or informal have been consulted.

The objectives of this investigation were

- to identify the role and the influence of the local institutions in the community life.

- to obtain their views on the flood issue and on different planning scenarios proposed under the Project and,

- to identify and forecast the major sources of social conflicts which might occur under each flood control planning option.

- to assess their role in the participatory planning process (project design), implementation procedures and operation & maintenance.

The results of this component are described in Section 4 of this Annex.

2 SOCIO-ECONOMIC PROFILE

2.1 Project Area and Population Estimates

Jamalpur Zila (District) lies between 24°40' and 25°15' North latitudes and 89°30' and 90° East longitudes. It is bounded on the North by Kurigram and Garo Hills of Meghalaya in India, on the East by Sherpur Zila (District) and Mymensingh, on the West by Gaibandha and Bogra and on the South by Tangail Zila (District).

It has an area of about 2077 sq.kms (802 sq.m) which constitutes 1.44% of the total area of Bangladesh. Jamalpur district in respect of area ranks 5th among the 17 Zilas coming under Dhaka Division and 34th among the 64 Zilas of Bangladesh. Out of the seven Thanas, of Jamalpur District (6 under JPPS, excluding Bakshiganj). Jamalpur Thana is the largest on area with 481.74 sq.kms (186 sq.mile) which is 23.19% of total area of the Zila (District).

Percentage of area of Jamalpur District over the Division and country is shown in Table 6.2.1.

The project is spread over twelve Thanas and has a gross area of around 159,200 ha, excluding the main river channels. The implementation area, which excludes the Char lands on the right bank has a gross area of 134,759 ha.

Within the Project Area, three agro-ecological zones (AEZs) have been considered based on agro-ecological factors. AEZ 7 covers areas along the river bank of the Jamuna river, AEZ 8 is spread over the inner part of the project area whereas AEZ 9 includes areas along the bank of the Old Brahmaputra. The distribution of the AEZs is shown on Figure 6.2.1.

With the construction of the proposed embankment under option B, the study area can be split between protected land (65,800 ha) and unprotected land (68,955 ha) which includes both Set-Back Land, and Attached Chars on the left bank and Island Chars.

The population in the protected land has been estimated Thana wise from the data of the 1981 census using an annual growth rate of 2.1% as estimated from the household survey. The population figures given for unprotected land has been obtained from the findings of the Char land study (cf Annex 9).

Reference Tables 6.2.1 to 6.2.4

2.2 Social Stratification and Land Distribution

In Rural Bangladesh, the ownership of agricultural land is one of the main factor explaining the significant differences in the income of household. This has been highlighted in the findings of the pilot survey (R3, P23) where a significant relationship was established between land ownership and household income. It seems therefore relevant to stratify the households according to the area of agricultural land owned. In this respect 5 strata have been considered

Landless (LL)	0.00 - 0.05 acres
Marginal Landowners (MA)	0.06 - 0.50 acres
Small Landowners (SF)	0.51 - 2.50 acres
Medium Landowners (MF)	2.51 - 7.50 acres
Large landowners (LF)	>7.50 acres

This approach to social stratification can be justify - ex post - by the fact that significant variations have been found for most of the socio-economic variables which have been considered, and in particular for variables related to:

- Mortality, Birth and Population growth
- Education
- Occupation Patterns
- Activity and Employment Status
- Gross Income
- Consumption Patterns
- Nutritional Status

The number of households in each social group as been estimated as follows:

$$HH(i) = \frac{H(i)}{H} * HH$$

Where,
- $HH(i)$ = Total no of households in group(i)
- $H(i)$ = No of households of group(i) enumerated in the census
- HH = Total number of households
- H = No of households enumerated in census

The ownership of agricultural land is the main determinant for the economic position of a household and the social structure of rural Bangladesh can be explained to a large extent by its agrarian structure and the related patron-client social organization.

As shown in Table 6.2.5, agriculture land is very unevenly distributed in the proposed protected land. About half of the households in the project area have no land at all while some 37% have less than one hectare to sustain their livelihood. Because most of these households have expenditures greater than their incomes, they are caught in a process where they gradually have to deplete their fixed assets to finance their deficits. Eventually, when the amount of debt become big, this process will end by the mortgage and sale of their agricultural land.

If the present tendencies of concentration of land ownership continue an ever increasing amount of land will be owned by a small number of surplus housholds while the majority of households will become totally landless. As a result, a growing number of destitue households will fall outside the patron-client network since they have no possessions and no assets to offer. Unless appropriate measures are taken so as to develop their lievlihood through specific income generation and education programmes, an increasing number of people will leave the area in search of a livelihood in the slums of the rapidly growing cities of the country.

In addition to the impact of the land concentration process a purely demographic factor will contribute to further increase the number of landless households in the project area. Landless and marginal land owners have higher birth rates (5.2% and 4.3%) as compared to other strata (between 2% and 3%) and their population is increasing at a much faster rate (3.1%) than the average (2.1%). Birth, mortality and population growth rates are shown in Table 6.2.6.

2.3 Population Characteristics

2.3.1 Family Size

The size of a household has been found to vary significantly among stratum. In a landless household there is and average of 4.5 members as to 9.5 in large landowner household (see Table 6.2.5). Land ownership is not the only factor influencing the size of a household, other factors include:

- AEZ, household occupation
- gender of the household head

2.3.2 Age Structure and Sex Composition

Population age structure, as shown in Table 6.2.7, which is the distribution of the population among age groups, is significantly different among stratum at 99% confidence level. The households with larger land holdings have fewer members below 10 years old and more

members aged above 60 years than the households with smaller land holdings.

This indicates that life expectancy is lower for landless population than for the members of large landowners households. Age structure has been found to be similar in each AEZ.

Age structure of males and females has been found to be different at 95% confidence level but not at 99% (Chi square significance = 2.4%). However, sex composition ratios (number of males divided by members of females) are very different among age groups. In the population below 30 years, there is approximately 1 female for each male whereas for the population over 30 years the ratios of females to males range from 1.29 to 1.63. This indicates higher mortality rates for male than for female.

Reference Tables 6.2.7 and App 6.C.1

2.3.3 Birth, Mortality and Population Growth

Birth rate is significantly different among stratum. Landless households get higher birth rates (5.2% and 4.3%) as compared to other strata (between 2% and 3%).

Mortality rates are found similar in each strata (Chi source not significant) averaging to 16 per thousand for child mortality (age below 5 years) and 20 per thousand for age groups.

Reference Tables: 6.2.6 and App 6.C.2 and App 6.C.3

2.3.4 Population Growth

Annual growth rate of the population in the Project Area is estimated at 2.1%. Landless population is growing much faster (3.1%) than the population of other strata. As a result the proportion of landless population will gradually increase whereas their share in the available resources is not likely to improve spontaneously. In the long run, this could lead to social tensions and conflicts over resources use of the as well as to increased migrations to urban centers.

Education

Education is one of the most important indicators of development. In the JPP area for the development of human resources, institutional support for education has been found inadequate in view of the growing population of the area. The rate of literacy for both male and female in JPPS area (23.2%) is found below the national average (24.9%) (see Table 6.2.8. This indicates that people may not have an easy access

to formal education due to an insufficient coverage of schools in the Project Area.

Land ownership, AEZ and sex are both correlated to the education level of the population:

- Education level increase significantly with the amount of land owned
- Education level of females is much lower then for males
- Education level is higher in AEZ 8 (Islampur - Dewanganj)

The landless population is usually uneducated (92.2%) and only very few individuals are able to reach the S.S.C. level (0.3%). The education system is not able to ensure an equality of chances and fails to offer the same opportunities to individuals from marginalised communities. Without a fair education system social mobility will remain marginal and the chances for a child born in a poor family to get a better social status than its parents are very limited.

The discrimination of the education system against females is also very significant. Sex ratios (no. of males divided by no. of females) are drastically increasing with the education level from a minimum of 0.9 for the "non-educated" level up to 10 for the "Graduate and above" group.

Reference Tables: 6.2.8 and App 6.C.4

2.4. Economic Activity Status and Occupational Patterns of the Civilian Labour Force

2.4.1 Activity Status of the Population

The economic development of a country is largely a function of effective use of human resources in the development process. A higher proportion of population joining the productive processes is likely to result in a greater per capita availability of different goods and services. Here emerges the need for enhancing the proportion of the economically active population.

The economically active population or the labour force of a country, has been defined in the Bangladesh Population Census 1981, as those "persons who are actually engaged or desirous of engaging themselves in the production of goods and services".

The entire population, as envisaged in the report, may be divided into two:

- economically active population which comprises both employed and unemployed population (seeking jobs)

- not economically active population which include housewives, students, income recipients and others.

The employed population refers to those who were reported to be engaged in the production process during the reference period under review. In estimating population not in the civilian labour force, housewives, those engaged in household work and inactive population have been excluded from the potential labour force. In contrast to the practices in the developed countries, population of 10 years and over have been taken into account in estimating civilian labour force (BBS, Population Census 1981, Dhaka, 1984, P 111). BBS Labour Force Survey : 1983/84 pp. 23-25).

2.4.2 Economic Activity Rates

To reflect the economic activity status of the population of a given area, several measures are being used in the literature. In the 1981 census report crude activity rate, refined activity rate and age-specific activity rates were used to describe economic activity status of the population. Table 6.2.9 shows the activity rates under the different definitions as discussed below.

i) Crude Activity Rate

Crude activity rate is viewed as an approximate measure of the size of the labour force. It refers to "the ratio of economically active population 10 years and over to the total population of all ages, expressed in percentage".

The crude activity rate in Bangladesh for both sexes, as reported in the Population Census 1981, was estimated to be 27.1%. For males it was 49.6% and 2.7% for females.

In the Project Area the crude activity rate of population, is estimated to be 38.5%.

Analysis of crude activity rates in the Project Area by sex show 57.3% for male and 16.3% for females. It has to be noted that some variations were found among AEZ. In AEZ 9, the crude rate is 29.1% whereas in AEZ 8 it stands at 37%.

Significant differences also exist in the crude activity rate depending upon the age and the education level of the population.

The most active people, with the highest crude rate at 56%, are between 30 and 39 years old. The youngest part of the Civilian Labour

Force (10 - 19 years) has a crude activity rate of 51% whereas the oldest portion is still quite active (47% for people in the age range 50 - 59 years).

As far education level is concerned, graduates have a very high participation rate (67%) whereas non-educated and primary educated people are less active (respectively 36% and 24%).

ii) Refined Activity Rate

Refined activity rate, as defined by the Bangladesh Population Census 1981, is "the ratio of economically active population of 10 years and over to the total population of the same age expressed in percentage".

The refined activity rate has been found to decline over a period of time. In 1961 the refined activity rate was estimated to be 54.4%, this hade declined to 44.3% in 1974 and 40.5% in 1981. In contrast to the refined activity rate of males in the rural area, the refined activity rate of females was found to be very low. The said rate for males was 75% and the same for females was only 4.2%.

The study reveals that the refined activity rate in the Project Area is estimated to be 51.5%. Like in other rural areas, the refined activity rate of male was found to be higher than for females. The refined activity rates of females was estimated to be 24% whereas it stands at 71% for males.

iii) Unemployment Rate

In the context of rural Bangladesh, measuring unemployment level is somehow a hazardous venture. Referring to the definition given on Civilian Labour Force, unemployed people are those persons who are looking for jobs. If one accepts this definition, unemployment rate has been found at 2% in the Project Area. Slight differences have occurred among AEZ, land ownership groups, male and females, age groups and education levels groups.

In the Project Area, the Civilian Labour Force (CLF) has been estimated at around 230,000 persons out of 22% are fully employed while 48% are not employed throughout the year. Nearly 30% of the labor force (60,000 persons) are either unemployed or do not look for jobs although they would be ready to work if opportunities were available.

Reference Tables: 6.2.9 and App 6.C.5 and App 6.C.6

2.4.3 Occupational Patterns

Occupation refers to the kind of work done by the person employed irrespective of the industry or the status (employer, employee, self

employed). In rural areas, the household members pursue more than one occupation to earn their livelihood. In order to assess the socio-economic status of a given household, it is therefore essential to identify all the occupations of the family members and to ascertain the importance of the contribution of a given activity to the household income.

The main activity of the employed Civilian Labour Force has first been identified strata wise and classified into 7 categories:

- Farming
- Business Trade
- Labor/Employment Activities:
- Services
- Agriculture Daily Labour
- Non-Agriculture Daily Labour
- Transport Services
- Others

In the Project Area, two activities are dominant as primary occupation, Agriculture Daily Labour (39.8% of employed C.L.F) and Farming (39.5%) (see Table 6.2.10).

When analyzing the primary occupation patterns among strata (see Table 6.2.11), it appears that the importance of Agriculture Daily Labour and of Farming follow an inverse trend :

The importance of Agriculture Daily Labour decreases from 75% of the landless CLF to 0% for large landowners whereas farming occupation involves around 73% of small, medium and large landowners but only 4% of the landless.

Reference Tables: 6.2.10, 6.2.11, App 6.C.7 and App 6.C.8

2.4.4 Bases of Livelihood

If the distribution of the population by main occupation gives an idea of the main sources of household incomes, it does not provide a full picture of the structure of the household incomes. To have a precise idea of the bases of the household livelihood, the different income generating and subsistence production activities in which the household members are engaged have been identified.

The number of household engaged in each following economic activities has been determined as shown in Tables 6.2.11 and 6.2.12:

- Farming
- Agro-Forestry
- Non-Agriculture Land exploitation

- Fish Culture
- Fisheries
- Egg, Meat, Milk production
- Business / Trade

In the project area, the proportion of households involved in agro-forestry (79%), farming (60%), agriculture daily labor (57%), Livestock/Poultry production (52%), non-agriculture land exploitation (39%) appears to be very significant. Around 30% of the households are engaged in subsistence fisheries while only 7% can be classified as professional fishing households although most of them are fishing on a part-time basis. In average one household is engaged in approximately 3 different activities, this figure being higher in the case of large landowners (5) and lower for the landless (2.1).

Reference Tables: 6.2.12, 6.2.13 and App 6.C.9

2.5 Assessment of Household Income

2.5.1 Introduction

In a rural area, characterized by the presence of a sizable non-monetised sector, the estimation of household income is surrounded by conceptual and practical difficulties. The inclusion or exclusion of different items and the selection of the basis for valuation involve choices which are mostly subjective. Household income measurement in general, and the measurement of the same in underdeveloped countries like Bangladesh in particular, is beset with several problems, for household accounting in yet to become popular. There exist broadly two methods of income computation of households: the income method and the expenditure method.

Household income, as defined by BBS, refers to "material return in cash or kind earned in exchange for goods and services by the household members", while consumption expenditure is defined as "the value of goods and services finally consumed by resident households of Bangladesh". In view of the lack of assessment ability of the household to provide data on income according to sources, income assessment on the basis of expenditure in cash or kind either for consumption or for investment seems to be more logical, because households are not ordinarily reluctant to disclose various items of expenditure. Hence the expenditure method is usually preferred to the income method of estimating income.

However, because the objective of the study is to compare the likely changes in household income due to alternative development scenarios, the sources of income have to be identified and their relative importance ascertained. This was achieved by estimating the average income generated by each household strata from different economic and subsistence production activities. These two methods have been used and, as expected, the results obtained with the expenditures method are

slighlty higher. Adjustment have been made by specifing the residual differences as "other sources" of income.

In the previous section the extent of the participation of the households in different activities have been ascertained. At this stage, the bases of livelihood are known but the contribution of a given activity to the household income has to be estimated strata wise.

2.5.2 Computation of Farming Incomes

To estimate farm incomes, the average operated land per household has to be measured, then household cropping patterns and crop wise gross margins have to be determined.

i) Operated Land

The average operated land in the Project Area is estimated at 0.677 ha but significant variations among strata have been noted, as shown in Table 6.2.14. Landless farming households, have an average holding of 0.238 ha whereas Medium and Large farmers operate 1.78 ha and 3.22 ha respectively.

The average land share cropped in has been computed for each stratum. Landless share cropped in 0.238 ha, Marginal Farmers 0.185 ha, Small Farmers 0.09 ha and Medium Farmers 0.03 ha.

About 20% of farming household are share cropping land in. This percentage reaches 100% in case of landless, 50% for marginal farmers, 20% for small farmers and 2% for medium farmers.

The average land share cropped out stands at 0.14 ha per household but significant variations among strata have been found. Large land owners are share cropping out an average of 1.19 ha, Medium land owners 0.24 ha and Small farmers a mere 0.08 ha.

ii) Computation of Mean Cropped Area per Household (MCA)

Household cropping patterns have been determined by the agriculture section and have been used to estimate the mean cropped area per household. From the sample survey, the share of each land strata in the total cropped area was known. Assuming that for each crop the share of each land strata is the same than in the total cropped area, the total area cultivated by each land strata for a given crop was determined as follows:

$$TCA_{(ij)} = TCA_{(i)} * p_{(j)}$$

Where, $TCA_{(ij)}$ = Total Cultivated Area of Crop(i) by Farming Household of (j) stratum

$TCA_{(i)}$	=	Total cultivated area of crop (i)
$p(_j)$	=	% of the total cropped area cultivated by Farming Household of stratum (j)

For a particular crop, the Mean Cultivated Area per Household has been estimated, strata wise using the following formula

$$MCA_{(ij)} = TCA_{(ij)}/FHH_{(j)}$$

Where, $FHH(_j)$ = Total Farming Household of stratum (j)

By summing all the $MCA_{(ij)}$, the Mean cropped Area for stratum (j), $MCA_{(j)}$ was determined.

To obtain the Mean Cropping Intensity per household stratum, the Mean Cultivated Area has been divided by the Mean Operated Land

$$C_{(j)} = MCA_{(j)}/MOL_{(j)}$$

Where,	$MCA_{(j)}$	=	Mean Cultivated Area per Household of stratum (j)
	$MOL_{(j)}$	=	Mean Operated Land per Household of stratum (j)
	$C_{(j)}$	=	Mean Cropping Intensity of Household stratum (j)

iii) Computation of Farm Income (see Table 6.2.15)

The Mean Gross Margin of a farming household has been computed as follows:

$$M_{GM(j)} = MGM_{(i)} \times MCA_{(ij)}$$

Where,	$M_{GM(j)}$	=	Mean Gross Margin/HH for household from stratum (j)
	$MGM_{(i)}$	=	Mean Gross Margin/Ha for the crop (i)

Then, the Mean Return to Farmer is given by:

$$MRF_{(j)} = MGM_{(j)} + L_{(j)} +/- S_{(j)}$$

Where,	$MRF_{(j)}$	=	Mean Return to Farmer from stratum (j)
	$L_{(j)}$	=	Mean Imputed value of Own Labour for a household of a stratum (j)
	$S_{(j)}$	=	Mean value paid/received for/to share cropping by a household of stratum (j)

iv) Contribution of Farming Income by Land Strata (see table 6.2.14)

The contribution of farming to household income has been computed as follows:

$$CF_{(j)} = MRF_{(j)} \times FHH_{(j)} / HH_{(j)}$$

Where, $CF_{(j)}$ = Contribution of Farming to Income of household stratum (j)

$HH_{(j)}$ = Total household number of stratum (j)

2.5.3 Computation of Labor/Employment Income

Cash Income Activities consist of services employment, Agriculture Labour, Non-Agriculture Labour, Transport Service. For each of these activities the number of persons involved is known.

From the survey, data has been obtained from each household on:

- the number of day worked in the reference year
- the amount of income received

As a result, the total number of man-days worked in a given activity has been estimated and the mean daily wage has been ascertained.

The contribution of CIA to the household income has been calculated as follows:

$$RCIA_{(ij)} = MD_{(ij)} \times W_{(ij)} / HH_{(j)}$$

Where, $RCIA_{(ij)}$ = Return from CIA(i) to household of stratum (j)

MD(ij) = Total Man-Days in CIA(i) by household of stratum (j)

$W_{(ij)}$ = Wages paid in CIA(i) to households of stratum (j)

$HH_{(j)}$ = Total number of household of stratum (j)

Reference Tables: 6.2.14, 6.2.15 and 6.2.16.

2.5.4 Other Economic Activities

Other activities of economic importance include Business/Trade and the exploitation of the following resources:

- Agro-Forestry, i.e. Banana, Wood, Fuel, Coconut, Fruits, Betel Nut, Date, Bamboo and Palm Trees
- Non-Agriculture land, i.e., Grass land, Fallow Land, Flower and Kitchen garden
- Fish culture (in pond)
- Openwater Fisheries (River, Beels, Floodlands)
- Livestock (Egg, Meat, Milk production)

From the survey, data has been obtained from each household on the value added generated from each activity. Then, the mean return per household engaged in a given activity has been calculated activity wise.

The contribution of these other activities to the household income has been computed as follows:

$$COA_{(j)} = ROA_{(ij)} \times OAHH_{(ij)} / HH_{(j)}$$

Where,
- $COA_{(j)}$ = Contribution of Other Activities to the income of household of stratum (j)
- $ROA_{(ij)}$ = Return to the household of stratum (j) engaged in other activities (i)
- $OAHH_{(ij)}$ = Number of Household of stratum (j) engaged in other activities (i)
- $HH_{(j)}$ = Total number of household of stratum (j)

See Table App 6.C.20 to 6.C.27

By summing the contribution of farming, CIA and other activities, the mean household gross income, $GI_{(j)}$ is obtained strata wise:

$$GI_{(j)} = CF_{(j)} + CIA_{(j)} + COA_{(j)}$$

2.5.5 Household Income By Occupation

The average annual income of farming household is close to 25,000 Tk out of which nearly 60% derives from farming activities. Agriculture and non agriculture labor sources are slightly over 10% while the remaining 30% come from other sources. Behind this average pattern significant variations among land strata are observed both in the level of income and in its structure as shown in Table 6.2.18. While the upper farming households strata earned the majority of their living from farming activities, smaller landowners and landless farming households have to search additional sources of incomes to sustain their livelihood.

Among the different professional groups likely to be affected by the project, farming households will probably end up better off. Average annual household incomes of daily labor (farm and non-farm) are

already 40% lower than those of farmers, while the income of professional fishermen is between that of farmers and that of labourers, due to their greater participation in farming activities (24% of their income derives from farming). The situation of women Headed households is far more critical than any other households. With an income of only Tk 10,000 per year these marginalized households are 30% below even the average standard of landless households. From the above information it appears that to achieve sustainable development priority should be given to raise income of the lowest strata of the rural structure through appropriate targetted income generating poverty alleviation schemes.

Annual average gross income per household and per capita gross income are indicative of the economic strength and concomitant level of living of population in a given area, but they fail to reflect the basic aspects of income distribution in the area i.e. it does not indicate whether there exists a wide gap in income of the people. Per capita gross income of a given area may be very high and at the same time the majority of the population may have per capita income below that of the poverty level.

The distribution of income in the different professional groups considered highlights that most of the daily labor and professional households are concentrated in the lower income groups while the situation is more balanced in case of farming households. The worst situation is found in case of women headed households with more than 80% of them living with less than Tk 10,000 per year (see Table 6.2.18).

2.5.6 Household Income by Land Strata

The average amount of gross income per household in the project area is slightly above Tk 20,000 per year. The main sources of income are farming (40%), agriculture labor (22%). Non-agriculture labor appears to be a minor sources of income (less than 4%) while the importance of subsistence production activities such as agro-forestry (5%), livestock (3%) an fisheries (2%) is not very high though probably biase downward.

Significant variations have been found among strata. Landless households earned an average of slightly more than Tk 14,000 per year whereas large landowners have an average income of more than 85,000 Tk per year. The structure of income sources is also correlated to the size of landownership.

The contribution of farming activities to household income is rapidly expanding, from a mere 7% in case of landless up to 50% and more for small, medium and large landowners. The importance of agriculture labor sources follow a reverse trend, contributing some 50% to the landless households annual income.

The importance of all other activities including agro-forestry, livestock production, homestead cultivation and fish culture but except fisheries increases with the size of landownership. Although farming is the dominant sources of the income of larger landowners, these households have a relatively more diversified livelihood the smaller ones which enable them, among other reasons, to sustain a more stable living.

The pattern of the distribution underlines a strong correlation between the level of income and the size of the landownership. Around 85% of the landless and 75% of the marginal households are earning less than 20,000 per year whereas this proportion is below 20% in case of medium lanwoners and nil in case of the largest ones. As a whole, nearly 70% of the households (around 80,000 households) are concentrated in the lowest income classes and, as such, can be regarded as highly vulnerable because they are likely to be deficits households.

For the landowners falling under this category this would mean that they are already engaged in a gloomy process of dispossession which could ultimately end by the sale of fixed assets, including land. As a result, landlessness in the project area is likely to increase in the future. This surplus amount of landless households will have to search for employment opportunities either on farm or off farm leading to a more fierce competition among the poor in the labor rural market. The crucial question is whether or not employment opportunities will increase at the same pace as the landlessness process so as to absorb the growing surplus of labor force.

Given the present pace of economic development in the project area, this is most unlikely and a more realistic scenario is that out-migration to urban areas will be envisgaed by a significant part of the deprived households. This underlines that to achieve sustainable development priority should be given to raise income of the lowest strata of the rural structure through appropriate targetted income generating poverty alleviation schemes.

In the project area, the income of each household is strongly correlated to the amount of agricultural land owned by the household. The result of the regression indicates that there is a linear relationship between the two variables:

$$Y = a * X + b$$

where,
- Y = Annual Household Income (in Tk/HH)
- X = Amount of Agricultural Land owned (In Ha/HH)
- a = 14,169 (significant with 99.9 % confidence)
- b = 15,861 (significant with 99.9 % confidence)

This analysis highlights that the key determinant to the income of the household, and thus to its livelihood, is land. Any reduction in the amount of land owned by each household has an adverse effect on its income and on the sustainability of its livelihood.

Reference Tables: 6.2.19 to 6.2.21

2.6 Sustainability of Household Livelihood (Vulnerability, Precariosity)

2.6.1 Consumption

Household consumption is the function of income and propensity to consume. The quantum of consumption also varies to a certain extent with the production of concerned items. The items of consumption may broadly be divided into food items and non-food items. Inter category variations were also observed in the consumption of different food and non-food items.

Food is the basic necessity of the households, which they procure either by producing the same in their farm or buying from the outside. The average amount of expenditure on account of food consumption was Tk. 21,518 which is about 75 percent of the total consumption, while the expenditure on account of non-food items was Tk. 6,931. Significant variations were also observed in the consumption expenditure of different food and non-food items among strata.

Reference Table: App 6.C.28

2.6.2 Nutritional Status

Nutritional status is one of the measures reflecting the level of living of the population. In measuring the quantum of calorie from different food items, the coefficients developed by the Institute of Nutrition, University of Dhaka, for different food consumption items have been used [1]. Assuming age structure and occupational pattern of the population in the study area altogether are not different from that of the Bangladesh, the minimum calorie intake per person per day prescribed for the average population has been used. As assumed by the Bangladesh Bureau of Statistics, these minimum intakes are 2078 k cals per day per person for poverty line-I and 1805 k cals per person per day for poverty line-II (Hard-core Poverty) [2].

[1] Institute of Nutrition and Food Science, Dhaka University. Deshio Khadwadrabwar Pushtiman. Dhaka 1988.

[2] BBS. Bangladesh Household Expenditure Survey: 1985-86. See also BBS. Statistical Year Book of Bangladesh: 1989.p.613.

In the study area the average calorie intake per day per person has been observed to be 2439.92 k cals. Intercategory variations were also observed in taking nutrition due to food consumption. The average calorie intake per person per day in the poverty line-II was estimated to be 1329.57 k cals, while the same for poverty line-I was 1956.78. Distribution of averages of calorie intake per person per day in the study area by nutritional status and land ownership categories has been presented in Appendix C29.

Household distribution on nutritional status shows that about 44.4% of the households in the study area have a calorie per person per day less than the estimated k cals 2078 by the BBS. About 34.0% of the households in the study area belongs to the hard-core poverty line, with 10.4% of the households in poverty line-I and the remaining 55.6% of the households above poverty line-I. In estimating the strength of association between per capita per day calorie intake and land status the contingency coefficient was computed. The contingency coefficient between the two variables in the study area was estimated to be 0.37.

Reference Tables: App 6.C.29 - 6.C.30

2.6.3 Asset Formation

Household investment is the function of propensity of savings out of current year income and of consumption. Household savings leads to further investment in different productive sectors for income generation by asset formation. The average amount of asset formed by the household in the reference year out of current year income was estimated to be Tk 1466.41. Intercategory and inter item variations were also observed in the savings pattern/asset formation by the household.

2.6.4 Credit Situation

The portion of household expenditure devoted to investment also depends upon the availability of credit in the respective area from different sources. The study reveals that the major sources of credit are:

- Money lenders
- BKB
- Relatives

The average amount of credit taken during the reference year by the households was Tk. 1,548. The same for the landless, the marginal, the small, the medium and the large categories of households were Tk. 434, Tk. 680, Tk.1638, Tk. 3,433 and Tk. 6,340 respectively. The average amount of loan repaid in the reference year was Tk. 462 and the amount due was estimated to be Tk. 3,401. Variations in credit repayment in different land ownership categories were observed.

Reference Tables: App 6.C.31 - 6.C.34.

2.6.5 Status of Women

A special study of the status of women in the project area has been carried out to highlight their particular problems within the local society in the project area. The results of this study are shown in Table 6.2.22.

Further discussion of this topic and recommendations for further studies are given in Annex 3.

3 SOCIAL IMPACT ASSESSMENT OF THE PROJECT

3.1 Introduction

In order to reduce the adverse effects of flooding in the area, two different options have been put forward for feasibility study.

As part of the feasibility study, a detailed SIA has been conducted to ascertain in which option the social benefits are maximised and the disbenefits minimized.

To assess the "Social Feasibility" of each option, the following criteria have been used:

- level of suitability to people's needs, particularly to farmers, fishermen and erosion victims
- level of acceptance by local official and public representatives
- level of acceptance by NGOs
- quantitative impacts on income of social group (household income concentration, equity issue and existence of disbeneficiaries)
- suitability of institutional framework to support project implementation, O&M, human and technical development

3.2 Land and Water Development Plan

3.2.1 Introduction

The land and water development options considered were as follows:-

Option A: Flood proofing and drainage improvements.

Option B: Controlled flooding for the whole areas; intakes on major streams crossing the boundary; full boundary embankments; drainage improvements and flood proofing on Char land within the project area. Option B may also include some form of compartmentalisation.

These Options are described in more detail below.

3.2.2 Option A

The objectives which are in line with initial findings of FAP 23 are:

- to define small scale structural measures that can be undertaken by local people, with the ultimate objective of reducing flood losses in the project area,

- to improve drainage conditions so that water level in the paddy fields can be controlled efficiently (removal of excess water due to river flooding and rainfall)

Components for Flood Proofing are:

- refuge areas providing safe places and basic life support during extreme floods,

- public storage providing storage for people's possessions (food, seeds, personal items),

- flood proofed buildings that would suffer less damage when inundated,

- flood proofed wells and latrines providing safe drinking water and containment of human waste during flood events.

Components for Drainage Improvement are:

- improve channels for the drainage of depressions and waterlogged areas; excavate channels and construct control structures to achieve an accelerated release of excess water when open and the control of water level when water should be retained and beels preserved (if any).

- improve major natural channels Chatal, Jhenai, Madardaha rivers in sections where sedimentation restricts flows (if any).

3.2.3 Option B

The objectives are the following:

- to admit only controlled flows to the project area thus preventing quick floods, peak floods and subsequent excessive rise of water levels during inundation,

- to protect railways and towns against floods,

- to improve drainage conditions so that water levels in paddy fields can be controlled efficiently (removal of excess water due to rainfall and when inundation recedes),

- to mitigate, as much as possible, by a fisheries management programme, the adverse impact on fisheries.

The components of this Option are the following:

- flood proofing as in Option A for Char lands only,
- embankment along the Jamuna river,
- embankment along the old Brahmaputra river on the eastern side of the railway,
- embankment along the Jhenai river on the western side of the railway, downstream of Baushi Bridge,
- two control structures to admit floods on the Old Brahmaputra river, a major one at Jamalpur for the Jhenai intake and a smaller structure at Islampur,
- a major control structure at the Chatal inlet from the Jamuna,
- two major control structures to release water from the project area; one at Baushi bridge which could be a simple weir, and one at Sarishabari,
- minor control structures (flushing sluices) in relation to local topography in order to admit controlled floods and to drain excess water,
- channel and drainage improvements as per Option A.
- hatcheries for the fisheries programme.

3.3 People's Views and Perceptions

3.3.1 General Approach

The approach, to assess the local views of the people living in the project area, had two components. Besides the technical surveys carried out for identifying the physical situation, methods were adopted to get the most relevant information about the living conditions and all the problems related to flood:

- through group discussion with a wide range of the population,
- through formal questionnaires to identify the different classes of people represented and their socio-economic conditions,

Special attention has been given to assess how the farmers and fishermen feel about the different measures, ranging from non structural

measures (Flood Proofing) to a complete embankment around the area. The percentages given below refer to compilation of opinions taken during the fieldwork which took place at different period and in several places.

3.3.2 Farmers

They identified flooding as a very acute problem which inundates vast areas through embankment breaches caused by erosion and onrush of flood water. The Project with full flood protection will do more good than harm to the farmers who will undoubtedly be able to increase crop production when crop damage is prevented.

The farmers identified the adverse effect of normal flood. According to their views 50% of B. Aus, 25% of T. Aus and 25% of fruit trees are damaged every year by normal flood. This adversely affects the livelihood of different social groups. Furthermore the normal flood affects the general quality of life of the people. Without embankment flood losses and degree of livelihood risk remain high. 50% Farmer perceive that flood does bring some good by carrying silt to the Project Area and thereby increase soil fertility.

Urgency of construction of the embankment giving full protection has been keenly felt by the farmers of all categories. All the food growers feel that an embankment with drainage facility would protect the project area against high flood. 75% of the farmers would prefer an embankment constructed close to the river, while 25% argue for a new setback 1 Km away from the river. According to the farmers flood protection would increase HYV cultivation.

Most of the farmers perceive that option B would benefit at least 90% of the people as flood will not able to leave any adverse impact on crop production.

3.3.3 Fishermen

The fishermen held that direct loss to flood plain fisheries would result from the implementation of the project with full flood protection as the fish habitat area decreases by reduction in the flooded area and/or flood duration and average depth. If full flood protection is provided, occasional fishermen would not get sufficient catch in water bodies inside the Project Area. This would result in fish harvest loss to a considerable extent which might compel them to over fish the remaining catch thereby completely exhausting the fish resources in the area. The fishermen further held that sufficient flood water in the water bodies would increase fish productivity. To them the FCD project would increase crop production but at a great cost of fishing and fishermen. This situation is expected by the fishermen to be counterbalanced by stocking cat fishes and carps in the water bodies in collaboration with the Dept. of Fishery.

Char Inhabitants and Erosion Victims

The Char inhabitants feel insecure as they are loosing regularly piece of land by river erosion. Jamuna bank erosion is now a life and death issue for them. They complain that neither the govt. nor the local bodies care much about them. The Char people feel that the newly accreted lands are not easily available for them as they are, in some cases, controlled by powerful local elites (jotedar) who establish claim on the newly emerged Char land by illegal documents. They have expressed deep concerns if river water level is going to rise due to the construction of the embankment.

The displacees feel that they are very vulnerable and dependent upon their relatives, friends and local corporate bodies for assistance in adjusting to displacement due to erosion.

The dynamics of land tenure on Char land is governed by a patronage regime. Physical access to Char land as well as purchase of land have to have pass through an existing relationship within the Char or a high degree of acceptance of struggle for survival with intransigent patrons.

Those displaced by erosion consider that one day their lost land will re-emerge and at that time they would be able to return to their own land and they wait for that day.

Displacees express a clear preference to resettlement to nearby land. This suggests that they intend to live as close as possible to their kin-group and local samaj. They claimed that a resettlement system is nonexistent and this a must where erosion is very acute.

How long they will be able to stay where they are now is uncertain (road side, relative's house). However they give first priority to food, shelter and job opportunity.

3.4 Non Government Organisations (NGO)

3.4.1 General

Executives of the NGOs made their own assessment of flood damage in 1988 and 1991. All the areas under their coverage were flooded in 1988, while in normal flood year of 1991, affected areas were Jhawgora Union, Gosherpara, Charbani, Pukuria, Char Patterdaha, Burannaritola, Kamarabad, Pogoldigha, Pigna, Aona, Chukaibari union, Bahadurabad Union, Shapdhari Union, Noapara Union, Merurchar Union, Arendabari Union, Icharpakerdah Union, 4 Baliguri, No.2 Karaichara, No.3 Gunaritola, No.5 fulzuri.

Reference Table: 6.3.1

3.4.2 Effects of Normal Flood

NGO opinion on the normal flood effect in Project Area has been evaluated. Executives of the NGOs indicated the adverse effects and major benefits of normal flood in their respective programme areas. Different areas have variable effects of normal flood. Adverse effects as identified are the following:

- Crop damage
- Road and embankment damage
- Diarrhoea epidemic
- Homestead damage
- Erosion
- Job scarcity
- Price hike
- Death livestock
- Fertility decrease due to sand deposition

Major positive effects from normal floods are

- Increased fertility by siltation in a few places,
- Increase of potential fish production

Reference Tables: 6.3.2

All the NGO executives working in JPP area held a positive opinion on benefit from control flooding. Increasing cropping intensity and more employment opportunities are expected to be the outcome of controlled flooding.

Reference Table: 6.3.3

3.4.3 Waterlogging

Waterlogging in some of the NGO areas poses a serious problem and the executives of NGOs suggest that if water is drained out paddy and other kinds of crops will grow. Beels are found mostly waterlogging areas.

Reference Table: 6.3.4

3.4.4 Dispute Over Char Land

All the NGO executives held that Jamuna erosion is a major problem in some of their programme area. Many Char people loose land by erosion every year. Marginal attempts have been made either by NGOs or government to rehabilitate the erosion victims. They go for settling on new Chars on their own either by giving money to Jotdars/Influential or put claims on Char lands by 1928 settlement records.

Shoshika executives view that people who are loosing land and homestead due to erosion do not get fresh land on new Char as they do

not get the official right from land administration. Also new Chars are occupied by the rich and the poor erosion victims have no opportunity to compete against them.

Out of 15, 10 NGO's have some of their group members victims of erosion. Samaj Unnayan Sangstha has the highest number (3,000). Provati Samaj Kallyan Songstha has also a considerable number, while Grameen Bank and Terre des Hommes have a very limited number of group members from the Chars.

Majority of the NGOs are involved in the program of group formation (14), literacy (10) and income generation activities (9)

Membership enrolment is increasing over the years. Male membership average in 1989 was 17,039 and female average amounted to 14,242, while in 1991 male average rose up to 28,860 and female average 40,550. Those has been a rising female coverage under the NGO programme in the Project Area. Female participation is significantly increasing in productive activities. (farm, non-farm, marketing and processing of goods).

NGOs expressed opinions about what are the institutional infrastructure development priorities in the protected area. They see the protection with an embankment as a first priority and then irrigation as a second.

Majority of the NGOs ask for option choice B while small minority prefer option A. The opinions given about option remains unclear to some of them and they sometimes gave multiple answers. SCI feel that option B would bring no benefit to Char people, rather adverse impact is anticipated.

NGOs perceive that 77% people are expected to be better off with option B, while 15% will have no change and 8% people get worse off with the Project.

Reference Table: 6.D.25

3.5 Local Bodies/Public Representatives

3.5.1 General

Among many rural institutions, the union parishad has an effective role to play in coping with natural disasters such as floods and erosion. To know about the abnormal flood situation that prevailed in 1988 and normal flooding in previous and subsequent years, and their socio-economic impact in JPP area, information was obtained from the union parishad chairmen of the Project Area. Their opinion and reaction to flood situation in their respective areas were assessed.

3.5.2 Waterlogging

87% of the union areas according to opinion Union Parishad heads have either waterlogging or drainage problem. These waterlogged areas consist mostly of beels, while a few of them are arable lands.

Reference Table: App 6.D.26

3.5.3 Flood damage

Animal and crop losses 1974 and 1988 floods were reported by the chairmen of Union Parishad. Average percentage of crop losses and average number of animal lives lost during these flood periods are shown in Table 6.3.5.

73% of the chairmen reported that in their respective areas embankments are damaged but major parts of the embankment in Melandah still remain in good condition. Embankment in Shapdhari union has been reported to have gone into the river by erosion.

Reference Table: App 6.D.26

3.5.4 Development Priorities

20 Union Parishad Chairmen give first priority for the construction of embankment while two Union Parishad Chairmen of Shapdhari and Kendua have given their first preference to khal re-excavation.

The majority of the chairmen prefer construction of the embankment close to the river.

Suggestion for new embankment with a setback of 1/2 to 1 km distance from the river was also put forward by chairmen of the following Union Parishad:

1) Noapara Union
2) Phul Khucha Union
3) Adra Union
4) Shapdhari Union
5) Meshta Union

Reference Table: App 6.D.26

3.5.5 Perception About Options

Chairmen made a comparative assessment of option A and option B when these two options were fully explained to them.

They held that under option A people would suffer more damage when wild flooding takes place suddenly in the absence of a full embankment. They would lack basic life support facilities including storage for people's possession (food, seeds, personal effects), food and drinking water. These problems will not be sufficiently taken care of under option A.

In the case of an embankment along the Jamuna river and the Old Brahmaputra river on the eastern side of the railway with controlled structures Chairmen of the local bodies perceive that option B would mitigate people's sufferings as much as possible by increasing crop production and cropping intensity and protecting their dwelling houses, railways and towns against flood.

When asked about the percentage of people to benefit from the controlled flooding project with option B the Chairmen of Union Parishad perceived that on average around 89% people would be better off while 6% remain worse off with the project. There will however be no change in benefit sharing for about 5% of the people.

Reference Table: App 6.D.26

3.6 Impact Assessment

3.6.1 Philosophy

The basic philosophy behind the Social Impact Assessment (SIA) exercise is the concept of sustainable development as opposed to a narrow mitigatory approach. As explained earlier, sustainable development cannot be achieved until and unless the poorest strata of the rural communities including, destitute homesteadless and landless households, women headed households, and marginal landowners are not involved in the economic development process. In assessing the social implications of the project (option B), the focus has been placed on measuring the impacts of the project on households incomes; on identifying whether or not the project is likely to contribute to raise incomes especially of the poor; on whether or not the equity issue has been addressed.

3.6.2 Type of Social Benefits and Disbenefits

Benefits

The social benefits induced under option B would be of two types:

- Short-run benefits: They are linked to the construction phase and will provide direct incremental socio-economic benefit to the large population of labourers. The effects are additional employment therefore increase of incomes and better scope for higher consumptions, improved diet and reduction of dependency.

- Longer-run benefits: They are linked to the developmental consequences of the project. They are generated gradually as a result of the projet investment and operation with the construction of the embankment, one of the major benefits is the prevention of flood damage in the protected land, including protection of human lives, livestock, household assets, infrastructure and

standing crops which would contribute to increase the security of livelihood. Other benefits included effects on agricultural production and productivity household incomes, saving, investment and consumption patterns that can generate multiplier effects in other sectors of rural economy (trade, transport.....). This will also result in improving the non-agriculture sectors such as higher scope for employment in maintenance of structure and trade which will positively affect the poverty alleviation.

Another positive social impact is that the poorest households which used to borrow money, sell fixed assets, mortgage and/or sell land to recover from flood damages would become less vulnerable since the risk of loss of livelihood as a result of floods will be much reduced. Eventually, the landlessness and pauperization process could be reduced.

Disbenefits

The following potential social disbenefits may be associated with the proposed project:

- loss of agricultural and/or homestead land due to land acquisition
- loss and/or reduction of livelihood due to alteration of openwater fisheries resources
- increase flood risk in unprotected areas (Char land and Set-Back land)

The reduction of openwater fisheries resources would adversely affect the livelihood of professional fishermen through a direct loss of cash income, but this effect will be mitigated by the promotion of fisheries in the protected area. Subsistence fishing households will be affected through a reduction of their nutritional status since they will loose a significant part of their protein intake.

The land acquisition will affect a significant amount of households thereby reducing their agricultural income and increasing the socio economic vulnerability. For the households living on the existing embankment, the loss of their homes as a result of the construction of a new embankment could be a major negative impact. However a resettlement programme is envisaged and will be further developed at the detailed design stage of the embankments.

The increased flood risk in unprotected areas is an issue of major significance which has to be taken into consideration when assessing the social implications of option B. This question is addressed in the Char study (Annex 9) where mitigation measures in the form of flood proofing are proposed.

3.6.3 Impacts on Household Incomes

Impacts on household incomes have been measured by comparing the forecasted incomes of different social groups in the future [WO] and [B] situation. As explained above in the methodology, these projections have been made based on the expected changes in cropping patterns (given by the agriculture section) and in the increased volume of farm labor employment and non-farm labor employment (for O&M). The same methods of computation of household incomes than those presented in section 2.5 have been used.

Reference Tables: 6.3.6 to 6.3.9 and Appendix D

Because the [B] situation is based on and improvement of the total agricultural and fisheries productivity in the project embanked area, the incremental influence of [B] compared to [WO] is significant (9.5%). The projections shown in Table 6.3.10 are only valid to assess the incremental impact of one scenario over the other one and should not be regarded as a plausible estimate of the future evolution of rural incomes.

This being said, due to a significantly increased amount of recurrent unskilled labour cost in O&M work (Tk 15 million per year), additional employment opportunities for non-farm daily labour will be provided. The average income of households from this occupational group would rise by 17.8% provided that the member of households engaged in this activity is constant, which is not likely. However, other sections of the labour force, especially from underemployed farm labour would probably take a share of the incremental job opportunities created by the project. As a result both farm labour and non-farm labour are expected to gain additional incomes.

Farming households are expected to be better off (+9.7%) due to an increase of their farm incomes. However, this pattern is not uniform in each land strata. The amount of incremental farm benefits is proportional with the size of landownership and large farmers are the first winners in both absolute and relative terms. This seems to be a direct consequence of the existing share cropping system which does not allow for a fair remuneration of the tenant farmer own labour. The return to the sharecropper own labour is usually below the labour market prices which indicates that the sharecropping system is one of the major tool used for the exploitation of the rural poor.

Professional fishermen are expected to be better off as a result of the fisheries mitigation programme. Their annual household incomes would increase by some Tk 4000 in case of [B] as compared with the [WO] situation. In the future [WO] situation, for which no fisheries programme has been assumed, the income of this professional group is expected to decrease as compared to the existing situation as a result of the general declining trends of openwater fisheries resources in Bangladesh.

3.6.4 Equity Issue

The projected changes in the average income of each land strata show that, under option [B] scenario, the lower classes are not expected to benefit from the project to the same extent as the upper classes. Although the average income is higher in all strata, the incremental income in the [B] -situation is higher in case of large landowners (+12.3%) than in case of landless, marginal and small landowners (+7.0% on average). As a result, the share of landless in the total income is decreasing whereas the share of large landowning households would increase. This would contribute to increasing the equity gap as shown by the value of the incoming concentration index (Gini coefficient) which is likely to rise from 0.228 [WO] to 0.243 [W]. Despite the fact that it will provide an increased income for all types of households, Option B does not intend to address the issue of increased landlessness or the increasing equity gap.

3.6.5 Social Conflict Issues

Considering the hierarchy of the social groups and the variety and complexity of socio-economic impact on the different social strata in JPP area, social conflict should be seen as a dynamic process.

The main issue of conflict is generally either status or power of economic gain. The relationship between rich and poor within the villages in the study area are that the richer peasants are significant employers of labourers who originate from their village. Potential conflict situations exist in the Jamalpur Priority Project Area when transactions occur between individuals or groups who do not share the same set of working rules or when there is wide divergence between the ideal and real sets of expectation in transactions of any kind between individuals or groups who do share a common set of working rules.

Conflict situations in the peasant community in the JPP area provide an understanding of the social constraints of the development programme including FAP-3.1. Although there exists no major conflict situation between farmers and fishermen or people inside or outside the proposed embankment, a conflict of a different nature presently exists between elite groups and others over who would provide support to the dependent marginal farmers and the landless in terms of employment, land for share-tenancy, credits and land mortgage and also the supply of irrigation water and who will gain supremacy and political control in the area.

In addition to the social conflicts within village society, there is competition between groups of landed elites to gain access to various administrative and development organization at thana level. This creates a conflict situation over the domination of local bodies like the Union Parishad. This situation is not likely to be worsened by the project.

Some space should be devoted to explain the factionalism giving birth to conflicts in village community in the project area as elsewhere in Bangladesh. The term faction is used to describe a pervasive form of politic-social interaction. The central theme of this mode of politic is that factional alignments cut across social class alignments.

The faction is often regarded as disruptive of a prior social order which is characterised by consensus and unity. Factional groupings are based on either kinship or political motivation or economic ties in rural Bangladesh. This may be prevalent both irrespective of JPPS. Several examples from the following case studies have related to the nature of conflict in JPP area.

Case I

In the last Union Parishad election (1992) one candidate won with a narrow margin over his opponent. This has given rise to factionalism in the Union which has led to a head on clash between the rival groups supporting the winning and losing sides. As a result, the opinion on the alignment of embankment was divided among the local people.

Case II

In Char Gopalpur a small group of large landowners made a big cut through the bund for outletting water to the advantage of their own farming. This produced an adverse impact on others farmland resulting in the damage of crops which created a conflict situation among the two opposing groups having different interest.

Case III

In Kazaikata 80% of the local farmers plead for construction of an embankment for flood protection while a small minority of 20% non-farmers oppose the proposal. The minority group may try to negate the participatory programme in the area, unless they can be motivated in favour of the embankment.

Case IV

In Dewanganj, no major conflict situation has been found, except only for the large farmers who would try to create conflict situation by opposing acquisition of their land at the present rate of compensation and with the existing mode of payment.

Case V

In Bailajuri, proper distribution of agricultural loans has not been ensured through KSS. Loans are largely available to the relatively well off and to those few poor who feel obliged and dependent on their patron who has exploited the distribution of privilege for local political gain. Thus a conflict scenario has been created within KSS itself. The

same situation also prevails in other KSSs in Pullakandi Barakhal and Charnagar. These KSSs sometime have to confront the Jotedars in order to recover and establish their rights over the khas land.

Case VI

A conflict situation has grown between two rival groups in Pashewary Junail KSS over the distribution of irrigation water to the local farmers. A KSS Manager supplied DTW water to the farmer clients on cash payment, while the owner of a private tubewell took advantage of the farmers inability to make cash payment by distributing irrigation water in return for payment in kind.

Case VII

In Gunaritola Union (No. 3), the site for the construction of a community centre was selected at Moslemabad due to the political influence of one group. The site was subsequently changed to Gunaritala due to some other political influence. Thus the community development programme has suffered a setback which may either hamper or delay it, or even result in the programme being abandoned without consensus as a result of a rising conflict situation in the area.

Disputes and litigation over land are frequently reported from many places in the JPP area. This has resulted in bitter social and human relationship, more conflict cases and more expenses for the individual.

It is often found that development activities themselves stimulate factional divisions within the project area as different elite patrons compete with each other for position, supremacy and power over new resources in order to retain the loyalty of their followers.

The basic feature of the power structure of the rural society of Jamalpur as elsewhere is its tendency to infiltrate any institutions of rural development. Often this has the result of magnifying the power of a group of individuals e.g. when such a group gains control of a relief committee or a cooperative.

As a result of the project implementation, four categories of people are likely to be adversely affected:

- Those who are going to lose land in the land acquisition process
- Those presently sheltered on the existing embankment who are going to be displaced
- Those living in unprotected land (island and attached Chars) who are going to be subject to an increasing flood risk
- Those who are going to loose part of their livelihood (professional fishing households) and part of their protein intake

(subsistence fishing households) due to the reduction of openwater fisheries resources

The likelihood of conflicting situations between direct beneficiaries (farmers) and the disbeneficiaries identified above is dependant on how far the project will be able to involve these groups of people through specific targeted programmes aimed to provide them with appropriate compensating measures and to involve them in the project activities in a positive manner. If these groups have the feeling that they are not left out and that their concerns have been heard by development planners and properly dealt with, they will be more likely to accept the project activities. Unless this is done, the emergence of social conflicts, which could go as far as cutting the embankment, cannot be ruled out.

3.7 Summary of the Impact Assessment

Option B is expected to minimize flood damages on crops, livestock, households assets and public infrastructure and thus would contribute to create a more secure environment with better road communication and transport facilities, This general improvement would have a positive impact on the economic development of the area as a whole and on the agriculture sector in particular. Socio-economic benefits of option B are expected to be derived from the reduction of livelihood vulnerability to flood, from the likely rise of farm incomes and from the induced rise in farm and off-farm employment opportunities.

However, the negative impacts of this option have to be underlined. Unprotected land (Char land & Set-Back land) where flooding problem is already much more severe than in the mainland would be subject to an increased flood risk. professional fishing households would suffer a severe reduction of income (-20%) while subsistence fishing households would loose a valuable sources of animal protein. The issue of people being displaced as a result of the embankment construction is another sensitive impact which would have to be considered. Unless carefully dealt with, in the manner proposed in other parts of this report, all these negative impacts could seriously affect the overall social feasiblity of the project and could pose a long term threat to the sustainability of the social cohesion in the project area.

4 SOCIAL CONSIDERATIONS IN PROJECT DESIGN AND IMPLEMENTATION

4.1 Main Issues

To achieve the ultimate objective of sustainable development, the project has to carefully consider direct benefits to the population as a whole and not only to some privileged strata of the rural structure.

To pursue this goal, specific targeted programmes should be included in the project design so as to address the equity issue and the negative social impacts which might otherwise be induced by the project. This approach requires the active participation of all the population with a specific attention for those households who are likely to be worse off (unprotected land, fishing households, displacees) and those who are not likely to benefit directly from the project (destitute households, women headed households).

For unprotected land, a flood proofing and development project has been proposed (Annex 9). With respect to households living on the embankment, a resettlement and housing programme has been recommended. The loss of livelihood of professional fishing households would have to be addressed through proper management of the remaining water bodies (beels and internal rivers) which could be stocked with important commercial fish species. In order to address the need for sustainable development, a specific social support and income generating scheme targeted to rural poor has been recommended.

Based on the above social considerations, the following measures are envisaged:

- Resettlement programme for displacees and destitute homeless
- Flood proofing and a development project in the unprotected land
- Social support to involve the non direct beneficiaries in the project through income generating activities.
- Raising of public awareness and motivation through the development of an effective local participation system aimed to improve the communication between the beneficiaries, the non beneficiaries, and the project planners and implementers.

The long term sustainability of flood control and water management projects need to have the active participation of the affected social groups in all the phases of the project design, implementation and operation and maintenance.

Consequently, the approach to address the situation in JPP should include the combined effort of the local officials, the NGOs and the local poor people from the earliest phases in the following manners:

- Unprotected areas will remain subject to flood and special attention is most necessary. The unprotected area is larger than the protected area and contains more people. Practical proposals to mitigate the induced effect of the embankment on individual basis have been separately addressed in the annex 9.

- Within the protected mainland the goal is to boost development for all aspects of life. To achieve this goal the cooperation of all GOB institutions and NGOs will be necessary. The project will create increased scope for developing the means of production further but it will need a properly supportive environment to assist the implementation during all phases and at all levels.

- In developing further the overall economic level this will initially give better chance to those who have assets (mainly the landowners). The unequal distribution of benefit in this context is a matter of concern and should not be hidden for the sake of an higher global economical result.

Those whose livelihood will not benefit directly are great in number and are the people who generally can not be reached by the GOB development agencies. Therefore to address the equity issue agencies who experiences good result in the respect will be called to avoid widening of the gap.

The situation has to be tackled in a sensible manner in order to integrate and work out a strategy which will articulate the institution for rendering maximum opportunities to the non direct beneficiaries. The following goals may be set:

- An institutional frame work and local participation for planning, design, implementation, operation and maintenance of the investment considering the opinions of the affected people in a balanced way and the harmonious involvement of the different social groups.

- The strengthening of support services to boost the production objectives through a continuous process for ensuring proper distribution of the benefit through institutional framework in the exploitation of the resources.

- An approach to address the equity issue in respect to beneficiaries who have few assets and the implementation of regular support by the development agencies to avoid widening of the gap.

4.2 Institutional Frame Work and Local Participation for Implementation

4.2.1 Project Planning and Design

An early participatory approach is indispensable to assess carefully the tasks which are:

- Preparatory identification of the land for embankment
- The mechanism for land compensation
- The resettlement of displacees
- Location of the minor flushing gates

At the planning stage important decision or rules have to be enacted by:

- The land settlement office
- The local parishads
- The engineering department
- The NGOs

The implementation of the preparatory phase will need full cooperation among the authorities concerned and the mechanism designing will be sensible if:

- The bad experiences about land acquisition is superseded by a new system which is spread by agents, such as NGO workers, who have the confidence of the affected people.
- An agreement is reached for selecting the site of the minor infrastructures with groups of neighbouring farmers to avoid cuts in the embankment for retention or drainage of water.
- The implementation of the new fishery management is enforced giving rights to the people professionally involved in fishing activities.
- Local committees are formed including the NGOs members to assess the consequences of land acquisition.
- The Government land administration makes amendments and simplification in the land compensation system
- The recommendations made by FAP 15 for land acquisition and resettlement of displacees are applied.

- Coordination between social workers and engineers working in the area is achieved to fulfil the wishes of local concerned people and the technical requirements.

4.2.2 Implementation Phase

A reaction gathered on several occasions during the local people's discussions, as well as from the NGO workers, is that the faulty embankment built earlier has jeopardized their investment and reduced the cultivable lands. The failure of embankments during high flood, occurring several times in the past, has cast doubt on the ability of the authorities to build a safe embankment and causes some people to doubt the future permanent and functioning system.

The following components are applicable for both of the options. The implementation of the project will require the combined participation and support of:

- The executive agencies
- The funding agency
- The local officials
- The local project implementation committees
- Selected NGO groups organised in the surrounding area
- The appointed contractors
- The villagers concerned
- A massive number of labourers

The construction will, according to option, need to be shaped in a coordinated manner and bear in mind that the system selected for organizing the work has a great importance in terms of participation because the people involved will take care of the asset built if the quality of work rendered is linked to an substantial upliftment of their condition. The organisation of the work will provide better people participation if the work procedures have provision for

- Involvement of the NGOs to provide awareness, training and technical training to selected nominees to do the work

- Reduction of intermediaries to negotiate with labourers

- Recruitment of labourers formerly organised in groups and enforcement of an active participation of the labourer representative in the implementation committee.

- Participation of women labourers with an enhanced rates and special amenities such as drinking water facilities, shelter for nursing young children, latrines etc.

- Organisation of the labourers through Labour Contracting Societies (LCS) who will sign direct contracts with the executive agency. This system was successful within the Rural Employment

Sector Programme (RESP) and Early Implementation Programme (EIP).

- Involvement of the local NGO in selecting the labourers and organising them for regular saving.

- A rule give priority to employing people living in the vicinity of the scheme

4.2.3 Operation and Maintenance

The successful completion of the project demand continuous attention to

- keep the infrastructure in a useful condition and

- fulfil the objectives of the scheme i.e ensure the increase production planned.

For the structures to be operational and properly maintained will require establishment and coordination between:

- Groups of labourers to maintain the kacha structures

- Management committee to operate the gates

- Management committee to ensure proper use of the structures

- Coordination body between funding agency representative, Gov. official, local representative, NGO, beneficiary and technical hand to appraise the overall management.

- Funding agency

- NGOs and proposal of schemes which will boost the economical condition of beneficiaries and non direct beneficiaries

To achieve the long term sustainability of the project, the structures need to be maintained to provide the service planned and the benefit expected have to be framed in a way which will maximize the output for all section of people in the area. The identification of the social groups developed in the previous chapters show that a considerable gap exist between the extremes. Consequently it is a priority to avoid widening of the gap and this wiil require the combined efforts of the local officials, the NGOs and the local poor people in the following schemes:

- Water management committee for operation and maintenance to be setup with representation of the beneficiaries, parishad member, official technical hand, NGO representatives, village leader and administrative representative from the thana or District. This committee will draw a plan for the operation of the

gates, will reconsider the plan when the weather condition differs too much, will settle the conflict if any, will look after the structure etc.. The committee will be trained for awareness about the complexity of the scheme and all the tasks to be performed. To conduct the training in a participatory way it should be given to a technical man assisted by an NGO worker.

In this context it must be mentioned that there are existing water management schemes in several districts undertaken by RESP and EIP which have experienced the system.

- Embankment maintenance schemes are necessary from the beginning. The method to be adopted may vary because the approach differs between the organisations which have developed experiences in kacha structure maintenance e.g. DANIDA in Noakhali, RESP in Faridpur, NGOs like RDRS in Rangpur and CARE in major part of Bangladesh. The CARE system demands local and financial participation for regular maintenance of the rural road at Union level. The Union Parishad must financially contribute 10% of the allocation before approval of the scheme. The work is done by women and they are jointly selected with the Union Parishad Chairman.

- The maintenance of the embankment will need to be broad to open avenue for innovative scope of employment. The embankment represents a big area parts of which can be used for afforestation, subject to the choice of suitable species to avoid damage. The NGOs like SCI, RDRS etc. have successfully carried out programme of forestation along minor and important road embankment. The organisation of such a programme will require proper agreement for land use, funding agency, training and organisation of the beneficiaries.

- The flood control measures will permit a more intensive use of land which will bring more irrigation facilities and therefore the scope for an organisation around the water distribution. The experience of selling water by a group of landless organised by Prosika (NGO) built up an approach to reduce the patronising influence of the land owners.

- The flood proofing construction will require attention and the committee created during planning stage will have to extend the use of the infrastructure for educational purpose (Pucca structure) and afforestation and fishery purpose (Kacha). The MCC experience in the South of the project has been proved successful. They coordinated the people participation and officials.

4.3 Strengthening of Support Services

The objectives of agricultural production will depend upon the availability of adequate support services to farmers.

This includes, training, agricultural extension, credit, communication and marketing support. The following agencies will have to play a vital role:

- BRDB is the first line government organisation for organising cooperatives of farmers (KSS). Through the cooperatives system UCCA and Sonali Bank loans are disbursed for the different crop cultivation. The extension work is done by the block supervisor. BRDB has also a programme (RD 12) for the landless people. BRDB field organiser form group of men and women, provide awareness and skill training and recommendations for small credit to Agrani Bank for income generating activities. In case of further development in the area BRDB has the provision to expand both programme.

- Agriculture extension does provide to the farmers information for better utilisation of the agricultural resources. The extension workers disseminate knowledge about better use of seeds, fertilizers, pesticides, irrigation facilities and mode of cultivation. The present number of extension workers is 112 for the whole district. Development in terms of skill ability and mobility is necessary to avoid pollution and accident due to improper use of chemical products. The more effective way of getting the farmers to improve exploitation of their resources will be to develop in a bigger scale the demonstration farm system.

- An important feature of the present institutional mechanism of agricultural credit disbursement is the low coverage for the marginal and landless farmers who constitute about 50-60 percent of the rural households. Presently nearly 80-85 percent of marginal farmers have no access to institutional sources of credit. As a consequence, these marginal farmers are deprived, though they are performing better in terms of yield, of the production programme and agricultural development in proportion to their potential.

  Credit packages offered by the various financial/credit institution operating in the project area are mainly limited to the installation of deep tubewells (DTW), Shallow tubewells (STW) and a few on crop production. The main objectives of their services are to facilitate irrigation and help the formation of capital. The small and marginal farmers find acute collateral problems in having access to credit facilities from most of the GOB financial institutions. They have little asset to mortgage for getting legal access to loan which would give incentives for more rationalized cultivation.

  Fishermen in the project area are also severely short of credit as they cannot produce collateral against loan sanction and the

bank has insufficient funds for fisheries development without any collateral guarantee from the fishermen.

- The marketing system for agricultural production in JPP area is far from satisfactory. The main handicaps have been lack of adequate transport and communications from areas of production to trade centers. The construction of embankments will bring some improved roads. The policy of market development is still incomplete, the funds for improving the condition of marketing are generated but a very little percentage is allocated for development. A number of growth centers generally generate sufficient revenue for regular maintenance and improvement but the money collected is mainly take as profit to the bidder. The management of market should include improvement and maintenance and be undertaken from the earnings made out of it but also follow the development plan of the area.

4.4 Approach to the Equity Issue

4.4.1 People Participation

To optimize project benefits, to mitigate disbenefits and to reduce social conflicts there is a need to focus on practical issues which must include Local Participation and human development.

The relevant issue in the present project is the establishment of linkage of the Government bodies programmes and NGO working frame and the interaction for an harmonious development giving due consideration to the poor section of the population. The approach to such a goal needs a mechanism of cooperation between all institutions involved in the area in handling the major problems of the rural economy through poverty alleviation by self employment, income generating activities and by promoting institution building. In the participatory development for the erection of an embankment with water control structures, a committee for the operation and maintenance need to be set in each thana consisting of BWDB executives, thana administrator, NGO executives, Union Parishad representatives and beneficiaries including NGO group members. All have to maintain close contact with the concerned villagers giving them regular feed back and follow up information about development of the project. In this regard existing Water management committee have experience in Faridpur District organized under RESP for improving flood and drainage problems. Preliminary steps to coordinate with beneficiaries, implementers, local elite, GOB officials and NGOs are a prerequisite. Therefore the following goals are appropriate:

- Administrative decentralization bringing the institution and personnel of Government closer to NGO field work procedures.

- Establishment of good working relationships through indigenous NGOs with the poor people living in the area.

4.4.2 Flood Proofing

In the process of envisaging different alternatives, it became obvious that the most vulnerable section of population is those who live in the island Chars of the Jamuna river because of the instability of their land in all the scenarios taken up. All aspects of their life are insecure. Though the Char people have developed skill to struggle against the natural phenomena of erosion, flood, and its consequences their concerns could not be absent of during the study.

From the beginning of the study (reconnaissance survey Nov '91) Char and people concern got all the possible attention for considering them on an equal basis. Furthermore special emphasis has been given and an additional study (June '92) was performed to understand the situation.

The problems have been identified and several approaches to improve their livelihood, to mitigate the effects of flood, to ease their communication system have presented a separate Annex 9.

4.4.3 Resettlement of Displacees and Homeless

The project should provide for a specific support to homeless households living on the existing embankment which are to be displaced as a result of the construction of the new embankment.

The land acquisition procedures recommended by FAP 15 will need to be considered, however for the following three categories of people will require special attention:

- Those who lose all their land including homestead
- Those who lose only their homestead but not all land
- Those who have no land and are rescued on the existing embankment with no official right

The estimation of homesteadless household affected by the embankment is made Thana wise:

Thana	**Total HH**
Sarishabari	675
Madarganj	3090
Islampur	1768
Dewanganj	493
Total	**6026**

In addition to the compensation which is to be made for those who will lose land, an additional support programme is considered for the homesteadless.

The procedures to identify the concerned households is to be made during the design study with the help of the local authorities and NGO's working in the vicinity through a local committee.

The housing programme proposed the unprotected land (Char study, Annex-9) will be undertaken for rehabilitation to a better house at the cost of Tk 10,000 per household be provided in materials. Where concentration of people is high the embankment will be provided with a berm for new settlement and BWDB will give the right of stay against rental cost.

The project should provide for specific support to homeless households presently living on the existing embankment and for others living close by. The number of households to be supported is about 6000.

Extra cost in connection with resettlements is deemed to be included in the quantity and cost of the embankment. At detailed design stage a specific embankment cross section with a berm for settlement will be provided where required.

4.4.4 Public Awareness and Local participation

i) General

An institution frame work and local participation for planning, design, implementation, operation and maintenance of the investment is essential to consider the opinions of the affected people in a balanced way and in an harmonious involvement of the different social groups

The following issues would have to be addressed during the preparation of the detailed design estimate

- preparation identification of the land for enrolment
- the mechanism of land compensation
- the resettlement of displacees.

The implementation of the above task would have to be done by

- the land settlement office
- the Local Parishad
- the engineering department
- the active participation of the NGOs

The operation and maintenance of the project will require an institutional setup which will be supported by local committees and NGOs.

There is a risk that large projects implemented by government agencies are implemented with insufficient people participation. Ensuring people's participation in the development arena continues to be a difficult task requiring an effective intervention from non-governmental organisations. For example, the Flood Action Plan (FAP) programmes of these years implemented in Bangladesh had always demanded people's participation in all phases, including its continuing maintenance. Much work has to be done through government agencies management, but considering only the mechanical management would not be sufficient to ensure the ultimate success of the project. In order to involve the local population with the development work of the project, the local agents comprising development workers, government officials, local elected representatives, cultural activists, young volunteers, school teachers and students, ansar, block supervisors of agriculture extension, field organiser of BRDB, bank field workers, family planning visitors etc. must be part of the whole process to achieve a meaningful change in the society.

People have to be involved with the main project through massive employment such as construction, afforestation, fisheries, agriculture

etc, in the project area. Summary of the project could be placed as follows:

	Liaison Partner	
Development	<----------	People's
Project	---------->	Participation

ii) Objectives

The project should develop the capabilities of the local agents and toawaken and activate the potential of the different bodies. In particular they should be encouraged to develop the necessary programs:

- To develop better 2 ways communication between the FAP planners and community people
- To improve dissemination of information through media support
- To develop community feeling and participation in the proper implementation of the development work.
- To encourage a community approach to the marginalised population in order to embrace them in the development effort.
- To develop an information network to promate awareness and motivation in the FAP area;

iii) Implementation Strategy

It is felt better to develop the capabilities a group of local agents in order to bridge the gap between people and development project than thrusting some non local persons into the area where they may take time to integrate and may form a parallel organisation. A disciplined and well-streamlined network is to be developed within local agents. Defined roles are to be played by the different types of local agents, such as:

- Cultural activists would be arranging folk programmes, they would be writing script to the motivational purposes;
- Through group discussion, video and slide screening the development workers would play his-her role as motivator;
- Local representatives would be engaged in propagating the cause of the development effort and assisting it. They would prove to be very strong element in the development process if properly motivated;

- Government officials working in the project area are to be involved in the all endeavour as local agents in such a manner so that their pride remains intact and they feel comfortable to be in the stream of concerted effort along with different non government local agents. This blending of government and non government sector calls for an innovative approach;

- School teachers in an area can play an immense role in social interaction through the guardians of their students. School teachers could act as important local agents through their students and influence in motivating the population;

- School students could also be inspired to be with the development system if they are supported in their education through scholarship, etc;

- Organising young volunteers from different local organisations would be beneficial in motivational work;

- Field organiser of BRDB already deployed in the area would motivate the men and women in better manner;

- Block supervisors of irrigation projects could play important role in organising the people through their work and influence.

Specifically the block supervisors could be of immense use in organising the people in agricultural field. Afforestation, agricultural training and improvement of skill, and pisciculture etc. would be the arena of work for the people of the Project Area.

iv) Envisaged Target

- To motivate and develop working attitude of the local agent keeping in mind the idleness trend in the society;

- To improve quality performance and participation of the people along with the local agents;

- To improve local resources mobilisation and ensure better utilisation;

The setup to perform the above objectives need an appropriate arrangement which can be taken up by a specialized NGO in communication.

The specialized NGO will operate for 3 "Centres" located nearby the proposed embankment, are in the northern part (Islampur), one in the middle part (Madarganj) and one in the southern end (Sarishabari). The financial support will be phased from the beginning of the detailed design estimate and for three years.

v) Approach

The proposed approach is to provide support to a NGO specialized in public awareness raising and information dissenimation in order to act as an interface between project authorities (BWDB, consultants) and local people. The NGO will contribute to disseminate information on the project objectives and to obtain feed back for the population. This would be very essential during the detailed design phase and embankment construction period.

The NGO will be active in

- supporting the land acquisition process (minimization of the risk of conflicts)
- obtaining people's views on the embankment alignment and on the location of the water regulators (Flushing/inlet gates)
- all other aspects of the project implementation where local participation is essential

It is envisaged that the NGO will operate for 3 "Centres" located nearby the proposed embankment, are in the northern part (Islampur), one in the middle part (Madarganj) and one in the southern end (Sarishabari) over a period of 3 years from tyhe detailed design phase.

The cost of establishing the information centres has been prepared in consultation with an NGO already developing system for better communication and is shown in Tables 6.4.1 and 6.4.2.

The cost of the local participation process (Tk 11 million) has been included in the cost estimate for engineering cost and Technical Assistance.

4.4.5 Local Participation for non Direct Beneficiaries

The vulnerability of those who will not benefit directly is serious in all aspects of life, many are economically weak, physically weak, less educated, have little bargaining power, are victims of patron-client relationships, receive less facilities for health and nutrition experience great difficulty in obtaining credit.

The capability developed by all NGOs is not homogeneous because they are led by different founders or donors. However it is found that all are working for the same section of people i.e. the people who have little assets and those whose livelihood is at stake.

The survey made on NGO reveals that their programme and the extent of work done depends on their financial resources and on the wishes of the donors.

The strategy to mitigate the foreseen social inequity is presently practised by most of the NGO's, BRDB rural development section to some extent and by Grameen Bank in economical terms.

Within the frame of the project a support is to be provided to involve 6000 households in the following activities.

- Income Generating Activities (credit)
- Social Services (health, education, sanitation)
- Awareness raising (training, group formation)

3 NGOs could be supported for 5 years to implement this rural development programme, one in Islampur - Dewanganj, one in Jamalpur - Melandaha and one in Sarishabari - Madarganj. The estimated cost for NGO support over 5 years is shown in Table 6.4.3.

The cost of this programme has not been included in the project costs.

4.4.6 Approach to Mitigate the Side Effects

i) General

There are various approaches to mitigate the social changes in view of the option chosen. The methods envisaged are depending on:

- the influence on distribution of economical result to occur
- the legal procedures to be attached to the project.

The target group, those who have least property and resources and therefore will benefit least from the project are the main concern of the NGOs. Therefore, to achieve maximum participation, the involvement of the NGOs as agents to link with the people is desirable. The areas of concern will be the implementation of the project and the enforcement of laws on land acquisition, compensation and resettlement of displacees or erosion victims.

ii) Fishing Prospects

The process of flood control and drainage in the JPP area under option B would change the aquatic environments of beels and otherr open water bodies adversely affecting inland water natural fish production both in quantity as well as in species diversity.

To mitigate the loss of fish production in the Project Area, the following are suggested

- Fishing i.e. harvesting of fish in the inland water of JPP must be regulated under new fishery management policy. Not everybody would be allowed to fish unrestrictedly.

- Efforts should be made to ensure the formation and proper enforcement of fish conservation rules and regulations

- Reduction of degradation and destruction of inland water aquatic environment

- Gradually convert the present derelict ponds into culture fishery

- Convert the borrow pits into linear lakes stocked with fish. These will act as common property under management of fishermen's cooperatives.

One way to address the deficiency of protein because of the reduced availability of fish would be to increase cultivation of pulses in a more systematic manner before going for boro crop. This might be implemented due to the absence uncontrolled flood water which will give opportunity for better planning for rational rotation of crop, especially before the rabi season.

The reduction in flood risk will give inland fisheries a better scope for improvement and therefore will open an avenue for fishermen communities to develop a new approach for production of fishes. The fishery department will need to deploy more services for supply of fish fry and coordination with the non protected area where fish are breeding. The access to water bodies by the fishermen and part time fishermen will depend upon revised legislation which will have to simplify the present procedures which too often, through bidding permit, go to only rich man who then sub lease to several groups of fishermen.

In Jamalpur there is some competition between fishery department and NGOs because they don't have the same target group as beneficiaries. The local NGOs should become partners of the fishery development scheme to achieve a wide spread of inland fishery.

iii) Credit Service Prospects

The existing rural credit institutions and programmes, in most cases do not fulfill their objectives with small farmers. A marginal farmer's credit programme is required such as collateral free loan, simple lending procedures, target group approach, supervised credit, formation of appropriate group. The system of credit launched by the Grameen bank (guarantee from the group) through small groups should be extended within the frame of the national banks.

It is worth mentioning here that if the credit access could be made available on easy terms and funds realized at higher recovery rate, more services could be offered to boost further the general production as well as income generation in the area for the majority people.

From the socio-economic survey it is clear that a wide scope for improvement exist for the credit institutions to develop their credit facilities to the landless and marginal farmers.

It is here evident that the credit institutions have a little success compared to informal credit facilities in case of lower classes. Considering the high rate of interest taken by the money lender or advantages obtain by the relatives it is difficult to foresee a real development of these classes. The Grameen bank has managed to attract these classes with the same interest rate as the national banks but with guarantee based on the motivated group.

iv) Char Lands Development

In the Char area as well as the attached Chars there are no long lived trees. The catkin herb (saccharum spontaneam) is very familiar. It can be used for fencing and and the roofing of dwelling houses and also as fuel. The catkin is also used as fodder and to provide raw materials for broom and basket making.

The cultivation of catkin provide suitable environmental condition for the Char dwellers and plantation of catkin as a programme has been taken up by SCI in the Chars situated south of Sarishabari upazila.

The plantation of catkin grass is a first step when a new Char emerges and simultaneously protects the land and increases the fertility. Therfore:

- Built up as a programme, catkin plantation creates employment for the landless and marginal farmers.
- Catkin is more than a mere kind of grass it is an economic commodity.
- Catkin will remain during flood and increase deposit of alluvion materials therefore protects against erosion.
- The people who remove catkin for other cultivation often get possession of that land.

The double objectives of catkin plantation are:

- Organised landless and original farmers get employment
- Removal of catkin provides landless and Marginal farmers access to land for others cultivation.

To achieve this programme it needs to be under taken by a third person, say an NGO, who will develop skill in the Char management behaviour.

The cost for planting and removal of catkin is (SCI programme)

Plantation :	25 mandays / ha
Removal :	85 mandays / ha

@ Tk. 35.00 / mandays = Tk 3,850 / ha

BRDB has some good records in this field and could support these interventions. The deployment of their services is yet to be maximised. At present under RD 12 financed by CIDA there is provision for extension.

Tables

ANNEX 6 - MAIN TEXT TABLES

Table 6.1.1 Confidence Interval for Determination of Sample Size

Population Mean	Sample Mean Y	Sample Size n	Standard deviation s	Standard error se	Confidence interval of population mean estimate (95%) Y-(z*se)<Y<Y+(z*se)	Sampling error (relative)
Y	16725	523	16963	741.77	15241 - 18209	8.9%

where: z = value of the standard distribution for a given probability level.
d = z*se/Y = z*s/sqrt(n)/Y (in %)

Table 6.1.2 Distribution of Sample Households

Thana	LL	MA	SF	MF	LF	WHH	FH	TOTAL
AEZ 7	75	21	35	15	6	12	9	173
AEZ 8	75	21	35	15	29	12	13	200
AEZ 9	75	21	35	15	9	6	8	169
TOTAL	225	63	105	45	44	30	30	542

Key: LL Landless; MA Marginal; SF Small Farmers; MF Medium Farmers; LF Large Farmers; WHH Woman-headed households; FH Fishermen

Table 6.2.1 Area of Jamalpur District (Km^2)

Area Description	Jamalpur Zila	Dhaka Div.	Country	% Over Div.	% Over country
1. Area including rivers (km^2)	2077	30829	143998	6.74	1.44
2. Area excluding rivers (km^2)	1961	29314	136170	6.69	1.44

Source: BBS, Zila Series Jamalpur,1988).

Table 6.2.2: Estimated Protected Population (inside embankment) by Thana

Population (Protected)	Maderganj	Sharishabari	Dewanganj	Islampur	Jamalpur	Melandaha	Total
Area	23,300	26,940	42,480	37,037	48,170	24,350	202,277
No Villages	126	209	334	108	400	183	1,360
Population	169,607	226,664	246,987	220,912	424,089	206,917	1,495,176
Density	728	841	581	596	880	850	739
% Protected	69.5%	11.3%	8.1%	32.3%	16.3%	95.8%	32.5%
Area	16,191	3,054	3,425	11,977	7,837	23,320	65,804
No Villages	88	24	27	35	65	175	413
Population	117,859	25,695	19,914	71,438	68,997	198,164	502,067
1992 (+2.1%/year)							
Population	148,131	32,295	25,028	89,787	86,719	249,063	631,023
Density	915	1,057	731	750	1,107	1,068	959
No of Households	28,932	6,308	4,888	17,537	16,937	48,645	123,247

Table 6.2.3: Total Population (Protected, Set-Back Land and Chars)

Total Population (Protected, Set-Back, Chars)	Protected Land	Unprotected Land (left bank only)			Total
		Island Chars	Attached-Setback Land	Total	
Area (ha)	65,804	38,744	30,211	68,955	134,759
Population	631,023	118,060	309,413	427,473	1,058,496
No of Households	123,247	19,327	53,347	72,674	195,921
Density / Km2	959	305	1,024	620	785

Table 6.2.4: Total Population (Protected, Set-Back Land and Chars) by Thana

Population	Protected Land	Unprotected Land			Total
		Island Chars	Attached-Setback Land	Total	
Maderganj	148,131	9,407	45,267	54,674	202,805
Sharishabari	32,295	0	54,054	54,054	86,349
Dewanganj	25,028	5,644	33,674	39,318	64,346
Islampur	89,787	11,288	99,122	110,410	200,197
Jamalpur	86,719	0	0	0	86,719
Melandaha	249,063	0	0	0	249,063
Sariakandi	0	44,214	65,956	110,170	110,170
Phulchari	0	24,459	39,766	64,225	64,225
Kazipur	0	22,578	51,079	73,657	73,657
Sonatala	0	0	26,072	26,072	26,072
Sughatta	0	0	59,069	59,069	59,069
Dhunat	0	470	10,484	10,954	10,954
Total	631,023	118,060	484,543	602,603	1,233,626

Table 6.2.5 : Land Ownership Distribution and Socio-economic "Classes)

Land Distribution (in acres)	Landless 0-0.05	Marginal 0.06-0.5	Small 0.51-2.50	Medium 2.51-7.50	Large > 7.50	All
% of Households	50.1%	14.1%	23.8%	10.2%	1.8%	100.0%
No of Households	61,747	17,378	29,333	12,571	2,218	123,247
Household Size	4.49	4.83	5.43	7.10	9.53	5.12
Population	277,415	83,935	159,277	89,255	21,142	631,023

Table 6.2.6 : Birth, Mortality and Population Growth (All Project Area)

ALL PROJECT						
Demography	Total	Landownership				
		LL	MA	SF	MF	LF
1. Population (t)	631023	277415	83935	159277	89255	21142
2. No Death < 5 years	14097	6853	1895	3365	1605	378
3. No Death > 4 years	8618	4112	1083	2243	963	216
4- No Birth	35598	17544	4603	8412	4174	865
5. Population (t-1)	618140	270836	82310	156472	87650	20871
1- Mortality Rate < 5	2.3%	2.5%	2.3%	2.2%	1.8%	1.8%
2- Mortality Rate > 4	1.4%	1.5%	1.3%	1.4%	1.1%	1.0%
3- Birth Rate	5.8%	6.5%	5.6%	5.4%	4.8%	4.1%
4- Growth Rate	2.1%	2.4%	2.0%	1.8%	1.8%	1.3%

Table 6.2.7 : Population Age-Structure (All Project Area)

PROJECT DATA												
Age Structure	Landownership											
	Total	%	LL	%	MA	%	SF	%	MF	%	LF	%
0 - 9	183,601	29%	89,365	32.2%	26,805	31.9%	44,306	27.8%	18,622	20.9%	4,596	21.7%
10 - 19	131,714	21%	48,794	17.6%	16,516	19.7%	40,100	25.2%	21,511	24.1%	4,758	22.5%
20 - 29	117,861	19%	55,922	20.2%	14,892	17.7%	24,677	15.5%	17,979	20.1%	4,380	20.7%
30 - 39	94,863	15%	45,779	16.5%	14,621	17.4%	20,190	12.7%	10,916	12.2%	3,352	15.9%
40 - 49	50,153	8%	20,285	7.3%	4,061	4.8%	16,825	10.6%	7,705	8.6%	1,298	6.1%
50 - 59	30,341	5%	10,691	3.9%	3,791	4.5%	7,291	4.6%	7,705	8.6%	865	4.1%
> 60	22,491	4%	6,579	2.4%	3,249	3.9%	5,889	3.7%	4,816	5.4%	1,892	9.0%
Total Population	631,023	100%	277,415	100.0%	83,935	100.0%	159,277	100.0%	89,255	100.0%	21,142	100.0%

Table 6.2.8 : Level of Education in the Population (All Project Area)

PROJECT DATA												
Education	Total	%	LL	%	M	%	S	%	M	%	L	%
No Education	484,593	76.8%	255,759	92.2%	72,834	86.8%	111,045	69.7%	39,491	44.2%	6,056	28.6%
Up to Primary	72,868	11.5%	13,432	4.8%	8,393	10.0%	28,602	18.0%	17,016	19.1%	5,245	24.8%
Class VI to X	48,166	7.6%	7,401	2.7%	2,708	3.2%	15,703	9.9%	17,016	19.1%	5,137	24.3%
SSC and HSC	17,213	2.7%	822	0.3%	0	0.0%	3,085	1.9%	9,632	10.8%	3,515	16.6%
Graduate and above	8,183	1.3%	0	0.0%	0	0.0%	841	0.5%	6,100	6.8%	1,190	5.6%
Total Population	631,023	100.0%	277,415	100.0%	83,935	100.0%	159,277	100.0%	89,255	100.0%	21,142	100.0%

Table 6.2.9 : Activity Status, Civilian Labor Force and Employment (All Project Area)

ALL PROJECT						
Activity Status	Landownership					
Population in '000	Total	LL	MA	SF	MF	LF
1. Population < 10	183,693	89,365	26,805	44,306	18,622	4,596
2. Population > 9	447,330	188,050	57,130	114,971	70,634	16,546
2.1. CIV Labor Force	230,477	111,569	28,971	53,279	31,143	5,515
Employed	51,599	12,884	2,437	15,423	17,016	3,839
Underemployed	112,119	63,597	17,870	24,116	5,779	757
Unemployed	4,585	1,097	542	1,122	1,284	541
No Looking for Job	62,175	33,992	8,123	12,619	7,063	378
2.2. Inactive	216,852	76,481	28,159	61,692	39,491	11,030
3. Total Population	631,023	277,415	83,935	159,277	89,255	21,142
1- Crude Rate	36.5%	40.2%	34.5%	33.5%	34.9%	26.1%
2- Refined Rate	51.5%	59.3%	50.7%	46.3%	44.1%	33.3%
3- Underemployment Rate	48.6%	57.0%	61.7%	45.3%	18.6%	13.7%
4- Unemployment Rate	2.0%	1.0%	1.9%	2.1%	4.1%	9.8%
5- Not Look Job/CIV	27.0%	30.5%	28.0%	23.7%	22.7%	6.9%

Table 6.2.10 : Distribution of Employed CLF by Main Occupation (All Project Area)

PROJECT DATA							
Main Activity of CLF	Total	%	Landownership				
			LL	MA	SF	MF	LF
1- Farming	59,821	36.5%	3,290	7,040	29,444	16,695	3,352
2- Business/Trade	5,876	3.6%	1,371	1,083	2,243	963	216
3- Labor/Employment							
- Services	8,647	5.3%	1,371	542	1,963	3,853	919
- Agri. Daily Labor	71,060	43.4%	57,566	9,206	3,645	642	0
- Non-Agri. Daily Labor	6,040	3.7%	4,386	812	841	0	0
- Transport	1,648	1.0%	1,097	271	280	0	0
- Others	10,627	6.5%	7,401	1,354	1,122	642	108
3- Sub-Total Labor / Employed	98,021	59.9%	71,821	12,184	7,852	5,137	1,027
Total Employed / Underemployed	163,718	100.0%	76,481	20,307	39,539	22,795	4,596

Table 6.2.11 : No of Persons involved in Labor/Employment Activities as primary or secondary occupation (All project Area)

PROJECT DATA							
No of Persons involved	Total	%	Landownership				
Labor/Employment			LL	MA	SF	MF	LF
- Services	8,647	5.3%	1,371	542	1,963	3,853	919
- Agri. Daily Labor	84,527	51.6%	64,419	12,455	7,010	642	0
- Non-Agri. Daily Labor	17,832	10.9%	13,432	2,437	1,963	0	0
- Transport	2,193	1.3%	1,371	542	280	0	0
- Others	20,431	12.5%	13,432	2,708	2,524	1,605	162
Total Employed / Underemployed	163,718		76,481	20,307	39,539	22,795	4,596

Table 6.2.12 : Number and Distribution of Farming Households in the Project Area

Farming HH (No)	LL	MA	SF	MF	LF	Total
No of Farming HH (Sample)	56	56	100	41	39	282
Total No of Households	225	63	105	45	44	482
% of Farming HH / All HH	24.9%	88.9%	95.2%	91.1%	88.6%	100.0%
No of Farming HH	15,868	14,447	28,036	11,454	2,066	71,871
Distribution (all area)	22.1%	20.1%	39.0%	15.9%	2.9%	100.0%

Table 6.2.13 : Number of Households in Income Generating Activities (All Project Area)

PROJECT DATA						
Involvement of HH in IGA's	Total	LL	MA	SF	MF	LF
Farming	71,871	15,868	14,447	28,036	11,454	2,066
Agro-forestry	94,916	39,243	14,344	26,818	12,292	2,218
Non-Agriculture Farming	43,704	14,270	6,896	13,968	6,705	1,866
Fish Culture	2,304	274	0	559	1,117	353
Fisheries	46,754	23,875	7,723	10,616	3,632	908
Egg Production	60,785	23,052	9,378	17,320	9,219	1,815
Milk Production	20,081	2,195	2,758	7,822	6,146	1,160
Meat Production	2,754	274	276	1,117	279	807
Business/Cottage	17,607	9,056	2,483	5,028	838	202
No HH in Project Area	123,247	61,747	17,378	29,333	12,571	2,218
Average No of Activities/HH	2.9	2.1	3.4	3.8	4.1	5.1

Table 6.2.14 : Mean Operated Land, Mean Cropped Area per Household

Operated / Cropped Area	LL	MA	SF	MF	LF	All
No of Farming HH	15,868	14,447	28,036	11,454	2,066	71,871
Distribution	22.1%	20.1%	39.0%	15.9%	2.9%	100.0%
Own Land	0.000	0.123	0.532	1.994	4.403	0.677
Taken In	0.238	0.185	0.091	0.030	0.003	0.130
Taken Out	0.000	0.014	0.060	0.241	1.190	0.099
Taken In-Out	0.238	0.171	0.031	-0.211	-1.187	
Mean Operated Land	0.238	0.294	0.564	1.783	3.217	0.708
Mean Cropped Area	0.513	0.622	1.180	3.405	5.387	1.396
Cropping Intensity	2.16	2.11	2.09	1.91	1.67	1.97

Table 6.2.15 : Mean Annual Farming Income (for Farming Household)

Farmer Income	LL	MA	SF	MF	LF	Average
Mean Operated Land	0.24	0.29	0.56	1.78	3.22	0.71
Land (in-out)	0.24	0.17	0.03	-0.21	-1.19	0.00
Mean Cropped Area	0.51	0.62	1.18	3.41	5.40	1.40
Gross Value	10,860	13,154	24,956	72,041	113,960	29,533
Production Cost	7,451	9,025	17,124	49,432	78,195	20,265
Gross Margin	3,408	4,128	7,832	22,609	35,765	9,269
-/+ Land Rental	(2,716)	(1,914)	(345)	2,332	13,141	0
+ Own Labor	3,367	4,112	4,181	5,099	7,982	5,009
Share of Own Labor	86.6%	87.3%	46.8%	19.8%	19.6%	47.4%
Farming Income	4,059	6,326	11,667	30,040	56,888	14,277
Contribution of Farming to income / land group	1,043	5,259	11,152	27,370	52,979	8,326

Table 6.2.16 : Mean Annual Income of Farming Household by Land Strata

Sources of Income	LL	MA	SF	MF	LF	Average
Farming	4,059	6,326	11,667	30,040	56,888	14,277
%	25.3%	37.9%	51.9%	68.8%	63.2%	56.6%
Fishing	404	877	589	707	1,659	568
%	2.5%	5.2%	2.7%	1.8%	2.0%	2.4%
Agriculture Labor	2,500	2,277	644	14	0	1,728
%	15.6%	13.5%	3.0%	0.0%	0.0%	7.2%
Non-Agriculture Labor	1,250	768	0	0	0	735
%	7.8%	4.5%	0.0%	0.0%	0.0%	3.1%
Other	7,850	6,650	8,523	9,186	23,306	6,711
%	48.9%	39.4%	39.8%	23.0%	28.5%	27.9%
Total	16,063	16,898	21,423	39,947	81,854	24,019
%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.2.17 : Mean Annual Household Income by Occupational Status (sources wise)

(in Tk/HH)

Sources of Income	Agri Day Labor	Non-Agr Day Lab	Farming	Professional Fishermen	Women Headed
Farming	884	403	14,277	4,257	3,546
%	6.3%	2.8%	59.4%	25.6%	34.8%
Fishing	386	64	568	10,848	5
%	2.7%	0.4%	2.4%	65.1%	0.0%
Agriculture Labor	7,776	124	1,728	688	144
%	55.3%	0.9%	7.2%	4.1%	1.4%
Non-Agriculture Labor	1,232	13,810	735	250	503
%	8.8%	95.3%	3.1%	1.5%	4.9%
Other	3,793	91	6,711	611	5,992
%	27.0%	0.6%	27.9%	3.7%	58.8%
Average Household Income	14,072	14,492	24,019	16,654	10,190
%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.2.18 : Distribution of Annual Household Income By Occupational Status

Income Classes	Agri Day Labor	Non-Agr Day Lab	Farming	Professional Fishermen	Women Headed
< 10000	33.2%	36.4%	22.4%	20.0%	83.3%
10001 - 20000	49.7%	54.5%	29.3%	60.0%	10.0%
20001 - 30000	12.6%	9.1%	17.0%	16.7%	3.3%
30001 - 40000	2.5%	0.0%	14.9%	3.3%	2.3%
40001 - 50000	2.0%	0.0%	8.5%	0.0%	1.1%
+ 50,000	0.0%	0.0%	7.9%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.2.19 : Distribution of Annual Household Income By Land Status

Income Classes	LL	MA	SF	MF	LF	All
< 10000	32.5%	24.8%	11.4%	2.2%	0.0%	22.7%
10001 - 20000	52.0%	49.2%	46.6%	17.8%	0.0%	45.9%
20001 - 30000	10.7%	20.6%	21.0%	26.6%	2.3%	16.0%
30001 - 40000	2.2%	3.2%	16.2%	22.2%	9.1%	7.8%
40001 - 50000	2.2%	2.0%	3.8%	16.6%	10.1%	4.2%
+ 50,000	0.4%	0.2%	1.0%	14.6%	78.5%	3.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average Household Income	14,329	16,187	21,277	42,357	85,280	20,368
Income Per Capita	3,189	3,351	3,918	5,966	8,949	3,978
Share of each "Class"	35.2%	11.2%	24.8%	21.2%	7.5%	100.0%
Gini Coefficient	0.227					

Table 6.2.20 : Mean Annual Household Income from Labor/Employment Sources By Land Strata

(In Tk/HH)

CASH INCOME ACTIVITIES	LL		MF		SF		MF		LF		ALL	
- Services	284	3.2%	498	7.2%	1,270	35.5%	7,192	87.4%	9,545	79.7%	1,172	19.0%
- Agri. Daily Labor	7,086	78.7%	4,219	61.0%	1,227	34.3%	455	5.5%	0	0.0%	4,484	58.6%
- Non-Agri. Daily Labor	834	9.3%	1,040	15.0%	537	15.0%	0	0.0%	0	0.0%	677	10.4%
- Transport	207	2.3%	291	4.2%	89	2.5%	0	0.0%	0	0.0%	166	2.0%
- Others	597	6.6%	870	12.6%	453	12.7%	578	7.0%	2,429	20.3%	618	10.0%
HH Income from CIA	9,009	100.0%	6,919	100.0%	3,576	100.0%	8,225	100.0%	11,974	100.0%	7,116	100.0%

Table 6.2.21 : Mean Annual Household Income By Land Strata (Source Wise)

(In Tk/HH)

SOURCE OF INCOME	LL		MF		SF		MF		LF		ALL	
Fisheries	427	3.0%	474	2.9%	482	2.3%	112	0.3%	27	0.0%	407	2.0%
Labor/Employement (CIA)	9,009	62.9%	6,919	42.7%	3,576	16.8%	8,225	19.4%	11,974	14.0%	7,116	34.9%
Egg Production	123	0.9%	219	1.4%	200	0.9%	372	0.9%	702	0.8%	191	0.9%
Business/Cottage/Trade	481	3.4%	525	3.2%	1,061	5.0%	842	2.0%	4,773	5.6%	739	3.6%
Agro-forestry	404	2.8%	651	4.0%	1,155	5.4%	2,322	5.5%	7,085	8.3%	934	4.6%
Non-Farming Resources	117	0.8%	251	1.6%	310	1.5%	552	1.3%	2,871	3.4%	276	1.4%
Milk Production	119	0.8%	288	1.8%	536	2.5%	1,145	2.7%	1,402	1.6%	370	1.8%
Farming	1,043	7.3%	5,259	32.5%	11,152	52.4%	27,370	64.6%	52,979	62.1%	8,326	40.9%
Meat Production	1	0.0%	5	0.0%	37	0.2%	9	0.0%	250	0.3%	15	0.1%
Fish Culture	7	0.1%	0	0.0%	28	0.1%	234	0.6%	1,243	1.5%	57	0.3%
Other Sources	2,597	18.1%	1,595	9.9%	2,740	12.9%	1,175	2.8%	1,973	2.3%	1,938	9.5%
HOUSEHOLD GROSS INCOME	14,329	100.0%	16,187	100.0%	21,277	100.0%	42,357	100.0%	85,280	100.0%	20,368	100.0%
Average Family Size	4.49		4.83		5.43		7.10		9.53		5.12	
GROSS INCOME PER CAPITA	3,189		3,351		3,918		5,966		8,949		3,978	

Table 6.2.22 Status of Females in the Project Area

Issues	Sadar	Dewanganj	Sarishabari	Islampur	Macarganj
Formal Education	H	H	L	M	H
Physical Health	M	P	P	P	P
Status of Nutrient Deficiency	H	H	H	H	H
Income (Other than road maintenance)	Some	Nil	Nil	Nil	Nil
Social Status	L	L	L	L	-
Avg. age at marriage	18-20	12-18	14-17	15-20	15-20
Divorce rate *	L	H	L	M	H
Work Load **	H	L	H	M	M
Mental Health	G	G	G	G	G
Rate of Suicide	L	L	L	L	-
Avg. No. of Children/Family	5-6	6-7	7-8	7-8	5-6
Female Headed H/H(%)	L	L	L	L	-

Note: * The divorce rate is low among rich people but they are mostly bigamous. The divorce rate among poor people is high due to poverty. Dowry is another reason for divorce.

** Large farm holders hire poor women at the rate of 1.5 kg rice plus 2 meals per day to help the family during crop harvest.

Legend: H = High M = Medium L = Low P = Poor G = Good

Table 6.3.1 Project Area and Flood Damage

NGO	Area affected by 1988 flood	Area affected by 1991 flood
Samaj Unnyan Sangstha	All the area under the project.	Jhawgora Union Gosherpara, Charbari, Pukuria.
BRAC	Pogoldigha, Satpoa, Pigna Aona	Satpoa, Kamrabad Pogolditgha, Pigna Aona.
Grameen Bank	Satpoa, Pogddigha, Aona, Pigna	Satpoa, Pogoldigha Aona, Pigna.
Sanirvar Bangladesh	Chukaibari Union, Chikajani Union, Bahadurabad Union.	Chukaibari Union, Chikajani Union, Bahadurabad Union.
Action Aid Bangladesh	Shapdhari Union, Noapara Union and Chinaduli Union.	Shapdhari Union and Noapara Union.
Terre des Hommes (France)	Menerchar Union, Arendabari Union, Chukaibari Union.	Menerchar Union, Arendabari Union and Chukaibari Union.
Unnayan Sangha	All the area under the Project.	Madarganj and part of Melandaha.
Provati Samaj Kallan Sangstha.	Ichar Pakesdah Union 4 Balijuri, No 2 Karichara, No 3 Gunairtola, No 5 Fulzuri.	Ichar Pakerdah Union, 4 Balijuri, No 2 Karaichara, No 3 Gunaritola, No 5 Fulzuri.
Shoshika	All areas	Shapdhari Union, a few areas of Palabanda and Nangla U.
Source: JPPs Survey		

Table 6.3.2 NGOs Opinion on Normal Flood Effect in the Project Area

NGO	Adverse effect of normal flood	Major benefits from normal flood
Samaj Unnyan Sangstha	Lack of food & shelter	Flood brings silt in a few places.
	Lack of health facilities.	Wash away dirt.
BRAC	Diarrhoea epidemic.	Flood brings siltation in a few places, increase agricultural production.
Grameen Bank	Crop damage.	Siltation in a few places, increase land fertility.
	Damage to homestead.	
Sanirvar Bangladesh	Sufferings of the erosion victims	Siltation in a few places to increase land fertility.
Terre des Hommes (France)	Destruction of homestead.	Siltation to increase land fertility in a few places.
Unnayan Sangha	Crop damage (Partly).	Fertility of the soil increases
	Job Scarcity.	Brings more fish.
	Diarrhoea.	
	Rise of market rice.	
	Closing down of schools & colleges.	
Provati Samaj Kallyan Songstha	Crop damage.	Siltation increase soil fertility in a few places.Increase of fish production.
	Roads & embankment damage in low lying area.	
	Damage to trees at the embankment site.	
	Livestock feed damage.	
	Fertility decrease by the inflow of sands.	
Shoshika	Crop damage, road damage, fish pond loss of fish, land become sandy.	Increase fertility in a few places.
Source: JPPs Survey.		

Table 6.3.3 NGOs Opinion of Controlled Flooding

NGO	Benefits		Others and Disbenefits
	cropping intensity	More employment	
Samaj Unnyan Sangstha	X	X	Communication facility.
BRAC	X	X	
Grameen Bank	X	X	Reduction of agri land
Sanirvar Bangladesh	X	X	Flood will be controlled.
Action Aid Bangladesh	X	X	Fish farming reduce.
Terre des Hommes (France)	X	X	Embankment for erosion victims but acquisition of land
Unnayan Sangha	X	X	Increase of landlessness
Provati Samaj Kallyan Songstha	X		Settlement on embankment and live stock protection.
Shoshika	X		Worsening of diet due to less fish
Source: JPPs Survey.			

Table 6.3.4 Water Logging in the NGO Project Area

NGO	Water logging area to grow crop if drainage is provided
Samaj Unnyan Sangstha	(a) Dangar beel (Fullkocha).
	(b) Parter beel (Charbani Pukuria).
	(c) Jagot Pater bed (FullKocha).
	(d) Morgagangi beel (Ghosherpara).
	(e) Bagbari beel (ghosherpara).
Action Aid Bangladesh	(a) Rayer beel (Noapara Union).
	(b) Chatrair beel.
	(c) Dagar beel.
	(d) Boatmari beel.
	(e) Sonamukhi beel.
Unnayan Sangstha	(a) major part of Madarganj.
	(b) Gosherpara.
Source: JPPs Survey	

Table 6.3.5 Average Losses in 1974 and 1988 Floods

Year	Type of Loss	Unit	Amount of Loss
1974	Crop losses	(%)	78
	Loss of animal	(No)	118
	Houses destroyed	(No)	216
	Road cuts	(No)	180
1988	Crop losses	(%)	89
	Loss of animal	(No)	132
	Houses destroyed	(No)	311
	Road cuts	(No)	183
Source: Table 6.D.26			

Table 6.3.6 : Mean Annual Income of Farming Household by Land Strata

[WO] SITUATION

Sources of Income	LL	MA	SF	MF	LF	Average
Farming	4,072	6,350	11,720	30,188	57,174	14,342
%	25.4%	37.9%	51.9%	68.8%	53.2%	56.6%
Fishing	351	762	512	614	1,442	494
%	2.2%	4.5%	2.4%	1.5%	1.8%	2.1%
Agriculture Labor	2,505	2,281	645	14	0	1,732
%	15.6%	13.6%	3.0%	0.0%	0.0%	7.2%
Non-Agriculture Labor	1,250	768	0	0	0	735
%	7.8%	4.6%	0.0%	0.0%	0.0%	3.1%
Other	7,850	6,650	8,523	9,186	23,306	6,711
%	49.0%	39.6%	39.8%	23.0%	28.4%	27.9%
Total	16,028	16,811	21,400	40,003	81,922	24,012
%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3.7 : Mean Annual Household Income By Land Strata (Source Wise)

[WO] SITUATION

SOURCE OF INCOME	LL		MA		SF		MF		LF		ALL	
Fisheries	371	2.6%	412	2.5%	419	2.0%	97	0.2%	23	0.0%	354	1.7%
Labor/Employement (CIA)	9,023	63.1%	6,927	42.9%	3,578	16.8%	8,226	19.4%	11,974	14.0%	7,125	35.0%
Egg Production	123	0.9%	219	1.4%	200	0.9%	372	0.9%	702	0.8%	191	0.9%
Business/Cottage/Trade	481	3.4%	525	3.2%	061	5.0%	842	2.0%	4,773	5.6%	739	3.6%
Agro-forestry	404	2.8%	651	4.0%	155	5.4%	2,322	5.5%	7,085	8.3%	934	4.6%
Non-Farming Resources	117	0.8%	251	1.6%	310	1.5%	552	1.3%	2,871	3.4%	276	1.4%
Milk Production	119	0.8%	288	1.8%	536	2.5%	1,145	2.7%	1,402	1.6%	370	1.8%
Farming	1,047	7.3%	5,279	32.7%	202	52.7%	27,505	64.8%	53,245	62.2%	8,363	41.1%
Meat Production	1	0.0%	5	0.0%	37	0.2%	9	0.0%	250	0.3%	15	0.1%
Fish Culture	7	0.1%	0	0.0%	28	0.1%	234	0.5%	1,243	1.5%	57	0.3%
Other Sources	2,597	18.2%	1,595	9.9%	2,740	12.9%	1,175	2.8%	1,973	2.3%	1,938	9.5%
HOUSEHOLD GROSS INCOME	14,290	100%	16,153	100%	21,266	100%	42,478	100%	85,542	100%	20,361	100%
Average Family Size	4.49		4.83		5.43		7.10		9.53		5.12	
GROSS INCOME PER CAPITA	3,181		3,344		3,916		5,983		8,976		3,977	
Share of Each Land Strata	35.1%		11.2%		24.8%		21.3%		7.6%		100.0%	
Gini Coefficient	0.228											

Table 6.3.8 : Mean Annual Income of Farming Household by Land Strata

[B] SITUATION

Sources of Income	LL	MA	SF	MF	LF	Average
Farming	4,526	7,199	13,709	36,016	68,418	16,789
%	26.7%	37.9%	51.9%	68.8%	63.2%	56.6%
Fishing	467	1,013	680	817	1,916	656
%	2.7%	5.6%	2.9%	1.8%	2.0%	2.4%
Agriculture Labor	2,652	2,416	683	15	0	1,833
%	15.6%	13.3%	2.9%	0.0%	0.0%	6.8%
Non-Agriculture Labor	1,475	906	0	0	0	867
%	8.7%	5.0%	0.0%	0.0%	0.0%	3.2%
Other	7,850	6,650	8,523	9,186	23,306	6,711
%	46.3%	36.6%	36.1%	20.0%	24.9%	25.0%
Total	16,970	18,183	23,595	46,033	93,641	26,856
%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.3.9 : Mean Annual Household Income By Land Strata (Source Wise)

[B] SITUATION

SOURCE OF INCOME	LL		MA		SF		MF		LF		A	
Fisheries	493	3.3%	547	3.1%	557	2.4%	129	0.3%	31	0.0%	[illegible]	2.1%
Labor/Employement (CIA)	9,591	63.5%	7,363	42.2%	3,747	16.0%	8,253	17.2%	11,974	12.5%	7,5[illegible]	33.7%
Egg Production	123	0.8%	219	1.3%	200	0.9%	372	0.8%	702	0.7%	[illegible]	0.9%
Business/Cottage/Trade	481	3.2%	525	3.0%	1,061	4.5%	842	1.8%	4,773	5.0%	[illegible]	3.3%
Agro-forestry	404	2.7%	651	3.7%	1,155	4.9%	2,322	4.9%	7,085	7.4%	[illegible]	4.2%
Non-Farming Resources	117	0.8%	251	1.4%	310	1.3%	552	1.2%	2,871	3.0%	[illegible]	1.2%
Milk Production	119	0.8%	288	1.7%	536	2.3%	1,145	2.4%	1,402	1.5%	[illegible]	1.7%
Farming	1,163	7.7%	5,985	34.3%	13,103	55.8%	32,814	68.6%	63,717	66.4%	9 [illegible]	43.9%
Meat Production	1	0.0%	5	0.0%	37	0.2%	9	0.0%	250	0.3%	[illegible]	0.1%
Fish Culture	7	0.0%	0	0.0%	28	0.1%	234	0.5%	1,243	1.3%	[illegible]	0.3%
Other Sources	2,597	17.2%	1,595	9.2%	2,740	11.7%	1,175	2.5%	1,973	2.1%	1,5[illegible]	6.7%
HOUSEHOLD GROSS INCOME	15,096	100%	17,429	100%	23,474	100%	47,846	100%	96,022	100%	22,2[illegible]	100%
Average Family Size	4.49		4.83		5.43		7.10		9.53		5.[illegible]	
GROSS INCOME PER CAPITA	3,360		3,609		4,323		6,739		10,076		4,3[illegible]	
Share of Each Land Strata	34.0%		11.1%		25.1%		22.0%		7.8%		100.[illegible]%	
Gini Coefficient	0.243											

Table 6. 3.10 Income Impact Assessment (in Tk/HH)

Impacts on Income	Reference	[WO]	[B]	Increment
1- Household Income				
Farming Household	24,019	24,012	26,856	11.8%
Day Labour (Farm)	14,072	14,040	14,982	6.7%
Daily Labour (Non-Farm)	14,492	14,486	17,064	17.8%
Professional Fishermen	16,654	15,253	19,171	25.7%
Women Headed Household	10,190	10,205	10,913	6.9%
2- HH Income By Land Strata				
- Mean Stratum Income				
Landless	14,329	14,290	15,096	5.6%
Marginal Landowners	16,187	16,153	17,429	7.9%
Small Landowners	21,277	21,266	23,374	9.9%
Medium Landowners	42,357	42,478	47,846	12.6%
Large Landowners	85,280	85,542	96,022	12.3%
All Households	20,368	20,361	22,291	9.5%
- Share of each Stratum				
Landless	35.2%	35.1%	34.0%	-3.1%
Marginal Landowners	11.2%	11.2%	11.1%	-0.9%
Small Landowners	24.8%	24.8%	25.1%	1.2%
Medium Landowners	21.2%	21.3%	22.0%	3.3%
Large Landowners	7.5%	7.6%	7.8%	2.6%
All Households	100.0%	100.0%	100.0%	
3- Equity Gap				
Gini Coefficient (*)	0.227	0.228	0.243	6.6%

Source: estimates from FAP 3.1 Socio-Economic Survey (Protected Land)
Note: Increment refers to the increase provided by Option B in comparison to the WO situation.

(*) This is a concentration index which intends to indicate the degree of inequality in the distribution of a given variables (such as income) among different group an increase in the coefficient means that a smaller share of the total income is obtained by the lowest income groups while the shares of the highest groups have increased. In other words, it means that the level of income concentration is higher and that the social prices of income distribution has become more inequitable.

In the context of the study, the impact of the different options on the income distribution among land ownership groups could be ascertained and thus, their relative shares have been measured. Therefore in the study, the Gini coefficient provides an index of the income concentration among different landownership groups. An increase in the Gini coefficient means that the shares of the biggest landowners has increased while those of the landless and marginal landowners have decreased.

Table 6.4.1 Cost For 1 Information Centre Tk (thousands)

Investment	No	Unit Price	Year 1	Year 2	Year 3	Total
Investment						
1 Motorcycle	1	75	75			75
1 Bicycle	1	5	5			5
Furniture	Sum	40	40			40
2 Cameras	2	20	20			20
Total Investment		140	140			140
Recurrent Costs:						
Recurrent Staff	6	6	360	360	360	1080
Training/Motivation			270	270	270	810
Public Workshop			100	100	100	300
Office rent			48	48	48	144
Travel cost			30	30	30	90
Stationeries (posters, news letter)			200	200	200	600
Total Recurrent:			938	938	938	3024
Grand Total:			1078	938	938	3164

Table 6.4.2 Total Cost for 3 Centres + Coordination Head Quarter

Tk in "000"

	Year 1	Year 2	Year 3	Total
Investment	420	-	-	420
Recurrent	3024	3024	3024	9072
Total	3444	3024	3024	9492
HQ 15%	516	453	453	1422
Grand Total	3960	3477	3477	10914

Table 6.4.3 Cost of the Support for 1 NGO for 5 years

	Nos	Unit price (TK)	Totals TK .000
INVESTMENT			
Motorbike	3	80000	240
Bicycles	12	3000	36
Community house	2	200000	400
Credit fund			2500
Staff	15 X 12 X 5	5000	4500
Social services/training	3000 HH	1000	3000
Consumables			1500
15%			1824
Total for one year			14000
Total for 3 NGOS			42000

Figures

VILLAGE

N

LEGEND

EMBANKMENT

ROADS

RIVERS

RAILWAY

VILLAGES SURVEYED

GUZIMARI

Dewangonj

Sugar Factory

KRISHNAGAR

Bahadurabad

MURADABAD

Jelampur Inlet S-1

Is[illegible]pur

JORDOBA

MOWDOLPARA

NUTANPARA

Chatal Intake (S-5)

Melandah

KAZIKATA

Jhenai Intake (S2)

GUGUMARI

LALDOBA

BAGADOBA

NOAGHATA

Jenai Bridge

Jamalpur

Maderganj

RAZAPUR

CHAR GOPALPUR

CHINA SUKARPAR

KUNDABARI

HARIBARI

BANSDAIR

Bausi Bridge Outlet (S-3)

Digpait

Jhenai Outlet (S-4)

CHAR SISHUA

DASERBARI

Sharishabari

Fertilizer Factory

GOVERNMENT OF THE PEOPLES REPUBLIC OF BANGLADESH
MINISTRY OF IRRIGATION WATER DEVELOPMENT & FLOOD CONTROL
FLOOD PLAN CO-ORDINATION ORGANIZATION

FAP 3.1 : JAMALPUR PRIORITY PROJECT STUDY

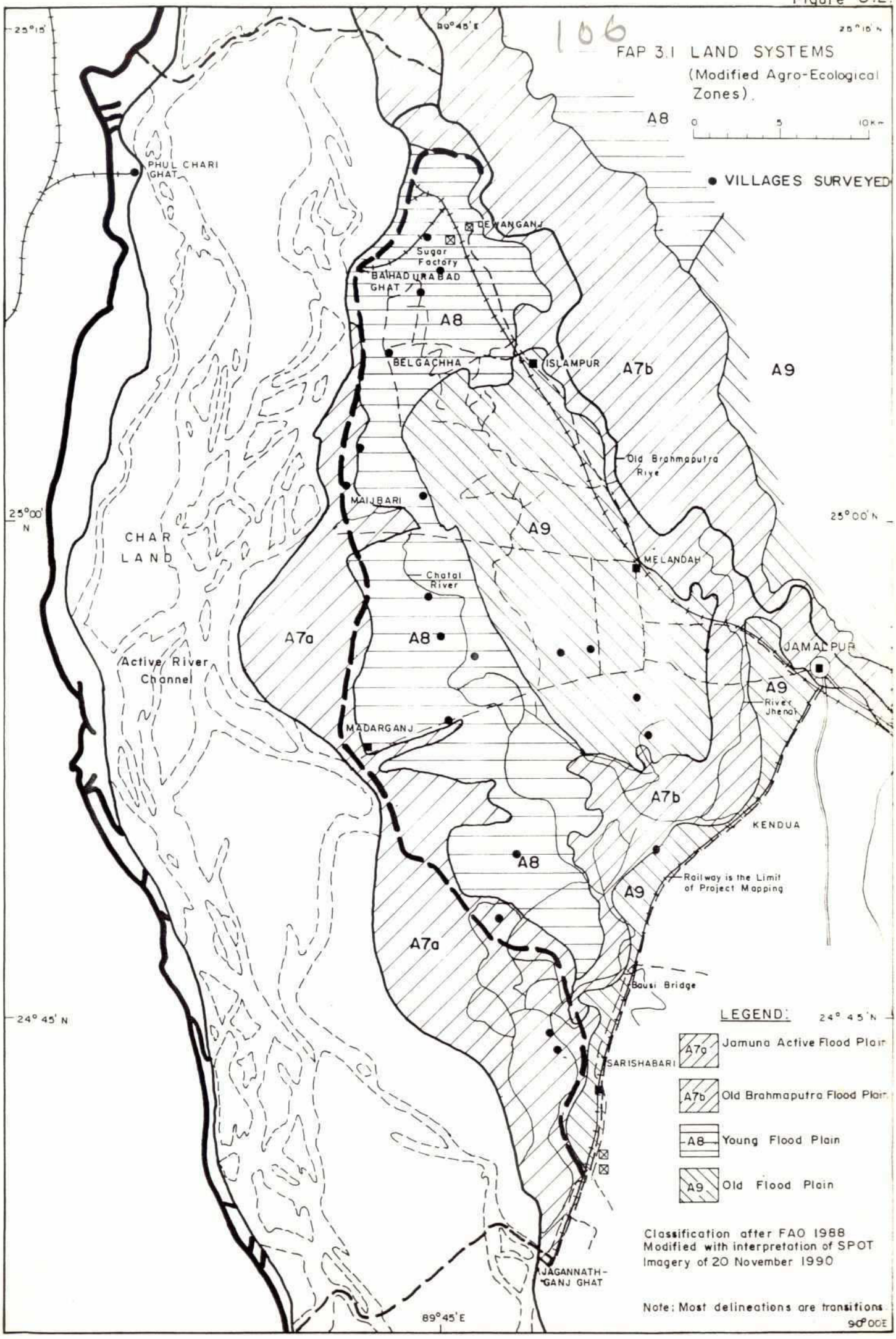
PROJECT AREA

VILLAGES INCLUDED IN HOUSEHOLD CENSUS

Drawing No.		Scale : Not true to acale	
DRAWN			SOGREAH HALCROW LAHMEYER WITH EPC & AQUA
CHECKED			Project Office House 80, Road 7, Block H Banani DHAKA
APPROVED			
DATE			

Figure 6.1.1

Figure 6.2.1


106
FAP 3.1 LAND SYSTEMS
(Modified Agro-Ecological Zones).
25°15'
89°45'E
25°15'N
A8
0
5
10Km
VILLAGES SURVEYED
PHUL CHARI GHAT
DEWANGANJ
Sugar Factory
BAHADURABAD GHAT
BELGACHHA
ISLAMPUR
A7b
A9
Old Brahmaputra Rive
25°00' N
MAIJBARI
CHAR LAND
Chatal River
MELANDAH
A7a
A8
JAMALPUR
Active River Channel
River Jhenai
MADARGANJ
KENDUA
Railway is the Limit of Project Mapping
Bausi Bridge
24° 45' N
SARISHABARI
JAGANNATH-GANJ GHAT
89°45'E
LEGEND:
A7a Jamuna Active Flood Plain
A7b Old Brahmaputra Flood Plain
A8 Young Flood Plain
A9 Old Flood Plain
Classification after FAO 1988
Modified with interpretation of SPOT Imagery of 20 November 1990
Note: Most delineations are transitions.
90°00E

Appendices

Appendix - A

APPENDIX A

LOCAL CONSULTATION

PARTICIPATION WITH PROJECT PEOPLE

APPENDIX

A LOCAL CONSULTATION/ PARTICIPATION WITH PROJECT PEOPLE

A.1 Household Census

In November 1991, household census and pilot surveys were carried out in 19 villages. The locations of the vilages are shown on Figure 6.1.1. Each and every household was consulted to collect information about the number of household members, agriculture land, main occupation. The number of members of householders met was 5,362. Among them 10% replied to more detailed question about occupation and income. The list of the villages where household census was carried out is given in Table 6.A.1.

Table 6.A.1 **Household Census (Nov.'91)**

VILLAGES	NO. OF HH	MAUZA	UNION	UPAZILA
Krisnanagar	32	Krisnanagar	Patharsi	Islampur
Muradabad	190	Patharsi	- do -	- do -
South Jorjurduba	339	Sapdhari	Sapdhari	- do -
Mondolpara	166	Dighair	- do -	- do -
Natunpara	349	Noapara	Noapara	- do -
Kajikata	555	Mahmudpur	Mahmudpur	Melandaha
Naoghata	175	Melandaha	Adra	- do -
South Bagdoba	198	Bahgadoba	Adra	- do -
Rajapur	280	Rajapur	Phulkocha	- do -
China Sukarpar	176	Phul Kocha	- do -	- do -
Haribari	63	Haribari	Meshta	Jamalpur
Dasherbari	124	Dasherbari	Satpoa	Sarishabari
Char Sishua	287	Sishua	Salpoa	Sarishabari
Guzimari	320	Bhabasur	Chakibari	Dewangonj
Laldoba	330	Binotdangi	Karaichara	Maderganj
Ghughumari	473	Ghughumari	- do -	- do -
Chargopalpur	499	Khorda Jonali	Gunaritola	- do -
Adarvita Kundubari	213	Adarvita	Adarvita	- do -
Bansdair	394	Bansdair	- do -	- do -
Total	5362			

A.2 In depth Socio economic survey

Among the 5,262 HH census, 542 have been visited again for collecting information on demography, activities, asset, income, migration and related issues to flood.

The selected households were equally taken from each agro-ecological zone (AEZ) (see Figure 6.2.1 for location) and proportionally distributed according to the importance of the social groups defined during the first census and pilot survey.

The village list shown in Table 6.A.2 gives the distribution as per AEZ and social groups.

Table 6.A.2 **In Depth Survey - AEZs, Villages & Social Groups**

Agro Ecological Zone	Villages	No. of HH Per Social Group							Total
		LL	MA	SF	MF	LF	WH H	FH	
AEZ 7	Bansdair	40	11	19	8	2	5	3	88
	Jorduba	35	10	16	7	4	7	6	85
	Kazikata	40	11	19	8	14	5	3	100
	Gugumari	35	10	16	7	3	7	3	81
	Guzimari					2			2
AEZ 8	Muradabad					5		3	8
	Kundabari					2			2
	Chargopalpur					3		4	7
	Bagadoba	57	16	27	11	2	4	3	120
	Haribari	18	05	08	4	1	2		38
AEZ 9	Noagata							1	1
	Razapur							2	2
	China Sukarpar							2	2
	Nuton Para					6			6
Total		225	63	105	45	44	30	30	542

Note: See Figure 6.A.1 for location of villages.

A.3 Interview of Displacees due to Erosion

Name		**Village affected**
Amiz Uddin,	Gabergram	Sukna gari
Golab Hossain,	,,	,,
Noab Ali,	,,	,,
Kobir Uddin,	,,	,,
Abdur Rahaman,	,,	,,
Elam Uddin,	Chandpur	Char Chandpur
Mujibor Rahman,	,,	,,
Shamsul Haque,	Thantonipara	Char sishua
Mojibur Paramanik	,,	,,
Mokbul Mondol	Kalirchar	Amtali
Chand Miah	Majbarichar	Tagarchar
Torap Ali Shikdar	,,	,,

Syed Zaman	Chinaduli	Charnandana para
Fakir Ali	,,	,,
S. Uddin Sarker	Gabergram	Ichil Kati
Mokbul Hossain Akhand	,,	Suik Nagori
Mosir Sheik	,,	Nadagari
Toibar Rahaman	,,	Beel Nadagari

A.4 Interview of Local Bodies (formal questionnaire)

Dewanganj Upazila

Mozammel Hoque,	Chairman, Chukaibari Union
Mujibur Rahman,	Chairman, Badurabadh Union

Sarishabari Upazila

M.A. Jolil,	Upazila Chairman
Shahidulla,	Chairman, Satpoa Union
Forhad Hossain Talukder,	Chairman, Bhatara Union.

Melandaha Upazila

Tofazzal Huque,	Chairman, Adra Union
Emmdadul Haque,	Chairman, Phulkocha Union
S.M. Jaharul Haque,	Chairman, Kulia Union
Lutfar Rahman,	Chairman, Charbari Pukuria Union
Badsha Bagha,	Chairman, Nayan Nagar Union
Ahmed Ali Khan,	Chairman, Durmut Union
Robiul Islam T.der,	Chairman, Mahmudpur Union
Abdul Hai Bacchu,	Upazila Chairman

Madarganj Upazila

Samshul Huda,	Chairman, Karaichara Union
Ismail Hossain,	Chairman, Adarvita Union
Zahural Islam,	Chairman, Charpakerdaha Union
Moazzem Hossain,	Chairman, Gunaritola Union
Mirza Abul Kasem,	Chairman, Balizuri Union
Abdus Samad,	Chairman, Jorkali Union
Solaiman Haque,	former Chairman, Gunaritola

Jamalpur Upazila

Zaminur Islam,	Chairman, Meshta Union
Mahabur Rahman,	Chairman, Kendua Union

Islampur Upazila

Faridur Haque Khan,	Upazila Chairman
Manikul Islam,	Chairman, Patershi Union
Abdul Jobber Mondol,	Chairman, Sapdhari Union
Abdul Barek,	Chairman, Noapara Union
A.K.M. Habibur Rahman,	Chairman, Chinaduli Union
Hurmas Ali Sarder,	Chairman, Gaibanda Union
Alan Uddinn,	Chairman, Goaterchar Union

A.5 NGO's Representatives Interview.

Terre des Hommes: (TDH) France

Fatema Nargis,	Project Manager, Dewanganj UZ.
Harun O Rashid,	Social Worker
Ira Rahman,	Director

Soshika:

Daniel Byler,	Men's Programme Head, Jamalpur.

Save the Children: (UK)

Zaheed Hossain,	Project-in-charge, Dewanganj.

B R A C:

Rafiqul Islam,	Regional Manager
A. Kaleque,	Sr. Area Manager.

Grameen Bank:

Milal Uddin,	Branch Manager, Shorishabari
Shahidul Haque,	Area Manager, Jamalpur.

Unnayan Sangha:

Samsul Huda,	Director, Jamalpur
Rofiqul Islam,	Dy. Director.

Probhati Samaj Korllan Sangstha (PSKS)

Masharaf Hossain,	Director, Jamalpur.

Samaj Unnayan Sangstha (SUS)

Minaz Uddin,	Director, Jamalpur.

Samaj Proghoti Sangstha (SPS)

Abdul Mannan Bhasani,	General Secretary.

Probbati Mohila Korllan Samitee (PMKS)

Noorzahan Begum,	General Secretary, Jamalpur.

Swanirbhar Bangladesh

Sakawat Hossain,	Upazila Organizer, Dewanganj.

Protibha Sahito O Sanskriti Samaj Sheba, Islampur

Belal Uddin,	Secretary

Samiul Haque,	Chairman
Joinal Abedin,	Librarian

Action Aid

Altap Hossain,	Project Director, Ghotail Bazar
Robert Reitmeyer,	Director.

Service Civil International (SCI)

Altafur Rahman,	Asst. Coordinator, Bhuapur
Dr. F. Durandin,	Well-Wisher.
Mujibul Huq,	Project coordinator, Buapur

Gono Sahajjo Sangstha (GSS)

Mamoud Hassan,	Director
Kary Jane Nilson,	Consultant.

Prodipon

Ferdaus Alan,	Director, Dhaka.

C D L (Community Development Library)

Raujan Karmakar,	Dy. Director, Dhaka.
Harun O Rashid,	Director, Dhaka
François Percyn,	Video section, Dhaka
Orunangsha,	Secretary, Islampur.

Prosika

Saidur Rahman,	Training unit.

M C C

Shipra Deori,	Training coordinator, Dhaka.

S A P (South Asian Partnership)

Nurul Alam,	Director, Dhaka.

A.6 Other Consultees

Swiss Development Cooperation (SDC)

Henri Francois Morand,	1st Secretary (Development).

FAP 15

Christer Holtberg,	Team leader

FAP 3

Q.J. Ahmed,	Fisheries Expert
S. Akter Hossain,	Environmental Expert
Alan Potkin,	Environmentalist
Brigitte Ditner,	Socio Economist.

Rural Employment Sector Programme (R E S P)

Jorgen E. Engel,	Planning Mapping Advisor
Lars Hjerpe,	R R, Hifab

Bjorn Moller,	Training Advisor
Hans Erikson,	Socio Economist Field Advisor.

E I P

Alamgir Chowdury.

A.7 List of Relevant Persons Met During Field Trip in Jamalpur, October 1991:

1	The Mymensingh Nuclear Agriculture Department, Director:	Dr.Jolil.
2	The Post graduate research fellow	Ms. Manjita Biswas.
3	The D.C. Jamalpur.	
4	The ADM. Jamalpur	Mr. E.K.M. Wazidul Islam.
5	Wilbur Smith Associates RD 13,	
	Project Manager:	Mr. Alex Nielson
	Field Resident Engineer:	Mr. E. Biorck.
6	The CRWRC (NGO) Representative (now Sosika)	Nancy & Daniel Byler
	Melandaha the area co-ordinator:	Mr. M.A. Kaleque
	Islampur the area co-ordinator:	Mr. Azad Ahmed.
7	The BRDB	
	Dy.Director:	Mr Borhan Uddin
	Dy Project Director (RD-12):	Mr Siddique
8	The UNO's	
	a) Melandaha:	Mr. Debnath.
	b) Islampur:	Mr. Ch. Aftab Uddin Ahmed.
9	The Upazila Chairman Maderganj	Mr. Karimuzzaman Talukdar
10	The FAP 20 in Tangail	
	The Team Leader:	Mr.Zijderveld
	Environmentalist	
11	The BRAC Programme officer	a) Mr. Jaheed Hossain b) Mr. Edayet Hossain
12	The Grameen Bank office assistant:	Mr. Gias Uddin
13	The Samaj Unnayan Sangsta	

The Director — Mr. Minaz Uddin

14 Service Civil International (SCI) at Bhuapur
A well wisher,
former chairman of a Char: — Mr.Akbar Hossain

15 The affected people by erosion :
In Maderganj : — Mr. Nurul
Mr. Suraj
Mr. Rahim, etc.

16 Sugar cane factory employees in Jamalpur depot:
Mr Selim Reza
Zaenal Abedin
Chand Miah
Moklesur Rahaman

Appendix - B

APPENDIX B

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APPENDIX

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Appendix - C

APPENDIX C

SOCIO-ECONOMIC PROFILE TABLES

Table 6.C.1 : Age-Structure and Sex-Composition (sample data)

SAMPLE DATA												
Age Structure	Total	Location			Landownership					Sex		M/F
		AEZ7	AEZ8	AEZ9	LL	MA	SF	MF	LF	M	F	Ratio
0 - 9	726	229	272	225	326	99	158	58	85	350	376	0.93
10 - 19	537	168	208	161	178	61	143	67	88	278	259	1.07
20 - 29	484	139	201	144	204	55	88	56	81	235	249	0.94
30 - 39	389	110	169	110	167	54	72	34	62	220	169	1.30
40 - 49	197	60	75	62	74	15	60	24	24	122	75	1.63
50 - 59	119	35	45	39	39	14	26	24	16	67	52	1.29
> 60	107	25	46	36	24	12	21	15	35	63	44	1.43
Total Sample	2,559	766	1,016	777	1,012	310	568	278	391	1,335	1,224	1.09
0 - 9		30%	27%	29%	32%	32%	28%	21%	22%	26%	31%	
10 - 19		22%	20%	21%	18%	20%	25%	24%	23%	21%	21%	
20 - 29		18%	20%	19%	20%	18%	15%	20%	21%	18%	20%	
30 - 39		14%	17%	14%	17%	17%	13%	12%	16%	16%	14%	
40 - 49		8%	7%	8%	7%	5%	11%	9%	6%	9%	6%	
50 - 59		5%	4%	5%	4%	5%	5%	9%	4%	5%	4%	
> 60		3%	5%	5%	2%	4%	4%	5%	9%	5%	4%	
Total Sample		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Contingency Tables		Significance			Significance					Significance		
Tests (Chi Square)												
Ho = factors independant		79.3%			0.00%					0.24%		

Table 6.C.2 : Birth, Mortality and Population Growth (sample data)

SAMPLE DATA						
Demography	Total	Landownership				
		LL	MA	SF	MF	LF
1. Population (t)	2,559	1,012	310	568	278	391
2. No Death < 5 years	56	25	7	12	5	7
3. No Death > 4 years	34	15	4	8	3	4
4- No Birth	140	64	17	30	13	16
5. Population (t-1)	2,509	988	304	558	273	386
1- Mortality Rate < 5		2.5%	2.3%	2.2%	1.8%	1.8%
2- Mortality Rate > 4		1.5%	1.3%	1.4%	1.1%	1.0%
3- Birth Rate		6.5%	5.6%	5.4%	4.8%	4.1%
4- Growth Rate		2.4%	2.0%	1.8%	1.8%	1.3%

Table 6.C.3 : Influence of Landownership

CHI SQUARE TESTS	
Variables	Significance Landownership
1- Mortality Rate < 5	39.6%
2- Mortality Rate > 4	80.3%
3- Birth Rate	4.2%

Table 6.C.4 : Level of Education in the Population

SAMPLE DATA												
Education	Total	Location			Landownership					Sex		M/F
		AEZ7	AEZ8	AEZ9	LL	MA	SF	MF	LF	M	F	Ratio
No Education	1,833	605	664	564	933	269	396	123	112	875	958	0.9
Up to Primary	332	84	144	104	49	31	102	53	97	182	150	1.2
Class VI to X	241	61	106	74	27	10	56	53	95	149	92	1.6
SSC and HSC	109	9	70	30	3	0	11	30	65	89	20	4.5
Graduate and above	44	7	32	5	0	0	3	19	22	40	4	10.0
Total Population	2,559	766	1,016	777	1,012	310	568	278	391	1,335	1,224	1.1
No Education		79%	65%	73%	92%	87%	70%	44%	29%	66%	78%	
Up to Primary		11%	14%	13%	5%	10%	18%	19%	25%	14%	12%	
Class VI to X		8%	10%	10%	3%	3%	10%	19%	24%	11%	8%	
SSC and HSC		1%	7%	4%	0%	0%	2%	11%	17%	7%	2%	
Graduate and above		1%	3%	1%	0%	0%	1%	7%	6%	3%	0%	
Total Population		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Contingency Tables		Ho Accepted			Ho Accepted					Ho Accepted		
Tests (Chi Square)												
Ho = factors independant		0.00%			0.00%					0.00%		

Table 6.C.5 : Activity Status by AEZ, Landownership and Sex (sample data)

SAMPLE DATA											
Activity Status	Total	Location			Landownership					Sex	
		AEZ7	AEZ8	AEZ9	LL	MA	SF	MF	LF	M	F
1. Population < 10	726	229	272	225	326	99	158	58	85	350	376
2. Population > 9	1,833	537	744	552	686	211	410	220	306	985	848
2.1. CIV Labor Force	903	302	375	226	407	107	190	97	102	703	200
Employed	235	63	114	58	47	9	55	53	71	204	31
Underemployed	416	143	151	122	232	66	86	18	14	411	5
Unemployed	24	4	16	4	4	2	4	4	10	22	2
No Looking for Job	228	92	94	42	124	30	45	22	7	66	162
2.2. Inactive	930	235	369	326	279	104	220	123	204	282	648
3. Total Population	2,559	766	1,016	777	1,012	310	568	278	391	1,335	1,224
1- Crude Rate		39.4%	36.9%	29.1%	40.2%	34.5%	33.5%	34.9%	26.1	52.7%	16.3%
2- Refined Rate		56.2%	50.4%	40.9%	59.3%	50.7%	46.3%	44.1%	33.3	71.4%	23.6%
3- Underemployment Rate		47.4%	40.3%	54.0%	57.0%	61.7%	45.3%	18.6%	13.7	58.5%	2.5%
4- Unemployment Rate		1.3%	4.3%	1.8%	1.0%	1.9%	2.1%	4.1%	9.8%	3.1%	1.0%
5- Not Look Job/CIV		30.5%	25.1%	18.6%	30.5%	28.0%	23.7%	22.7%	6.9%	9.4%	81.0%

Table 6.C.6 : Activity Status by Age and Education Levels (sample data)

SAMPLE DATA												
Activity Status	Total	Age						Education				
		10-19	20-29	30-39	40-49	50-59	> 60	No	P	X	SSC	G
1. Population < 10	726							604	119	3	0	0
2. Population > 9	1,833	537	484	389	197	119	107	1,229	213	239	109	43
2.1. CIV Labor Force	903	274	200	218	105	56	50	656	81	87	50	29
Employed	235	62	54	56	21	21	21	130	27	37	28	13
Underemployed	416	34	112	146	78	31	15	342	28	25	12	9
Unemployed	24	8	12	4	0	0	0	8	2	3	4	7
No Looking for Job	228	170	22	12	6	4	14	176	24	22	6	0
2.2. Inactive	930	263	284	171	92	63	57	573	132	152	59	14
3. Total Population	2,559	537	484	389	197	119	107	1,833	332	242	109	43
1- Crude Rate								35.8%	24.4	36.0%	45.9%	67.4%
2- Refined Rate		51%	41%	56%	53%	47%	47%	53.4%	38.0	36.4%	45.9%	67.4%
3- Underemployment Rate		12.4%	56.0%	67.0%	74.3%	55.4%	30.0%	52.1%	34.6	28.7%	24.0%	31.0%
4- Unemployment Rate		2.9%	6.0%	1.8%	0.0%	0.0%	0.0%	1.2%	2.5%	3.4%	8.0%	24.1%
5- Not Look Job/CIV		62%	11%	6%	6%	7%	28%	26.8%	29.6	25.3%	12.0%	0.0%

Table 6.C.7 : Distribution of Employed and Underemployed CLF by Main Occupation

SAMPLE DATA											
Main Activity of CLF		Landownership									
	Total	LL	%	MA	%	SF	%	MF	%	LF	%
1- Farming	257	12	4.3%	26	34.7%	105	74.5%	52	73.2	62	72.9%
2- Business/Trade	24	5	1.8%	4	5.3%	8	5.7%	3	4.2%	4	4.7%
3- Labor/Employment											
- Services	43	5	1.8%	2	2.7%	7	5.0%	12	16.9	17	20.0%
- Agri. Daily Labor	259	210	75.3%	34	45.3%	13	9.2%	2	2.8%	0	0.0%
- Non-Agri. Daily Labor	22	16	5.7%	3	4.0%	3	2.1%	0	0.0%	0	0.0%
- Transport	6	4	1.4%	1	1.3%	1	0.7%	0	0.0%	0	0.0%
- Others	40	27	9.7%	5	6.7%	4	2.8%	2	2.8%	2	2.4%
3- Sub-Total Labor / Employed	370	262	93.9%	45	60.0%	28	19.9%	16	22.5	19	22.4%
Total Employed / Underemployed	651	279	100.0%	75	100.0%	141	100.0	71	*****	85	100.0

Table 6.C.8 : No of Persons involved in Labor/Employment Activities as primary or secondary occupation

SAMPLE DATA											
No of Persons involved		Landownership									
Labor/Employment	Total	LL	%	MA	%	SF	%	MF	%	LF	%
- Services	43	5	1.8%	2	2.7%	7	5.0%	12	16.9	17	20.0%
- Agri. Daily Labor	308	235	84.2%	46	61.3%	25	17.7%	2	2.8%	0	0.0%
- Non-Agri. Daily Labor	65	49	17.6%	9	12.0%	7	5.0%	0	0.0%	0	0.0%
- Transport	8	5	1.8%	2	2.7%	1	0.7%	0	0.0%	0	0.0%
- Others	76	49	17.6%	10	13.3%	9	6.4%	5	7.0%	3	3.5%
Total Employed / Underemployed	651	279		75		141		71		85	

Table 6.C.9 : Number of Households in Income Generating Activities

Sample Data											
Involvement of HH in IGA's	Total	% of all HH	LL	% of all HH	M	% of all HH	S	% of all HH	M	% of all HH	L	% of all HH
Farming	292	60.6%	56	24.9%	56	88.9%	100	95.2%	41	91.1%	39	88.6%
Agro-forestry	379	78.6%	143	63.6%	52	82.5%	96	91.4%	44	97.8%	44	100.0%
Non-Agriculture Farming	188	39.0%	52	23.1%	25	39.7%	50	47.6%	24	53.3%	37	84.1%
Fish Culture	14	2.9%	1	0.4%	0	0.0%	2	1.9%	4	8.9%	7	15.9%
Fisheries	184	38.2%	87	38.7%	28	44.4%	38	36.2%	13	28.9%	18	40.9%
Egg Production	249	51.7%	84	37.3%	34	54.0%	62	59.0%	33	73.3%	36	81.8%
Milk Production	91	18.9%	8	3.6%	10	15.9%	28	26.7%	22	48.9%	23	52.3%
Meat Production	23	4.8%	1	0.4%	1	1.6%	4	3.8%	1	2.2%	16	36.4%
Business/Cottage	67	13.9%	33	14.7%	9	14.3%	18	17.1%	3	6.7%	4	9.1%
Number of HH in sample	482		225		63		105		45		44	

Table 6.C.10 : Basic Data for computation of Farming Income (from Agriculture Section)

Crops	Cropping Patterns	Gross Value (Tk/Ha)	Total Cost (Tk/Ha)	Including Farm Labor	Net Margin (Tk/Ha)
Wheat	4,024	14,144	11,843	4,500	2,301
Pulses	4,919	12,682	5,676	3,000	7,006
Mustard	1,820	10,773	6,923	3,000	3,850
Potato	823	36,640	30,254	12,000	6,386
Egg Plant	275	10,000	7,478	4,000	2,522
Chillies	2,460	15,000	11,226	6,000	3,774
Onion	2,044	31,675	22,331	12,500	9,344
HYV Boro	22,794	28,969	21,275	9,000	7,694
Local Boro	2,769	17,905	12,651	7,500	5,254
Sugarcane	2,070	42,750	27,189	12,500	15,561
Millet	728	6,400	3,954	2,500	2,446
Groundnut	319	13,000	10,342	5,000	2,658
Sweet potato	319	19,500	6,465	3,800	13,035
Local Aus	8,463	8,999	7,558	4,000	1,441
HYV Aus	1,493	20,367	13,372	8,000	6,995
Jute	7,631	20,123	15,623	10,000	4,500
B. Aman	558	10,390	9,091	5,000	1,299
Local Aman	9,318	15,581	11,875	7,800	3,706
HYV Aman	21,743	25,457	14,466	8,500	10,991
DW Water	3,616	12,475	8,900	5,500	3,575
Aus-Aman	2,143	12,134	8,383	5,500	3,751
TOTAL	100,329				

Table 6.C.11 : Total Cropped Area in the Project Area (crop wise)

(in Ha)

Crops	LL	MA	SF	MF	LF	Total
Wheat	327	360	1,326	1,564	446	4,024
Pulses	399	440	1,621	1,912	546	4,919
Mustard	148	163	600	708	202	1,820
Potato	67	74	271	320	91	823
Egg Plant	22	25	91	107	31	275
Chillies	200	220	811	956	273	2,460
Onion	166	183	674	795	227	2,044
HYV Boro	1,851	2,041	7,513	8,861	2,528	22,794
Local Boro	225	248	913	1,076	307	2,769
Sugarcane	168	185	682	805	230	2,070
Millet	59	65	240	283	81	728
Groundnut	26	29	105	124	35	319
Sweet potato	26	29	105	124	35	319
Local Aus	687	758	2,790	3,290	939	8,463
HYV Aus	121	134	492	580	166	1,493
Jute	620	683	2,515	2,966	846	7,631
B.Aman	45	50	184	217	62	558
Local Aman	756	834	3,071	3,622	1,034	9,318
HYV Aman	1,765	1,947	7,167	8,452	2,412	21,743
DW Water	294	324	1,192	1,406	401	3,616
Aus-Aman	174	192	706	833	238	2,143
Total Cropped Area (Ha)	8,145	8,982	33,071	39,002	11,129	100,329
Distribution %	8.1%	9.0%	33.0%	38.9%	11.1%	100.0%

Table 6.C.12 : Mean Cropped Area per Household, Crop Wise

Crops	LL	MA	SF	MF	LF	Average
Wheat	0.021	0.025	0.047	0.137	0.216	0.056
Pulses	0.025	0.030	0.058	0.167	0.264	0.068
Mustard	0.009	0.011	0.021	0.062	0.098	0.025
Potato	0.004	0.005	0.010	0.028	0.044	0.011
Egg Plant	0.001	0.002	0.003	0.009	0.015	0.004
Chillies	0.013	0.015	0.029	0.083	0.132	0.034
Onion	0.010	0.013	0.024	0.069	0.110	0.028
HYV Boro	0.117	0.141	0.268	0.774	1.224	0.317
Local Boro	0.014	0.017	0.033	0.094	0.149	0.039
Sugarcane	0.011	0.013	0.024	0.070	0.111	0.029
Millet	0.004	0.005	0.009	0.025	0.039	0.010
Groundnut	0.002	0.002	0.004	0.011	0.017	0.004
Sweet potato	0.002	0.002	0.004	0.011	0.017	0.004
Local Aus	0.043	0.052	0.100	0.287	0.454	0.118
HYV Aus	0.008	0.009	0.018	0.051	0.080	0.021
Jute	0.039	0.047	0.090	0.259	0.410	0.106
B.Aman	0.003	0.003	0.007	0.019	0.030	0.008
Local Aman	0.048	0.058	0.110	0.316	0.500	0.130
HYV Aman	0.111	0.135	0.256	0.738	1.167	0.303
DW Water	0.019	0.022	0.043	0.123	0.194	0.050
Aus-Aman	0.011	0.013	0.025	0.073	0.115	0.030
Mean Cropped Area	0.513	0.622	1.180	3.405	5.387	1.396

Table 6.C.13 : Mean Gross Value per Household Crop Wise

(in Tk/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	291	353	669	1,932	3,056	792
Pulses	319	387	733	2,117	3,349	868
Mustard	100	122	231	665	1,053	273
Potato	154	187	355	1,023	1,619	420
Egg Plant	14	17	32	93	148	38
Chillies	189	229	434	1,252	1,981	513
Onion	331	401	761	2,197	3,476	901
HYV Boro	3,378	4,092	7,763	22,411	35,452	9,187
Local Boro	254	307	583	1,683	2,662	690
Sugarcane	453	548	1,040	3,003	4,751	1,231
Millet	24	29	55	158	250	65
Groundnut	21	26	49	141	223	58
Sweet potato	32	39	73	211	334	87
Local Aus	390	472	895	2,585	4,089	1,060
HYV Aus	156	188	358	1,032	1,633	423
Jute	786	952	1,805	5,212	8,244	2,137
B. Aman	30	36	68	197	311	81
Local Aman	743	900	1,707	4,928	7,795	2,020
HYV Aman	2,832	3,430	6,508	18,786	29,717	7,701
DW Water	231	280	530	1,531	2,422	628
Aus-Aman	133	161	306	883	1,396	362
TOTAL	10,860	13,154	24,956	72,041	113,960	29,533

Table 6.C.14 : Mean Gross Margin per Household Crop Wise

(Tk/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	47	57	109	314	497	129
Pulses	176	214	405	1,170	1,850	480
Mustard	36	43	82	238	376	97
Potato	27	33	62	178	282	73
Egg Plant	4	4	8	24	37	10
Chillies	47	58	109	315	498	129
Onion	98	118	225	648	1,025	266
HYV Boro	897	1,087	2,062	5,952	9,415	2,440
Local Boro	74	90	171	494	781	202
Sugarcane	165	200	379	1,093	1,729	448
Millet	9	11	21	60	96	25
Groundnut	4	5	10	29	46	12
Sweet potato	21	26	49	141	223	58
Local Aus	62	76	143	414	655	170
HYV Aus	53	65	123	354	561	145
Jute	176	213	404	1,165	1,844	478
B.Aman	4	4	9	25	39	10
Local Aman	177	214	406	1,172	1,854	481
HYV Aman	1,223	1,481	2,810	8,111	12,830	3,325
DW Water	66	80	152	439	694	180
Aus-Aman	41	50	95	273	432	112
TOTAL	3,408	4,128	7,832	22,609	35,765	9,269

Table 6.C.15 : Mean Imputed Own Labor Cost per Household, Crop Wise

Crops	LL	MA	SF	MF	LF	Average
Wheat	80	98	100	121	190	119
Pulses	65	80	81	99	155	97
Mustard	24	30	30	37	57	36
Potato	44	53	54	66	104	65
Egg Plant	5	6	6	7	12	7
Chillies	65	80	81	99	155	97
Onion	113	138	141	171	268	166
HYV Boro	909	1,110	1,128	1,376	2,154	1,352
Local Boro	92	112	114	139	218	137
Sugarcane	115	140	142	174	272	170
Millet	8	10	10	12	19	12
Groundnut	7	9	9	11	17	11
Sweet potato	5	7	7	8	13	8
Local Aus	150	183	186	227	356	223
HYV Aus	53	65	66	80	125	79
Jute	338	413	420	512	801	503
B.Aman	12	15	15	19	29	18
Local Aman	322	393	400	488	763	479
HYV Aman	819	1,000	1,016	1,240	1,941	1,218
DW Water	88	108	109	133	209	131
Aus-Aman	52	64	65	79	124	78
TOTAL	3,367	4,112	4,181	5,099	7,982	5,009

Table 6.C.16 : Average Man-Days worked in a year by Labor/Employees

FIELD OF EMPLOYMENT	LL	MA	SF	MF	LF	ALL
- Services	241	286	325	316	297	302
- Agri. Daily Labor	225	195	170	295	0	217
- Non-Agri. Daily Labor	137	212	251	0	0	160
- Transport	174	174	174	0	0	174
- Others	106	122	219	162	365	129

Table 6.C.17 : Average Daily Wages for Labor/Employees

FIELD OF EMPLOYMENT	LL	MA	SF	MF	LF	ALL
- Services	53	56	58	74	78	55
- Agri. Daily Labor	29	34	32	35	0	30
- Non-Agri. Daily Labor	28	35	32	0	0	29
- Transport	52	66	50	0	0	54
- Others	26	46	24	28	91	29

Table 6.C.18 : Total Annual Number of Man-Days worked by Labor/Employees

(IN '000 MAN-DAYS)

FIELD OF EMPLOYMENT	LL	MA	SF	MF	LF	ALL
- Services	330	155	638	1,217	273	2,614
	12.6%	5.9%	24.4%	46.6%	10.4%	100%
- Agri. Daily Labor	14,494	2,429	1,192	189	0	18,304
	79.2%	13.3%	6.5%	1.0%	0.0%	100%
- Non-Agri. Daily Labor	1,840	517	493	0	0	2,849
	64.6%	18.1%	17.3%	0.0%	0.0%	100%
- Transport	239	94	49	0	0	382
	62.5%	24.7%	12.8%	0.0%	0.0%	100%
- Others	1,424	330	553	260	59	2,626
	54.2%	12.6%	21.0%	9.9%	2.3%	100%

Table 6.C.19 : Household Income from Agro-Forestry

- Banana Tree
- Wood Tree
- Fuel Tree
- Coconut Tree
- Fruit Tree
- Betel Nut Tree
- Date Tree
- Bamboo Tree
- Palm Tree
- Others

(Figures in Tk)

AGRO-FORESTRY	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
AGROFORESTRY												
Sample No & % Total HH	143	63.6%	52	82.5%	96	91.4%	44	97.8%	44	100.0%	Average	77.0%
AGROFORESTRY												
Income	90,946		41,043		121,285		104,487		311,745			
Income/Agroforestry HH	636		789		1,263		2,375		7,085		1,213	
Income/HH	404		651		1,155		2,322		7,085		934	

Table 6.C.20 : Household Income from Non-Agricultural Land

- Grass Land
- Fallow Land
- Flower/Kitchen Garden
- Other

(Figures in Tk)

NON-FARMING	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO OTHER FARMING HH												
Sample No & % Total HH	52	23.1%	25	39.7%	50	47.6%	24	53.3%	37	84.1%	Average	35.5%
OTHER FARMING												
Income	26,380		15,842		32,533		24,820		126,310			
Income/Other Farm HH	507		634		651		1,034		3,414		754	
Income/HH	117		251		310		552		2,871		275	

Table 6.C.21 : Household Income from Fish Culture

(Figures in Tk)

FISH CULTURE	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO FISH CULTURE HH												
Sample No & % Total HH	1	0.4%	0	0.0%	2	1.9%	4	8.9%	7	15.9%	Average	1.9%
FISH CULTURE												
Production in Kg	40		0		90		330		1,451			
Production/fishing HH	40		0		45		83		207		88	
Production/HH	0		0		1		7		33		2	
Income	1,647		0		2,979		10,513		54,698			
Income/Fish Culture HH	1,647		0		1,490		2,628		7,814		3,067	
Income/HH	7		0		28		234		1,243		57	

Table 6.C.22 : Household Income from Openwater Fisheries

ASSUMPTIONS: % Increase 0.0%

(Figures in Tk)

FISHERIES	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO FISHING HH												
Sample No & % Total HH	87	38.7%	28	44.4%	38	36.2%	13	28.9%	18	40.9%	Average	37.9%
FISHERIES												
Production in Kg	3,027		983		1,777		752		601			
Production/fishing HH	35		35		47		58		33		39	
Production/HH	13		16		17		17		14		15	
Income	95,994		29,855		50,656		5,025		1,188			
Income/Fishing HH	1,103		1066		1,333		387		66		1,073	
Income/HH	427		474		482		112		27		407	

Table 6.C.23 : Household Income from Egg Production

EGG PRODUCTION	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO EGG PRODUCING HH												
Sample No & % Total HH	84	37.3%	34	54.0%	62	59.0%	33	73.3%	36	81.8%	Average	49.3%
EGG PRODUCTION												
Production in No	11,622		6,705		10,365		7,952		15,170			
Production/Egg HH	138		197		167		241		421		180	
Production/HH	52		106		99		177		345		89	
Income	27,644		13,810		21,017		16,734		30,906			
Income/Egg HH	329		406		339		507		859		387	
Income/HH	123		219		200		372		702		191	

Table 6.C.24 : Household Income from Milk Production

(Figures in Tk)

MILK PRODUCTION	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO MILK PRODUCING HH												
Sample No & % Total HH	8	3.6%	10	15.9%	28	26.7%	22	48.9%	23	52.3%	Average	16.3%
MILK PRODUCTION												
Production in Kg	1,995		1,400		4,691		3,696		4,710			
Production/Milk HH	249		140		168		168		205		175	
Production/HH	9		22		45		82		107		29	
Income	26,720		18,122		56,263		51,516		61,705			
Income/Milk HH	3,340		1812		2,009		2,342		2,683		2,270	
Income/HH	119		288		536		1,145		1,402		370	

Table 6.C.25 : Household Income from Meat Production

(Figures in Tk)

MEAT PRODUCTION	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO MEAT PRODUCING HH												
Sample No & % Total HH	1	0.4%	1	1.6%	4	3.8%	1	2.2%	16	36.4%	Average	2.3%
MEAT PRODUCTION												
Production in Kg	3		6		82		10		217			
Production/Meat HH	3		6		21		10		14		14	
Production/HH	0		0		1		0		5		0	
Income	150		300		3,880		400		11,015			
Income/Meat HH	150		300		970		400		688		681	
Income/HH	1		5		37		9		250		15	

Table 6.C.26 : Household Income from Business/Trade

BUSINESS/COTTAGE	LL		MA		SF		MF		LF		ALL	
NO OF HOUSEHOLDS												
In Project (in '000)	61747	50.1%	17378	14.1%	29333	23.8%	12571	10.2%	2218	1.8%	123247	100%
In Sample	225		63		105		45		44		482	
NO BUSINESS HH												
Sample No & % Total HH	33	14.7%	9	14.3%	18	17.1%	3	6.7%	4	9.1%	Average	14.3%
BUSINESS/COTTAGE												
Income	108,328		33,060		111,384		37,891		210,000			
Income/Business HH	3,283		3,673		6,188		12,630		52,500		5,203	
Income/HH	481		525		1,061		842		4,773		739	

Table 6.C.27 : Structure of Average Consumption per Household

Land Status	Sample HH	Food Exp.	Non-Food Exp.	Total Exp.	Food Exp.	Non-Food Exp.
Landless	225	12,605	3,439	16,045	78.6%	21.4%
Marginal	63	16,429	3,299	19,728	83.3%	16.7%
Small	105	26,007	4,483	30,490	85.3%	14.7%
Medium	45	28,205	11,984	40,190	70.2%	29.8%
Large	44	56,836	30,666	87,501	65.0%	35.0%
Total	482	21,519	6,932	28,450	75.6%	24.4%

Table 6.C.28 : Distribution of households according to per capita calorie intake per day

Nutritional Status		LL	MA	SF	MF	LF	Total
Poverty Line-II	HH No	110	23	25	6	0	164
(Up to 1805 Kcals)	% of Total	22.8%	4.8%	5.2%	1.2%	0.0%	34.0%
Poverty Line-I	HH No	27	6	11	6	0	50
(1806-2122 Kcals)	% of Total	5.6%	1.2%	2.3%	1.2%	0.0%	10.4%
Above Poverty Line	HH No	88	34	69	33	44	268
(2123 + Kcals)	% of Total	18.3%	7.1%	14.3%	6.8%	9.1%	55.6%
Total	HH No	225	63	105	45	44	482
	% of Total	46.7%	13.1%	21.8%	9.3%	9.1%	100.0%

Table 6.C.29 : Distribution of averages of calorie intake per capita per day according to nutritional status and land ownership categories

Land Status	Sample HH	Pvt L-I	Pvt L-II	Above Pvt Line	Total
Landless	225	1,307	1,931	3,057	2,066
Marginal	63	1,355	1,911	2,857	2,218
Small	105	1,368	2,011	3,201	2,640
Medium	45	1,484	2,018	3,451	2,997
Large	44	0	0	3,621	3,621
Total	482	1,330	1,956	3,210	2,440

Table 6.C.30 : Distribution of averages of different types of asset formations by land status

[in Taka]

Land Status	Sample HH	Livestock & Poultry	Agriculture Implements	Durable Asset	Other Assets	Total
Landless	225	-196.62	1078.33	86.52	-21.30	946.92
Marginal	63	-453.58	1257.56	75.61	159.68	1039.27
Small	105	-471.64	1935.29	-48.07	75.60	1491.18
Medium	45	345.22	848.60	987.22	124.11	2305.15
Large	44	320.11	6118.73	-1721.59	-897.61	3819.64
Total	482	-191.83	1726.73	-25.17	-43.33	1466.41

Table 6.C.31 : Distribution of Households according to assets formation

Assets Formation		LL	MA	SF	MF	LF	Total
Negative or Nil	HH No	80	23	25	15	11	154
	% of Total	16.6%	4.8%	5.2%	3.1%	2.3%	32.0%
0 - 1000 Tk	HH No	43	12	10	7	0	72
	% of Total	8.9%	2.5%	2.1%	1.5%	0.0%	14.9%
1000 - 2000	HH No	55	12	21	3	3	94
	% of Total	11.4%	2.5%	4.4%	0.6%	0.6%	19.5%
> 2000 Tk	HH No	47	16	49	20	30	162
	% of Total	9.8%	3.3%	10.2%	4.1%	6.2%	33.6%
Total	HH No	225	63	105	45	44	482
	% of Total	46.7%	13.1%	21.8%	9.3%	9.1%	100.0%

Table 6.C.32 : Sources of Household Credit

Sources	LL		MA		SF		MF		LF		ALL	
	No HH	%	No HH	%	No HH	%	No H	%	No H	%	No HH	%
1- Money Lender	20	29.4%	7	38.9%	8	23.5%	1	5.0%	4	20.0%	40	25.0%
2- BKB	5	7.4%	2	11.1%	8	23.5%	12	60.0%	12	60.0%	39	24.4%
3- Relatives	21	30.9%	3	16.7%	7	20.6%	3	15.0%	0	0.0%	34	21.3%
4- Grameen Bank	10	14.7%	3	16.7%	3	8.8%	1	5.0%	0	0.0%	17	10.6%
5- Others	4	5.9%	2	11.1%	4	11.8%	1	5.0%	2	10.0%	13	8.1%
6- NCBs	6	8.8%	1	5.6%	4	11.8%	1	5.0%	1	5.0%	13	8.1%
7- BRDB	1	1.5%	0	0.0%	0	0.0%	0	0.0%	1	5.0%	2	1.3%
8- Cooperative	1	1.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.6%
9- NGOs	0	0.0%	0	0.0%	0	0.0%	1	5.0%	0	0.0%	1	0.6%
10- Private Bank	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	68	100.0%	18	100.0%	34	100.0%	20	100.0%	20	100.0%	160	100.0%

Table 6.C.33 : Distribution of averages of credit sought, repaid and outstanding by land status

(In Takas)

Land Status	Sample HH	Credit situation			
		Begin	Taken	Repaid	Total Due
Landless	225	654	435	202	887
Marginal	63	759	681	333	1,106
Small	105	1,096	1,638	334	2,400
Medium	45	5,573	3,433	1,211	7,796
Large	44	12,625	6,341	1,523	17,443
Total	482	2,316	1,548	463	3,402

Appendix - D

APPENDIX D

SOCIAL IMPACT ASSESSMENT TABLES

Table 6.D.1 : Basic Data for Computation of Household Income

[WO] - SITUATION

Basic Parameters	LL	MA	SF	MF	LF	All
No of Households	61,747	17,378	29,333	12,571	2,218	123,247
% of Households	50.1%	14.1%	23.8%	10.2%	1.8%	100.0%
No of Farming HH	15,868	14,447	28,036	11,454	2,066	71,871
Distribution	22.1%	20.1%	39.0%	15.9%	2.9%	100.0%
No in Services	1,371	542	1,963	3,853	919	8,647
Distribution	15.9%	6.3%	22.7%	44.6%	10.6%	100.0%
No in Agri. Daily Labor	64,419	12,455	7,010	642	0	84,527
Distribution	76.2%	14.7%	8.3%	0.8%	0.0%	100.0%
No in Non-Agri. Daily Labor	13,432	2,437	1,963	0	0	17,832
Distribution	75.3%	13.7%	11.0%	0.0%	0.0%	100.0%
No in Transport	1,371	542	280	0	0	2,193
Distribution	62.5%	24.7%	12.8%	0.0%	0.0%	100.0%
No in Others	13,432	2,708	2,524	1,605	162	20,431
Distribution	65.7%	13.3%	12.4%	7.9%	0.8%	100.0%
Own Land	0.000	0.123	0.532	1.994	4.403	0.677
Taken In-Out	0.238	0.171	0.031	-0.211	-1.187	
Mean Operated Land	0.238	0.294	0.564	1.783	3.217	0.708
Share of Own Farm Labor	86.6%	87.3%	46.8%	19.8%	19.6%	47.4%
Distrib. Agri-Labor Income	79.2%	13.3%	6.5%	1.0%	0.0%	100.0%
Distrib Non Agri-Labor Income	64.6%	18.1%	17.3%	0.0%	0.0%	100.0%

Total Cropped Area (Ha)	8,145	8,982	33,071	39,002	11,129	100,329
Distribution %	8.1%	9.0%	33.0%	38.9%	11.1%	100.0%
Annual Incremental Value (M Tk)	[WO]					
Agriculture Labor	2.2					
Non-Agriculture Labor	0.0					
Fisheries Production Value						
% increase after 30 Years	-13.1%					

Table 6.D.2 : Cropping Patterns, Gross Value, Total Cost and Net Margin (from Agriculture Section)

[WO] - SITUATION

Crops	Cropping Patterns	Gross Value (Tk/Ha)	Total Cost (Tk/Ha)	Including Farm Labor	Net Margin (Tk/Ha)
Wheat	4,024	14,144	11,843	4,500	2,301
Pulses	4,919	12,682	5,676	3,000	7,006
Mustard	1,820	10,773	6,923	3,000	3,850
Potato	823	36,640	30,254	12,000	6,386
Egg Plant	275	10,000	7,478	4,000	2,522
Chillies	2,460	15,000	11,226	6,000	3,774
Onion	2,044	31,675	22,331	12,500	9,344
HYV Boro	23,351	28,969	21,275	9,000	7,694
Local Boro	2,769	17,905	12,651	7,500	5,254
Sugarcane	2,070	42,750	27,189	12,500	15,561
Millet	728	6,400	3,954	2,500	2,446
Groundnut	319	13,000	10,342	5,000	2,658
Sweet potato	319	19,500	6,465	3,800	13,035
Local Aus	8,463	8,999	7,558	4,000	1,441
HYV Aus	1,493	20,367	13,372	8,000	6,995
Jute	7,631	20,123	15,623	10,000	4,500
B. Aman	0	10,390	9,091	5,000	1,299
Local Aman	9,318	15,581	11,875	7,800	3,706
HYV Aman	21,743	25,457	14,466	8,500	10,991
DW Water	3,616	12,475	8,900	5,500	3,575
Aus-Aman	2,143	12,134	8,383	5,500	3,751
TOTAL	100,329				

Table 6.D.3 : Total Cropped Area in the Project Area (Crop wise)

[WO] - SITUATION

Crops	LL	MA	SF	MF	LF	Total
Wheat	327	360	1,326	1,564	446	4,024
Pulses	399	440	1,621	1,912	546	4,919
Mustard	148	163	600	708	202	1,820
Potato	67	74	271	320	91	823
Egg Plant	22	25	91	107	31	275
Chillies	200	220	811	956	273	2,460
Onion	166	183	674	795	227	2,044
HYV Boro	1,896	2,091	7,697	9,078	2,590	23,351
Local Boro	225	248	913	1,076	307	2,769
Sugarcane	168	185	682	805	230	2,070
Millet	59	65	240	283	81	728
Groundnut	26	29	105	124	35	319
Sweet potato	26	29	105	124	35	319
Local Aus	687	758	2,790	3,290	939	8,463
HYV Aus	121	134	492	580	166	1,493
Jute	620	683	2,515	2,966	846	7,631
B.Aman	0	0	0	0	0	0
Local Aman	756	834	3,071	3,622	1,034	9,318
HYV Aman	1,765	1,947	7,167	8,453	2,412	21,743
DW Water	294	324	1,192	1,406	401	3,616
Aus-Aman	174	192	706	833	238	2,143
Total Cropped Area (Ha)	8,145	8,982	33,071	39,002	11,129	100,329
Distribution %	8.1%	9.0%	33.0%	38.9%	11.1%	100.0%

Table 6.D.4 : Mean Cropped Area per Household, Crop Wise

[WO] - SITUATION

(in Ha/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	0.021	0.025	0.047	0.137	0.216	0.056
Pulses	0.025	0.030	0.058	0.167	0.264	0.068
Mustard	0.009	0.011	0.021	0.062	0.098	0.025
Potato	0.004	0.005	0.010	0.028	0.044	0.011
Egg Plant	0.001	0.002	0.003	0.009	0.015	0.004
Chillies	0.013	0.015	0.029	0.083	0.132	0.034
Onion	0.010	0.013	0.024	0.069	0.110	0.028
HYV Boro	0.119	0.145	0.275	0.793	1.254	0.325
Local Boro	0.014	0.017	0.033	0.094	0.149	0.039
Sugarcane	0.011	0.013	0.024	0.070	0.111	0.029
Millet	0.004	0.005	0.009	0.025	0.039	0.010
Groundnut	0.002	0.002	0.004	0.011	0.017	0.004
Sweet potato	0.002	0.002	0.004	0.011	0.017	0.004
Local Aus	0.043	0.052	0.100	0.287	0.454	0.118
HYV Aus	0.008	0.009	0.018	0.051	0.080	0.021
Jute	0.039	0.047	0.090	0.259	0.410	0.106
B.Aman	0.000	0.000	0.000	0.000	0.000	0.000
Local Aman	0.048	0.058	0.110	0.316	0.500	0.130
HYV Aman	0.111	0.135	0.256	0.738	1.167	0.303
DW Water	0.019	0.022	0.043	0.123	0.194	0.050
Aus-Aman	0.011	0.013	0.025	0.073	0.115	0.030
Mean Cropped Area	0.513	0.622	1.180	3.405	5.387	1.396

Table 6.D.5 : Mean Gross Value per Household Crop wise

[WO] - SITUATION

Crops	LL	MA	SF	MF	LF	Average
Wheat	291	353	669	1,932	3,056	792
Pulses	319	387	733	2,117	3,349	868
Mustard	100	122	231	665	1,053	273
Potato	154	187	355	1,023	1,619	420
Egg Plant	14	17	32	93	148	38
Chillies	189	229	434	1,252	1,981	513
Onion	331	401	761	2,197	3,476	901
HYV Boro	3,461	4,192	7,953	22,959	36,318	9,412
Local Boro	254	307	583	1,683	2,662	690
Sugarcane	453	548	1,040	3,003	4,751	1,231
Millet	24	29	55	158	250	65
Groundnut	21	26	49	141	223	58
Sweet potato	32	39	73	211	334	87
Local Aus	390	472	895	2,585	4,089	1,060
HYV Aus	156	188	358	1,032	1,633	423
Jute	786	952	1,805	5,212	8,244	2,137
B. Aman	0	0	0	0	0	0
Local Aman	743	900	1,707	4,928	7,795	2,020
HYV Aman	2,832	3,430	6,508	18,786	29,718	7,702
DW Water	231	280	530	1,531	2,422	628
Aus-Aman	133	161	306	883	1,396	362
TOTAL	10,913	13,218	25,078	72,393	114,516	29,678

Table 6.D.6 : Mean Gross Margin per Household Crop wise

[WO] - SITUATION

(Tk/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	47	57	109	314	497	129
Pulses	176	214	405	1,170	1,850	480
Mustard	36	43	82	238	376	97
Potato	27	33	62	178	282	73
Egg Plant	4	4	8	24	37	10
Chillies	47	58	109	315	498	129
Onion	98	118	225	648	1,025	266
HYV Boro	919	1,113	2,112	6,098	9,646	2,500
Local Boro	74	90	171	494	781	202
Sugarcane	165	200	379	1,093	1,729	448
Millet	9	11	21	60	96	25
Groundnut	4	5	10	29	46	12
Sweet potato	21	26	49	141	223	58
Local Aus	62	76	143	414	655	170
HYV Aus	53	65	123	354	561	145
Jute	176	213	404	1,165	1,844	478
B.Aman	0	0	0	0	0	0
Local Aman	177	214	406	1,172	1,854	481
HYV Aman	1,223	1,481	2,810	8,111	12,830	3,325
DW Water	66	80	152	439	694	180
Aus-Aman	41	50	95	273	432	112
TOTAL	3,426	4,150	7,874	22,731	35,957	9,318

9318.430

Table 6.D.7 : Mean Imputed Own Labor Cost per Household, crop Wise

[WO] - SITUATION

Crops	LL	MA	SF	MF	LF	Average
Wheat	80	98	100	121	190	119
Pulses	65	80	81	99	155	97
Mustard	24	30	30	37	57	36
Potato	44	53	54	66	104	65
Egg Plant	5	6	6	7	12	7
Chillies	65	80	81	99	155	97
Onion	113	138	141	171	268	168
HYV Boro	931	1,137	1,156	1,410	2,207	1,385
Local Boro	92	112	114	139	218	137
Sugarcane	115	140	142	174	272	170
Millet	8	10	10	12	19	12
Groundnut	7	9	9	11	17	11
Sweet potato	5	7	7	8	13	8
Local Aus	150	183	186	227	356	223
HYV Aus	53	65	66	80	125	79
Jute	338	413	420	512	801	503
B.Aman	0	0	0	0	0	0
Local Aman	322	393	400	488	763	479
HYV Aman	819	1,000	1,016	1,240	1,941	1,218
DW Water	88	108	109	133	209	131
Aus-Aman	52	64	65	79	124	78
TOTAL	3,376	4,124	4,193	5,114	8,006	5,023

Table 6.D.8 : Mean Annual Farming Income by Land Status

[WO] - SITUATION

Annual HH Farming Income	LL	MA	SF	MF	LF	Average
Mean Operated Land	0.24	0.29	0.56	1.78	3.22	0.71
Mean Cropped Area	0.51	0.62	1.18	3.41	5.39	1.40
Cropping Intensity	2.16	2.11	2.09	1.91	1.67	1.97
Gross Value	10,913	13,218	25,078	72,393	114,516	29,678
Total Production Cost	7,486	9,068	17,203	49,662	78,559	20,359
Net Margin	3,426	4,150	7,874	22,731	35,957	9,318
-/+ Land Rental	(2,730)	(1,924)	(347)	2,344	13,211	0
+ Own Labor	3,376	4,124	4,193	5,114	8,006	5,023
Mean Farming Income (Farm HH)	4,072	6,350	11,720	30,188	57,174	14,342
Mean farming Income (All HH)	1,047	5,279	11,202	27,505	53,245	8,363
Mean Farming Income (Reference)	1,043	5,259	11,152	27,370	52,979	8,326
% Increase	0.3%	0.4%	0.4%	0.5%	0.5%	0.5%

Table 6.D.9 : Mean Annual Agriculture Labor Income by Land Status

Annual Incremental Value of Agriculture Labor 2.2 Million Tk
Share of Own Farm Labor 47.4%
Annual Incremental Value of Agriculture Labor (Hired) 1.1 Million Tk
[WO] - SITUATION

Annual HH Agri-Labor Income	LL	MA	SF	MF	LF	Average
Distribution Agri-Labor Income	79.2%	13.3%	6.5%	1.0%	0.0%	100.0%
Total Icremental Icome (M Tk)	0.8	0.1	0.1	0.0	0.0	1.1
Mean Increm Income / HH (Tk)	14	8	2	1		9
Mean Income / HH (Reference)	7,086	4,219	1,227	455		4,484
Mean Income / HH	7,100	4,227	1,229	456		4,492
Percentage of Increase (%)	0.2%	0.2%	0.2%	0.2%		0.2%

Table 6.D.10 : Mean Annual Non-Agriculture Labor Income by Land Status

Annual Incremental Value of Non-Agriculture Labor (Hired) 0.0 Million Tk
[WO] - SITUATION

Annual HH Non Agri-Labor Income	LL	MA	SF	MF	LF	Average
Distrib Non Agri-Labor Income	64.6%	18.1%	17.3%	0.0%	0.0%	100.0%
Total Icremental Icome (M Tk)	0.0	0.0	0.0	0.0	0.0	0.0
Mean Increm Income / HH (Tk)	0	0	0			0
Mean Income / HH (Reference)	834	1,040	537			677
Mean Income / HH	834	1,040	537			677
Percentage of Increase (%)	0.0%	0.0%	0.0%			0.0%

Table 6.D.11 : Mean Annual Household Income by Occupational Status (sources wise)

[WO] SITUATION (in Tk/HH)

Sources of Income	Agri Day Labor	Non-Agri Day Labor	Farming	Professiona Fishermen	Women Headed
Farming	888	405	14,342	4,276	3,562
%	6.3%	2.8%	59.7%	28.0%	34.9%
Fishing	335	56	494	9,427	4
%	2.4%	0.4%	2.1%	61.8%	0.0%
Agriculture Labor	7,791	124	1,732	689	144
%	55.5%	0.9%	7.2%	4.5%	1.4%
Non-Agriculture Labor	1,232	13,810	735	250	503
%	8.8%	95.3%	3.1%	1.6%	4.9%
Other	3,793	91	6,711	611	5,992
%	27.0%	0.6%	27.9%	4.0%	58.7%
Average Household Income	14,040	14,486	24,012	15,253	10,205
%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.D.12 : Mean Annual Household Income from Labor/Employment Sources By Land Strata

[WO] SITUATION

CASH INCOME ACTIVITIES	LL		MA		SF		MF		LF		ALL	
- Services	284	3.1%	498	7.2%	1,270	35.5%	7,192	87.4%	9,545	79.7%	1,172	16.4%
- Agri. Daily Labor	7,100	78.7%	4,227	61.0%	1,229	34.3%	456	5.5%	0	0.0%	4,492	63.0%
- Non-Agri. Daily Labor	834	9.2%	1,040	15.0%	537	15.0%	0	0.0%	0	0.0%	677	9.5%
- Transport	207	2.3%	291	4.2%	89	2.5%	0	0.0%	0	0.0%	166	2.3%
- Others	597	6.6%	870	12.6%	453	12.6%	578	7.0%	2,429	20.3%	618	8.7%
Household Income from CIA	9,023	100.0%	6,927	100.0%	3,578	100.0%	8,226	100.0%	11,974	100.0%	7,125	100.0%

Table 6.D.13 : Basic Data for Computation of Household Income

[B] - SITUATION

Basic Parameters	LL	MA	MF	SF	LF	All
No of Households	61,747	17,378	29,333	12,571	2,218	123,247
% of Households	50.1%	14.1%	23.8%	10.2%	1.8%	100.0%
No of Farming HH	15,868	14,447	28,036	11,454	2,066	71,871
Distribution	22.1%	20.1%	39.0%	15.9%	2.9%	100.0%
No in Services	1,371	542	1,963	3,853	919	8,647
Distribution	15.9%	6.3%	22.7%	44.6%	10.6%	100.0%
No in Agri. Daily Labor	64,419	12,455	7,010	642	0	84,527
Distribution	76.2%	14.7%	8.3%	0.8%	0.0%	100.0%
No in Non-Agri. Daily Labor	13,432	2,437	1,963	0	0	17,832
Distribution	75.3%	13.7%	11.0%	0.0%	0.0%	100.0%
No in Transport	1,371	542	280	0	0	2,193
Distribution	62.5%	24.7%	12.8%	0.0%	0.0%	100.0%
No in Others	13,432	2,708	2,524	1,605	162	20,431
Distribution	65.7%	13.3%	12.4%	7.9%	0.8%	100.0%
Own Land	0.000	0.123	0.532	1.994	4.403	0.677
Taken In-Out	0.238	0.171	0.031	-0.211	-1.187	
Mean Operated Land	0.238	0.294	0.564	1.783	3.217	0.708
Share of Own Farm Labor	86.6%	87.3%	46.8%	19.8%	19.6%	47.4%
Distrib. Agri-Labor Income	79.2%	13.3%	6.5%	1.0%	0.0%	100.0%
Distrib Non Agri-Labor Income	64.6%	18.1%	17.3%	0.0%	0.0%	100.0%

Total Cropped Area (Ha)	8,654	9,543	35,135	41,437	11,823	106,592
Distribution %	8.1%	9.0%	33.0%	38.9%	11.1%	100.0%
Annual Incremental Value (M Tk)	[B]					
Agriculture Labor	71.0					
Non-Agriculture Labor	15.0					
Fisheries Production Value						
% increase after 30 Years	15.5%					

Table 6.D.14 : Cropping Patterns, Gross Value, Total Cost and Net Margin (from Agriculture Section)

[B] - SITUATION

Crops	Cropping Patterns	Gross Value (Tk/Ha)	Total Cost (Tk/Ha)	Including Farm Labor	Net Margin (Tk/Ha)
Wheat	4,008	14,144	11,843	4,500	2,301
Pulses	3,889	12,682	5,676	3,000	7,006
Mustard	1,804	10,773	6,923	3,000	3,850
Potato	823	36,640	30,254	12,000	6,386
Egg Plant	499	10,000	7,478	4,000	2,522
Chillies	4,353	15,000	11,226	6,000	3,774
Onion	2,800	31,675	22,331	12,500	9,344
HYV Boro	25,932	30,528	21,275	9,000	9,253
Local Boro	504	17,905	12,651	7,500	5,254
Sugarcane	2,070	42,750	27,189	12,500	15,561
Millet	728	6,400	3,954	2,500	2,446
Groundnut	319	13,000	10,342	5,000	2,658
Sweet potato	319	19,500	6,465	3,800	13,035
Local Aus	9,044	8,999	7,558	4,000	1,441
HYV Aus	1,596	20,367	13,372	8,000	6,995
Jute	8,244	20,123	15,623	10,000	4,500
B. Aman	0	10,390	9,091	5,000	1,299
Local Aman	11,377	16,254	11,875	7,800	4,379
HYV Aman	26,545	26,556	14,466	8,500	12,090
DW Water	1,091	12,507	8,900	5,500	3,607
Aus-Aman	647	12,943	8,383	5,500	4,560
TOTAL	106,592				

Table 6.D.15 : Total Cropped Area in the Project Area (Crop wise)

[B] - SITUATION

(in Ha)

Crops	LL	MA	SF	MF	LF	Total
Wheat	325	359	1,321	1,558	445	4,008
Pulses	316	348	1,282	1,512	431	3,889
Mustard	146	162	595	701	200	1,804
Potato	67	74	271	320	91	823
Egg Plant	41	45	164	194	55	499
Chillies	353	390	1,435	1,692	483	4,353
Onion	227	251	923	1,088	311	2,800
HYV Boro	2,105	2,322	8,548	10,081	2,876	25,932
Local Boro	41	45	166	196	56	504
Sugarcane	168	185	682	805	230	2,070
Millet	59	65	240	283	81	728
Groundnut	26	29	105	124	35	319
Sweet potato	26	29	105	124	35	319
Local Aus	734	810	2,981	3,516	1,003	9,044
HYV Aus	130	143	526	620	177	1,596
Jute	669	738	2,717	3,205	914	8,244
B.Aman	0	0	0	0	0	0
Local Aman	924	1,019	3,750	4,423	1,262	11,377
HYV Aman	2,155	2,377	8,750	10,319	2,944	26,545
DW Water	89	98	360	424	121	1,091
Aus-Aman	53	58	213	252	72	647
Total Cropped Area (Ha)	8,654	9,543	35,135	41,437	11,823	106,592
Distribution %	8.1%	9.0%	33.0%	38.9%	11.1%	100.0%

Table 6.D.16 : Mean Cropped Area per Household, crop wise

[B] - SITUATION

(in Ha/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	0.021	0.025	0.047	0.136	0.215	0.056
Pulses	0.020	0.024	0.046	0.132	0.209	0.054
Mustard	0.009	0.011	0.021	0.061	0.097	0.025
Potato	0.004	0.005	0.010	0.028	0.044	0.011
Egg Plant	0.003	0.003	0.006	0.017	0.027	0.007
Chillies	0.022	0.027	0.051	0.148	0.234	0.061
Onion	0.014	0.017	0.033	0.095	0.150	0.039
HYV Boro	0.133	0.161	0.305	0.880	1.392	0.361
Local Boro	0.003	0.003	0.006	0.017	0.027	0.007
Sugarcane	0.011	0.013	0.024	0.070	0.111	0.029
Millet	0.004	0.005	0.009	0.025	0.039	0.010
Groundnut	0.002	0.002	0.004	0.011	0.017	0.004
Sweet potato	0.002	0.002	0.004	0.011	0.017	0.004
Local Aus	0.046	0.056	0.106	0.307	0.486	0.126
HYV Aus	0.008	0.010	0.019	0.054	0.086	0.022
Jute	0.042	0.051	0.097	0.280	0.443	0.115
B.Aman	0.000	0.000	0.000	0.000	0.000	0.000
Local Aman	0.058	0.071	0.134	0.386	0.611	0.158
HYV Aman	0.136	0.164	0.312	0.901	1.425	0.369
DW Water	0.006	0.007	0.013	0.037	0.059	0.015
Aus-Aman	0.003	0.004	0.008	0.022	0.035	0.009
Mean Cropped Area	0.545	0.661	1.253	3.618	5.723	1.483

Table 6.D.17 : Mean Gross Value per Household Crop wise

[B] - SITUATION

(in Tk/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	290	351	667	1,924	3,044	789
Pulses	252	306	580	1,674	2,648	686
Mustard	99	120	228	660	1,043	270
Potato	154	187	355	1,023	1,619	420
Egg Plant	26	31	59	169	268	69
Chillies	334	405	768	2,216	3,506	909
Onion	454	550	1,043	3,010	4,762	1,234
HYV Boro	4,050	4,906	9,308	26,869	42,503	11,015
Local Boro	46	56	106	306	484	126
Sugarcane	453	548	1,040	3,003	4,751	1,231
Millet	24	29	55	158	250	65
Groundnut	21	26	49	141	223	58
Sweet potato	32	39	73	211	334	87
Local Aus	416	504	957	2,762	4,370	1,132
HYV Aus	166	201	382	1,103	1,745	452
Jute	849	1,028	1,950	5,630	8,907	2,308
B. Aman	0	0	0	0	0	0
Local Aman	946	1,146	2,174	6,276	9,928	2,573
HYV Aman	3,607	4,368	8,288	23,925	37,847	9,808
DW Water	70	85	160	463	733	190
Aus-Aman	43	52	98	284	450	117
TOTAL	12,332	14,937	28,340	81,811	129,414	33,538

Table 6.D.18 : Mean Gross Margin per Household Crop wise

[B] - SITUATION

(Tk/HH)

Crops	LL	MA	SF	MF	LF	Average
Wheat	47	57	108	313	495	128
Pulses	139	169	320	925	1,463	379
Mustard	36	43	82	236	373	97
Potato	27	33	62	178	282	73
Egg Plant	6	8	15	43	68	18
Chillies	84	102	193	558	882	229
Onion	134	162	308	888	1,405	364
HYV Boro	1,228	1,487	2,821	8,144	12,883	3,339
Local Boro	14	16	31	90	142	37
Sugarcane	165	200	379	1,093	1,729	448
Millet	9	11	21	60	96	25
Groundnut	4	5	10	29	46	12
Sweet potato	21	26	49	141	223	58
Local Aus	67	81	153	442	700	181
HYV Aus	57	69	131	379	599	155
Jute	190	230	436	1,259	1,992	516
B.Aman	0	0	0	0	0	0
Local Aman	255	309	586	1,691	2,675	693
HYV Aman	1,642	1,989	3,773	10,892	17,230	4,465
DW Water	20	24	46	134	211	55
Aus-Aman	15	18	35	100	158	41
TOTAL	4,160	5,038	9,559	27,595	43,652	11,313

Table 6.D.19 : Mean Imputed Own Labor Cost per Household, crop Wise

[B] - SITUATION

Crops	LL	MA	SF	MF	LF	Average
Wheat	80	98	99	121	189	119
Pulses	52	63	64	78	123	77
Mustard	24	29	30	36	57	36
Potato	44	53	54	66	104	65
Egg Plant	9	11	11	13	21	13
Chillies	116	141	144	175	274	172
Onion	155	189	193	235	368	231
HYV Boro	1,034	1,263	1,284	1,566	2,451	1,538
Local Boro	17	20	21	25	40	25
Sugarcane	115	140	142	174	272	170
Millet	8	10	10	12	19	12
Groundnut	7	9	9	11	17	11
Sweet potato	5	7	7	8	13	8
Local Aus	160	196	199	243	380	238
HYV Aus	57	69	70	86	134	84
Jute	365	446	453	553	866	543
B.Aman	0	0	0	0	0	0
Local Aman	393	480	488	595	932	585
HYV Aman	999	1,221	1,241	1,514	2,370	1,487
DW Water	27	32	33	40	63	40
Aus-Aman	16	19	20	24	37	23
TOTAL	3,681	4,496	4,571	5,575	8,728	5,476

Table 6.D.20 : Mean Annual Farming Income by Land Status

[B] - SITUATION

(in Tk/HH)

Annual HH Farming Income	LL	MA	SF	MF	LF	Average
Mean Operated Land	0.24	0.29	0.56	1.78	3.22	0.71
Mean Cropped Area	0.55	0.66	1.25	3.62	5.72	1.48
Cropping Intensity	2.29	2.25	2.22	2.03	1.78	2.09
Gross Value	12,332	14,937	28,340	81,811	129,414	33,538
Total Production Cost	8,173	9,899	18,781	54,216	85,762	22,226
Net Margin	4,160	5,038	9,559	27,595	43,652	11,313
-/+ Land Rental	(3,315)	(2,336)	(421)	2,846	16,039	0
+ Own Labor	3,681	4,496	4,571	5,575	8,728	5,476
Mean Farming Income (Farm HH)	4,526	7,199	13,709	36,016	68,418	16,789
Mean farming Income (All HH)	1,163	5,985	13,103	32,814	63,717	9,790
Mean Farming Income (Reference)	1,043	5,259	11,152	27,370	52,979	8,326
% Increase	11.5%	13.8%	17.5%	19.9%	20.3%	17.6%

Table 6.D.21 : Mean Annual Agriculture Labor Income by Land Status

Annual Incremental Value of Agriculture Labor 71.0 Million Tk
Share of Own Farm Labor 47.4%
Annual Incremental Value of Agriculture Labor (Hired) 33.6 Million Tk
[B] - SITUATION

Annual HH Agri-Labor Income	LL	MA	SF	MF	LF	Average
Distribution Agri-Labor Income	79.2%	13.3%	6.5%	1.0%	0.0%	100.0%
Total Icremental Icome (M Tk)	26.6	4.5	2.2	0.3	0.0	33.6
Mean Increm Income / HH (Tk)	431	257	75	28		273
Mean Income / HH (Reference)	7,086	4,219	1,227	455		4,484
Mean Income / HH	7,518	4,476	1,301	483		4,756
Percentage of Increase (%)	6.1%	6.1%	6.1%	6.1%		6.1%

Table 6.D.22 : Mean Annual Non-Agriculture Labor Income by Land Status

Annual Incremental Value of Non-Agriculture Labor (Hired) 15.0 Million Tk
[B] - SITUATION

Annual HH Non Agri-Labor Income	LL	MA	SF	MF	LF	Average
Distrib Non Agri-Labor Income	64.6%	18.1%	17.3%	0.0%	0.0%	100.0%
Total Icremental Icome (M Tk)	9.7	2.7	2.6	0.0	0.0	15.0
Mean Increm Income / HH (Tk)	150	187	97			122
Mean Income / HH (Reference)	834	1,040	537			677
Mean Income / HH	985	1,228	634			798
Percentage of Increase (%)	18.0%	18.0%	18.0%			18.0%

Table 6.D.23 : Mean Annual Household Income by Occupational Status (sources wise)

[B] SITUATION (in Tk/HH)

Sources of Income	Agri Day Labor	Non-Agri Day Labor	Farming	Professiona Fishermen	Women Headed
Farming	1,040	474	16,789	5,006	4,170
%	6.9%	2.8%	62.5%	26.1%	38.2%
Fishing	446	74	656	12,529	6
%	3.0%	0.4%	2.4%	65.4%	0.1%
Agriculture Labor	8,250	132	1,833	730	153
%	55.1%	0.8%	6.8%	3.8%	1.4%
Non-Agriculture Labor	1,454	16,294	867	295	593
%	9.7%	95.5%	3.2%	1.5%	5.4%
Other	3,793	91	6,711	611	5,992
%	25.3%	0.5%	25.0%	3.2%	54.9%
Average Household Income	14,982	17,064	26,856	19,171	10,913
%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6.D.24 : Mean Annual Household Income from Labor/Employment Sources By Land Strata

[B] SITUATION

CASH INCOME ACTIVITIES	LL		MA		SF		MF		LF		ALL	
- Services	284	3.0%	498	6.8%	1,270	33.9%	7,192	87.1%	9,545	79.7%	1,172	15.6%
- Agri. Daily Labor	7,518	78.4%	4,476	60.8%	1,301	34.7%	483	5.8%	0	0.0%	4,756	63.3%
- Non-Agri. Daily Labor	985	10.3%	1,228	16.7%	634	16.9%	0	0.0%	0	0.0%	798	10.6%
- Transport	207	2.2%	291	4.0%	89	2.4%	0	0.0%	0	0.0%	166	2.2%
- Others	597	6.2%	870	11.8%	453	12.1%	578	7.0%	2,429	20.3%	618	8.2%
Household Income from CIA	9,591	100.0%	7,363	100.0%	3,747	100.0%	8,253	100.0%	11,974	100.0%	7,511	100.0%

Table 6.D.25 NGO summarised views

NGO's Name	NGO's involvement in the project area.															AVG/
	TDH	SCF	BRAC	GB	CDL	SCI	AA	US	SOSIKA	SUS	SPS	PSKS	PMKS	SB	P4S	TOTAL
- Programmes																
Family planning			X											X		2
Water sanitation					X		X	X	X			X			X	6
Literacy		X	X			X		X	X	X		X	X	X	X	10
Skill development			X					X		X	X	X				5
Group formation	X		X	X	X	X	X	X	X	X	X	X	X	X	X	14
Awarness training		X						X	X			X				4
Income Generation Activities			X	X				X	X	X	X	X	X	X		9
Handicraft			X					X								2
Credit				X				X		X		X				4
Fishery	X	X	X					X								4
- Membership enrollement																
1989 male	320	50	-	-				9430	820	3833	150	-		2400	[illegible]	17083
Female	1190	50	-	-				8950	105	3497	150	-	250		[illegible]	14242
1991 male	0	200	500	1260	0	2480	200	9600	850	3875	2650	3345	0	3600	[illegible]	28660
female	2000	100	4000	12740	135	355	450	10600	1300	4170	3950	340	350	0	[illegible]	40550
Total: (1991)	2000	300	4500	14000	135	2835	650	20400	2150	8045	6600	3685	350	3600	[illegible]	69410
- Area coverage																
No of Unions	8	4	14	14	12	9	2		8	10	31	7	1	8	[illegible]	9
No of Villages	30	6	NA	NA	-	140	-		40	93	81	34	4	67	[illegible]	37
- Group Member income trend(Tk/day)																
Male 1989	25	20	20			25				15	15			20	[illegible]	23
1991	30	25	25	80		30			25	20	20	15		20	[illegible]	31
Female 1989	15	10	10			15				8	10		10	10	[illegible]	12
1991	20	12	12	70		10			25	10	20	5	15	10	[illegible]	20
- Percentage of GM trained																
Awareness	90	50	90	100		100		100	100		80	50	25	60		
Education	15	10	20	100	80	100		55	50			50	60		[illegible]	
Health	20	50	25	90		60		30	50			10				
Technical						50		30	5			10	70			
Others																
- Female member participation %																
farm production	2.5	5	5	95		50							20			
non-farm production	5	10	-			10							20			
marketing			15	90									20			
processing goods	10		15	10							25		25			
- No of group members											10					
victim of erosion	25	70	10	2		90	68		8		28	25			[illegible]	336
involved in fishing activities	5	10	15	5		5	10		2		30	5			[illegible]	157
- Access to charland																
No official right	1	1	1	1	1		1	1	1			1	1			10
Fear of charland people	1	1	1	1		1	1				1	1				8
High cost of charland																0
Others								1			1					2
Charland dispute Y/N?	NO	NO	NO	NO	NO	NO	NO	Y	NO	NO	Y	NO	NO	Y		
- Ability of group for																
Water management	NO	NO	Y	NO	NO	Y	NO	Y			NO					
Road/embankment Maint.	NO	NO	Y	Y	NO	Y	Y	Y	Y		NO			Y		
- impact of controlled flood measures																
Agriculture	XXX	XXX	XX	X	X	O	X	X	X	XX	XX	XX	X	X	XX	
Fisheries	X	X	X	XX	X	O	O	O	O	X	O	X				
- Development priorities																
Embankment	1	1	1	1	1		1	2	3			1	1			1
Drainage		3				2	2	1	2						[illegible]	2
Irrigation	2	2	2	2	2	1						2	2		[illegible]	2
Flood proofing/others						3		3	1							2
- Option choice A					x	X	x	x		X					x	25%
- Option choice B	X	X	X	X	X		X	X	X		X	X	X	X	X	85%
- Implementation of option B																
% people worse off	5	0	10	10	5	20	5	10	5	15	10	5	15	5	[illegible]	8
% people no change	10	10	5	5	20	40	15	30	15	50	5	5	10	5	[illegible]	15
% people better off	85	90	85	85	75	40	80	60	80	35	85	90	75	90	[illegible]	77
- Combined programme with GO	NO	NO	NO	NO	NO	NO	NO	NO	Y	NO	NO	Y	Y	Y	NO	
- Help from GOB or SemiGOB (Y/N)	Y	NO	NO	NO	Y	NO	NO	NO	NO	NO	NO	Y	Y	Y	NO	
- Programme activity expansion (Y/N)	Y	Y	Y	Y	NO	Y	Y	Y	Y		Y	No	Y	Y		

Table 6.D.26 **Public representatives views**

UNION NAMES	NOAPARA	SAPDHAR	CHUKAIBARI	BALIJURI	JHORKALI	SATPOA	ADABHITA	CPAKERDAHA	GOALERCHAR	GAIBANDHA	PATHERSI	CHINADULI	MAMUDPUR	KARAICHARA	GUNARITOLA	GHOSERPARA	BADURABAD	ISLAMPUR	DURMUT	KULIA	ADRA	PHULKOCHA	NAYANAGAR	BANIPUKUR	KENDUA	[illegible]	BHATARA	TOTAL AVG
- Level of flooding																												
Normal flood Ankle	5	7	20	10					5	5	20	20		10	20				20	10			60	10	30	[illegible]		15
% Knee	50	40		25	20		15	10	50	20		30		50	30				30	30			20	20	25	[illegible]		27
Waist	40	50	40	40	25		35	25	25	40	30	30		20	40		50		30	40			10	40	30	50		33
Breast	5	3	10	15	30		30	15	10	20	50	10		20	5		50		20	20			10	20	10	25		19
Sink			10	10	25		20	50	10	15		10			5									10	10	25		16
1988 flood A								5		-	-	-		-					10							[illegible]	20	4
% K	60		8	10				30		25	15	5		10			50			10			60	10	25	11	20	23
W	35		42	40	50		50	15	50	20	35	20		60	10		50		20	20			20	30	30	25	30	26
B	5		35	20	20		30	50	25	25	40	40		10	40				50	40			10	30	30	25	20	27
S			25	30	30		20		25	40	10	35		20	50				10	30			10	30	25	40	10	28
1987 flood A	10	10	10	10						5	10	20			10				20	10			60	10	30	15		15
% K	15	25	20	25	25		20	10	25	20	20	30			20		50		30	30			20	20	25	11		23
W	50	40	45	40	20		25	25	25	40	30	30			40		50		30	30			10	40	30	35		24
B		15	20	15	30		35	15	25	20	40	10			15				20	20			10	20	10	40		20
S		10	5	10	25		20	50	25	15		10			15					10				10	10	11		16
Land category FO	10	20	5	5	5	10		10	1	5	15	5			15		10	10	30	20	20	30	60	15	40	[illegible]	90	19
% F1	30	25	35	50	50	10	20	25	25	30	10	25			25		25	20	20	30	10	20	20	30	25	15	10	24
F2	40	20	25	30	20	50	40	35	50	40	30	40	NA	25	30	NA	25	25	50	20	60	25	10	50	30	11		30
F3	20	35	35	30	23	30	40	30	20	20	42	30		70	30		20	30		30	10	15	10	5	[illegible]	60		28
F4				5	2				4	5	3			5			20	10							2	11		7
Water logging problem Y/N	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y		Y	Y		N	Y	Y	Y	Y	Y	Y	N	*	*	N	80%
Embankment -good																												
condition: -to low	X	X	X	NA	NA	X	NA	NA	NA	NA	X	NA	NA	X	NA	NA	NA	X	NA	NA	NA	X	NA	NA	X	X	NA	
-partly eroded																												
-washed away																												
Year built	'90	'86	'78			'68	'68				'68			'82				'86				'75				[illegible]	NA	
No of breaches							3																					
Purpose served Y/N	N	N	N	NA	NA	N	N	NA	NA	NA	N	NA	NA	N	NA	NA	NA	N	NA	NA	NA		NA	NA	N	[illegible]		
Yes : Increase cropping																						Y						
Proposal for embankment																												
* New one close to river	-	-	X	X	X	X	X	-	X	X		X	X	X	NO		X	X	X	X	-	-		X	X		X	70%
* New one setback inland	X	X	-	-	-	-	-	-	-	-	NA	-	-	-		NA	-	-	-	-	X	X	NA	-		[illegible]	-	27%
* No embankment	-	-	-	-	-	-	-	-	-	-		-	-	-			-	-	-	-	-	-		-			-	
* Reconstruction existing	-	-	-	-	-	-	-	X	-	-		-	-	-			-	-	-	-	-	-		-	-		-	3%
Complain about embankment								NO		NO			NO					NO			NO	NO				NO		
* Locally no consultation	-	X	X				X												X									
* Land acquired not paid	X	-	-		NA	NA			NA			NA		X	NA	NA	NA						NA	NA	NA		NA	
* Loss of agri-land	-	-	-	X							X									X								
Settlement of displacees																												
* Relative house	X	X	X	X	X	X	X			X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	85%
* Shelter road side	X	X	X	X	X	-	X	NA	NA	-	NA	X	X	NA	X	X	X	X	X	X	X	X	X	X	X	X	X	77%
* Town for job	X	X	X	-	X	-	X			-		X	X		-	-	-	-	-	X	-	-	X	-			-	33%
* new charland	-	X	-	X	X	-	-			-		-	-		-	-	-	-	-	-	-	-	-	-			-	10%
Professional fishermen																												
* No HH capture	400	300	500	300	300	200	100	500	25	50		400	20		200	200	60	200	50	500	20	20	950	200	[illegible]	[illegible]	150	280
* No HH pisiculture								100			NA		40	NA		12			20	20			60	20	[illegible]		15	27
* Need of flood water Y/N	NO	NO	NO	NO	NO	NO	NO	NO	NO	Y		NO	NO		NO	NO	NO	NO		NO	NO	NO	Y	NO	NO	NO	NO	
Development institutions																												
* GO Number	1	1	1	2	1	1	1	2	3	NA	NA	1	2	NA	NA	1	2	1	1	2	1	1	2	1	-	-	1	1
* NGO Number	1	2	1	1	1	1	1	2				2				2	2	4	1	1	1	1			[illegible]	[illegible]	1	2
Flood damages																												
1974 -Crop loss(%)	25	60	90	70	50		95	100	100	100		-	100		100		100		60	50	100	60	100	50	[illegible]	[illegible]	50	78
-Loss of animal(No)	-	20	200	200	50		15	100	400	20		-	100		50	75	500		100	50	200	10	500	150	[illegible]		50	118
-Damage to embk.(Km)	-	-	-	-	-	NA	-			-	NA	-	2	NA	-	-	-	NA	-	-	-	-	-	-	-			0
-Houses destroyed(No)	-	-	200	500	100		20	400	700	100		-	200		100	100	800		500	200	200	40	500	150	[illegible]	[illegible]	50	216
-Road cuts(No)	-	-	100	200	500		200	50	500	200		-	500		100	200	500		100	200	50	30	300	200	[illegible]	-	200	180
1988 -Crop loss(%)	100	80	80	80	100		80	100	100	100		100	100		100	100	100		50	40	90	50	100	100	[illegible]	[illegible]	100	89
-Loss of animal(No)	50	40	100	200	100		10	100	500	30		25	50		10		600		50	100	150	30	300	200	[illegible]	[illegible]	100	132
-Damage to embk.(Km)	4	4	1	6	-	NA	-	150	-	-	NA	-	2	NA	1		-	NA	-	-	-	3	-	-	3	-	-	6
-Houses destroyed(No)	400	500	150	600	500		50	500	600	50		100	200		50	150	600		700	500	150	200	400	200	[illegible]	[illegible]	150	311
-Road cuts	60	50	50	100	100		150	50	600	400		100	600		50	150	600		200	300	50	100	200	150	[illegible]	-	100	183
Development priorities																												
- Embankment protection	1	2	1	1	1	1	1	2	3	-		1	1		1	1	1	1	1	2	1	1	1	1	[illegible]	-	1	1
- Khal rexcavation	2	1	-		4	3	-		2	-	NA	3		NA	2			3		-	2	2	-	-	-	[illegible]	-	1
- Irrigation scheme	3	3	2	2	2	2	2	1	1	1		2	2		3	2	2	2	2	1		3	2	2	[illegible]	[illegible]	2	2
- Flood proofing /Others					3	-																						2
Option choice A		x				x		x	x		x			x	x								x		x		x	10%
Option choice B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	100%
Implementation of B %																												
- Worse off	5	-			15		5	10	10	5					5	15	5		10	15	5	10		5	[illegible]	[illegible]	15	6
- No change	5	5			5		5	2	5	5			5		5	5	5		5	10	5	5	3	5	[illegible]	[illegible]	2	5
- Better off	90	95		100	80		90	88	85	90			95		90	80	90		85	75	95	85	97	90	[illegible]	[illegible]	83	89

Appendix - E

APPENDIX E

INSTITUTIONAL SETTINGS

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LIST OF TABLES

FIGURE

APPENDIX

E INSTITUTIONAL SETTINGS

The identification of the major institutions has enabled the generatation of data on the existing framework in which local participation in the development and mobilisation of local resources in the project area can take place.

E.1 Administrative Frame

E.1.1 District

The Jamalpur District is relatively new and when past information is required, it is often necessary to refer to the previous greater District Mymensingh.

The district is chaired by the District Commissioner (DC), a civil servant officer who is the direct representative of the central administration. He is assisted by a Deputy Commissioner in charge of the district administration and 3 additional Deputy commissioners in charge of Revenue, General Matters and Development,

The DC office is the key institution of the administrative setup of Bangladesh.

The role of the DC office is very wide, it:

- acts as the agent and coordinator of the central government,
- is entrusted with the function of constructing roads, schools, bridges etc.
- supervises all the development functions within the district, has its own sources of finance and obtains grants from the government
- is responsible for overall administration of the district
- is responsible for collection and administration of revenue, preservation of law and order in the district and supervises the local self government activities
- is responsible for land administration and settlement of disputes over land and allocation of Khas land.

E.1.2 Thana

The thana has emerged as an independent administrative unit with the introduction of the decentralisation.

The administration at thana level has recently been modified due the dismantlement of the post of thana Chairman.

- Administration of thana is under the responsibility of the thana Nirbahi Officer (TNO).
- The TNO is responsible for law or order in the thana
- The TNO is responsible for development activities at thana level, construction of schools, roads, bridges and other development works,
- The TNO coordinates agricultural development through providing agriculture equipments and other raw materials like, seeds, fertilizers, tubewells, etc.
- The thana is entrusted with both retained and transferred functions, but maintains direct contact with the central government on different acute problems of the thanas,
- The thana has local sources of funds but is also subsidized by loans and grants from the central government.
- The thana is involved with local level planning and mobilisation of local resources.

The thanas have relationships to other administrative units at upper and lower levels. At the upper level there is the district administration and at lower level the Union Parishads, which are elected local bodies representing sub-areas of the thanas. JPP would involve all these institutions in the operation and maintenance of the project. A critical factor influencing coordinated services is the abolition of the thana chaimen. While having its drawbacks, the thana chairman system did provide some degree of electoral influence and chairman's accountability to the public in thana development. Now that this system has been abolished, there is no mechanism for public influence and accountability of thana administration to the people.

Public accountability could be built into the system through the Thana Development Committee which is formed by elected representatives (Union Chairmen). This committee would be involved in the operation and maintenance of the project.

E.1.3 Union

The Union Parishad is the first level in a pyramidical hierarchy of government in Bangladesh:

- Each Parishad is composed of
  1 Chairman (elected by the voters)
  9 Elected members "
  3 Women members (nominated by elected members)

- The Union Parishads are run by the Chairmen with the help and advice of Parishad members

- They are considered as a basic unit of all out socio-economic development activities in the rural areas of Bangladesh,
- They help disaster management at the local level (flood, cyclone etc) under the supervision of TNO,

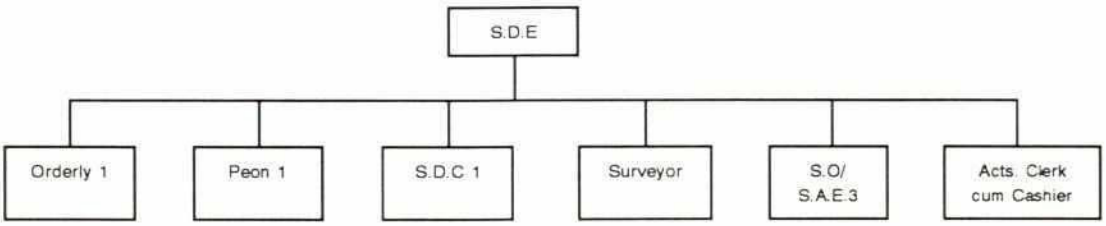
- They collect local taxes to pay for the village police, reply to central government letters and mediate in local disputes

- The have no independent finances to conduct any development programmes and are always dependent on central government for financial grants, loans, subsidies etc.

E.2 Government Agencies

E.2.1 Bangladesh Water Development Board (BWDB)

At Jamalpur there exists at present an office of Sub Divisional Engineering (S.D.E.)



S.D.C. - Sub Divisional Clerk
S.O. - Section Officer
S.A.E. - Sub Assistant Engineer

All thana are divided into sections and each section has a section officer.

The main functions of BWDB are:

- Flood control (FC)
- Flood control & drainage (FCD)
- Flood control, drainage and irrigation (FCDI)

For each project the BWDB would:

- plan the project
- conduct surveys
- prepare schemes
- execute all types of construction work at base level, eg embankments, culverts; bridges, sluice gates, etc.
- approve payments to contractors
- be responsible for the execution of O & M.

BWDB clearly has a big role to play in the implementation of FAP 3.1 in the project area. However, an underlying problem is that BWDB does not have any appropriate community mobilisation structure which might be used to organise a suitable local maintenance system. This task should be assigned to appropriate agency with good understanding of engineering operations. The only maintenance which is evident at present is some resectioning of embankment under the Food For Work Programme.

E.2.2 Local Government Engineering Department (LGED)

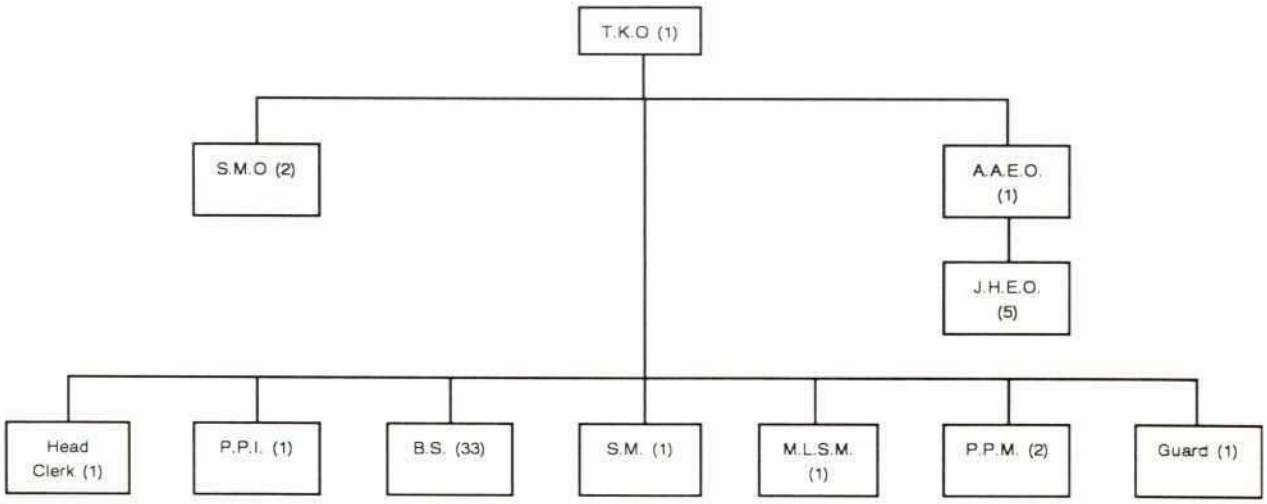
LGED was created in 1984 to provide technical assistance at District and Thana level for planning, design, construction, operation and maintenance of local civil infrastructure. In 1984 it was decided that LGED will take the responsibility for the O&M of small schemes constructed by BWDB. The transfer of the schemes from BWDB to LGED has not been implemented yet. LGED is responsible for the implementation of RD 13 (rural infrastructure) in the project area.

E.2.3 Agriculture Extensive Services

The composition of the district agriculture office in Jamalpur and the organogram for the thana agricultural offices has been given as follows;

District Office Staff
Deputy Director (Extension)
Training Officer
Specialist (Crop)
Specialist (Field)
Specialist (Crop Preservation & Irrigation)
Head Clerk
Cashier
Peon
Accountant
Assistant Store Keeper
O.B.S. Operator
Out Book Medicine Operator
Guard
Typist
Store Keeper
Medicine
Driver
L.D. City
Fitter
Duplicating Operator
M.L.S.S.
P.P.M.

Organogram **Thana Agricultural Office**



* For each thana same organogram.

Note
- S.M.O. = Subject Matter Officer,
- A.A.E.O. = Assistant Agricultural Extension Officer,
- J.H.E.O. = Junior Assistant Extension Officer,
- B.S. = Block Supervisor,
- S.M. = Spare Mechanic
- T.K.O. = Thana Krishi Officer.

The main function of the agricultural extension office is to provide training and information to farmers through the block supervisors for better utilization of their resources and inputs for land production e.i. use of seeds, fertilizer, irrigation facilities and better modes of cultivation

The present staff strength of Block Supervisors as available from the District Agricultural Office, Jamalpur is as follows:

Block Supervisors

Sharishabari.....35
Madarganj.....20
Dewanganj.....24
Melandah.....33

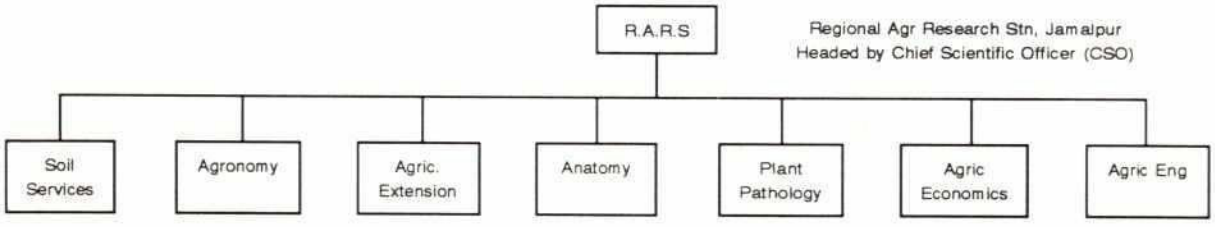
E.2.4 Bangladesh Agricultural Research Council (BARC)

BARC was created on the 5th April 1973 under the Ministry of Agriculture. It is an apex body. It has ten wings:

- The Bangladesh Agricultural Research Institute
- The Bangladesh Rice Research Institute
- The Bangladesh Jute Research Institute
- The Bangladesh Institute of Nuclear Agriculture
- The Bangladesh Forest Research Institute
- The Bangladesh Tea Research Institute
- The Sugarcane Research and Training Institute
- The Fisheries Research Institute
- The Bangladesh Livestock Research Institute

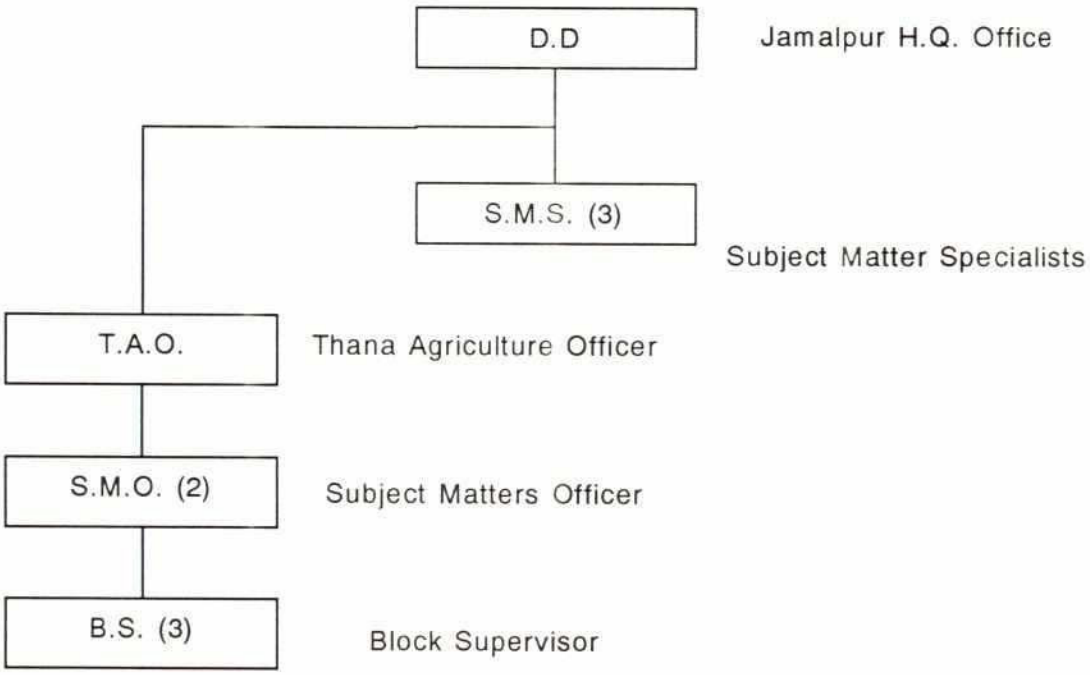
- The Soil Resources Development Institute

In the district of Jamalpur there is an office named R.A.R.S (Regional Agricultural Research Station) under a C.S.O (Chief Scientific Officer). This office has seven following planning and research wingsas shown in the following organogram:



Each Department is headed by a Principle Scientific Officer and a Senior Scientific Officer.

There is also an extension Dept. at Jamalpur headed by D.D (Deputy Director).



The main function of Block Supervisors is to contact farmer directly and the main function of U.A.O is to plan for better production of Agricultural crops in the area.

Functions of B.A.R.C.

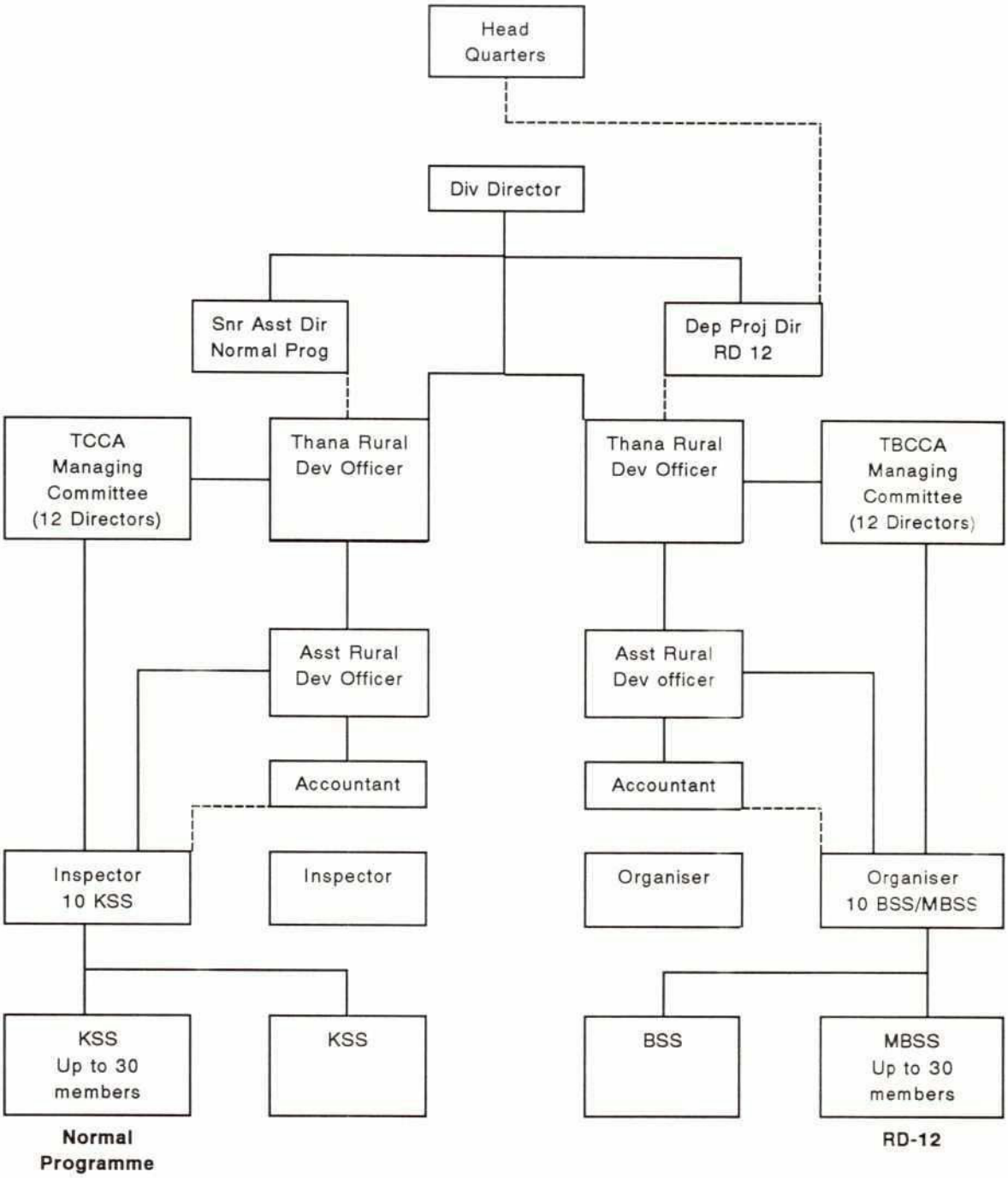
- Planning; developing and funding agricultural Research Programme.
- Coordination and evaluation of agricultural research programme.
- Identify the problem in various sectors of agriculture and to determine priorities which should be given
- Advise the government on agricultural problems
- Planning for the increase of the total production of food, livestock, fisheries, forestry etc.
- Make a liaison with other government offices.

E.2.5 Bangladesh Rural Development Board (BRDB)

The Third Plan indicates that the TCCA/KSS system contributed to increasing agricultural production and the income of the member cooperators, but the system by-passed many small and marginal farmers and the landless and the disadvantaged women.

These societies were largely dominated by relatively well-to-do farmers who used these organisations to their advantage. Because of these limitations of the UCCA/KSS system, efforts were made in the middle of the Second Five Year Plan (1980-85) to develop appropriate rural institutions for the landless and the disadvantaged women. The organizations called Bitayaheen Samabaya Samity (BSS) and Mahila Bitayaheen Samabaya Samity (MBSS) were developed to provide support services in terms of skill development, credit and input supplies to the members in farm and non-farm activities. The BSS/MBSS are federated under UBCCA, a board of managing directors at Thana level. Some of the economic activities undertaken by the BSS and the MBSS are cane and bamboo work, bee-keeping, handicrafts, quoir, pottery, rice husking, pond fisheries, oil milling, goat, cow and poultry raising, net making, rickshaw pulling etc.

Organogram in Jamalpur District



R D : Rural Development Programme
T C C A : Thana Central Cooperative Association.
T B C C A : Thana Bittoyin Central Cooperative ASSO.
T R D O : Thana Rural Development Officer.
A R D O : Assistant Rural Development Officer.
K S S : Krishi Somobay Samiti
B S S : Bittohyn Somobay Samiti.
M B S S : Mohila Bittohyn Somobay Samiti.

Note:

- Inspector are appointed by TCCA (not transferable)
- Organiser are appointed by BRDB (transferable)

- No relation exist between BRDB and NGO
- Saving collected from group members are deposited in one account under UCCA or TBCCA.
- Each group member has to buy a share once a year
- TCCA / TBCCA are composed of 12 members elected among the group members, one is elected as chairman and the TRDO acts as secretary.

Functions:

- Organise rural people under cooperatives
- Training the village wise rural people to be independent self sufficient
- Facilitates the inputs. Credits and kinds such as fertilizer. Insecticides machineries etc.. through NCBs to the farmers
- Credit cooperative for irrigation coverage

The cooperative movement originally started as "credit cooperatives with the enactment of the cooperative societies Acts of 1904 in order to provide credit to the farmers. BRDB has emerged out of new experiments in cooperative fields, is relatively a new programme in JPP area as elsewhere in Bangladesh. BRDB remains in operation in thanas (Jamalpur, Islampur, Melandaha, Dewanganj, Sharishabari and Madarganj). The Thana Central Cooperative Associations obtain credit from the Sonali Bank and cycle the loan to their affiliated village societies (KSS).

Two major organisations have been involved in specific programmes to improve the living standards of the poorer sections of the rural community. These are BRDB through its cooperative programme (RD 12 programme for the landless and destitute) and non-governmental organisations through activities aimed at similar target groups.
BRDB normal programme activities from 1973 to December 1991 are shown below:

Total no. of KSS primary	:	1,368
Total no. of members	:	48,389
Share deposit	:	Tk. 6,610,820
Savings deposit	:	Tk. 6,830,495

KSS credit activities are concentrated on

(a) crop,
(b) deep tubewell,
(c) shallow tubewell,
(d) hand pump,
(e) power pump,
(f) women programme, and
(g) rural finance programme.

The rate of recovery for the credit taken on the above items is very low. It ranges between 30-75%. The amount of credit increases with the expansion of its programme. Crop credit is provided to KSS members for short-term production only. Poor recovery of credit has plagued

almost the entire system of agricultural credit operation. The importance of providing more amount of credit to the farmers for working capital is well recognised.

Reference Table: 6.E.1.

It is worth noting that if credit facilities could be made more easily available, it would facilitate crop production as well as income generation in the study area. BRDB's irrigation coverage from deep tubewells has reduced as other types of pump have been installed.

Reference Table: 6.E.2

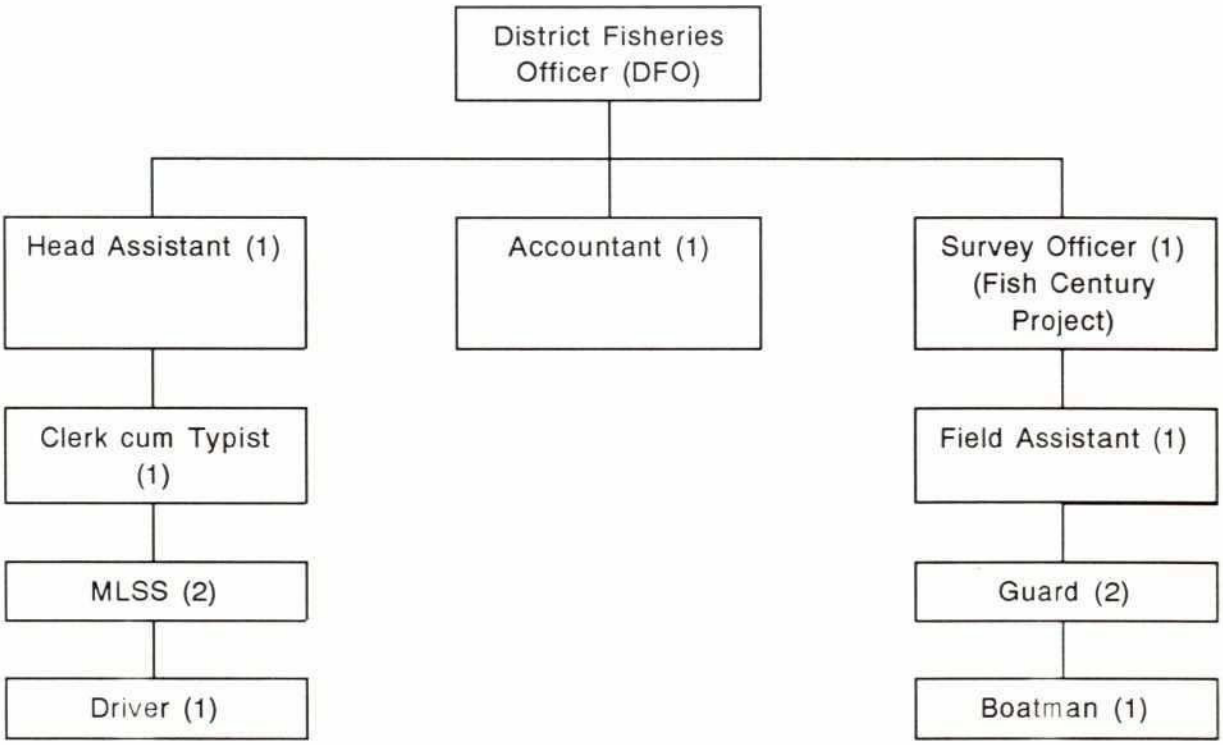
In the context of the rural poor programme (RD 12), the data supplied by BRDB, Jamalpur revealed that yearly enrolment target in BSS membership falls below the target: Jamalpur (55%), Islampur (32%), Dewanganj (12%), while target has been achieved in Sharishabari (100%) and far exceeded in Melandaha (202%). MBSS enrolment has also exceed in Jamalpur (119%), while in other thanas enrolment is below the targeted achievement, Islampur: 46%, Melandah: 55%, Dewanganj: 36%, Sarishabari: 58% and Madarganj: 24%. Yearly cooperative formation has also been below the target in all thana excepting Jamalpur (100%).

The TCCA credit recovery statement shows that the recovery rate of the credit advanced through this body is most satisfactory in Sarishabari (100%) and Jamalpur (99%), while in other thana the rate of recovery is between 88-92%.

Refererence Tables: 6.E.3, 6.E.4, 6.E.5, 6.E.6, 6.E.7

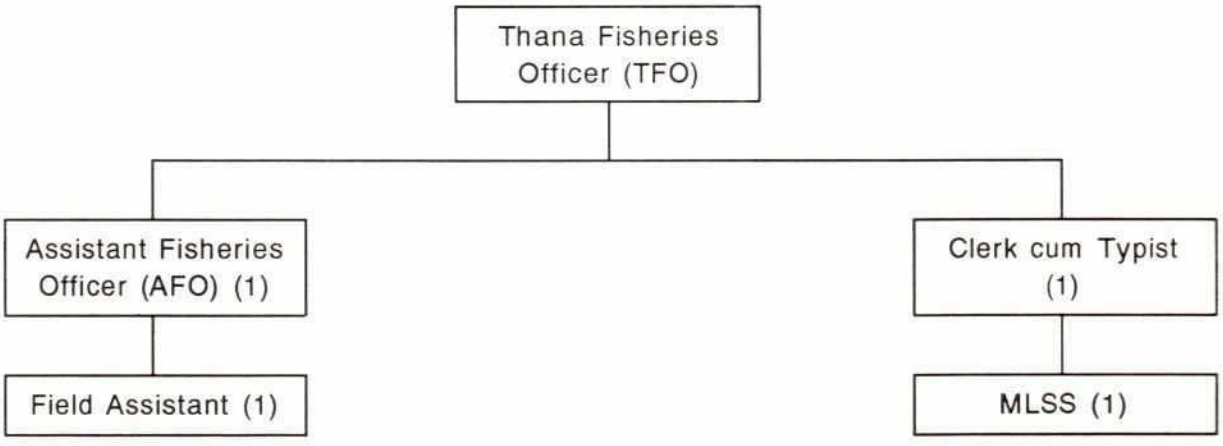
E.2.6 Department of Fishery (DOF)

Organogram



E.2.7 Thana Fisheries Office

Organogram



** For each thana same Organogram.

*** A.F.O. is vacant in all thana except Jamalpur Sadar Thana.

Programme

- Management of Jal Mahal (Beel) is under taken by the Thana Parishad.
- DOF provides regular training and in extension in organisation and management, basic skill and biotechnical subject
- Unemployed youth fisheries training programme
- Organizing fishermen groups by thana fisheries office
- DOF executives NFMP.
- Arranging for Pisciculture Financial Assistance.
- Execution of development plan action programme taken by the Thana Parishad.

The proposed project aims at increased fish production. Inland waters fishery in the project area fall within the responsibility of the Ministry of Land Reform and Revenue Department. At present, under the prevailing Ministry, leases are given to parties, preferably the Fishermen's Cooperatives, through auction of different periods against payment of a lease fee. An active fishermen's organisation, capable of carrying out development of fisheries, has not been found in the Project Area.

Institutional survey finds one thana fisheries office in all six thanas in the project area. Each office has one TFO (Thana Fisheries Officer) and one AFO (Assistant Fisheries Offices). The post of AFO is vacant in all thanas except Jamalpur Sadar thana.

Thana fisheries offices provide regular training and extension in organization and management, basic skill and bio-technical subject. In addition They have unemployed youth fisheries training programmes.

The effort for organizing fishermen groups by the thana fisheries office is not adequate. Organisational effort for grouping fishermen into cooperatives is not given on substantial basis. The adoption of the National Fisheries Management Programme (NFMP) is crucial for the proposed project, because it provides the legal base for the full participation of the fishermen through cooperatives and the exclusion of middlemen and local elites in the exploitation of beels and haors. The latter group has however already demonstrated their position to NFMP.

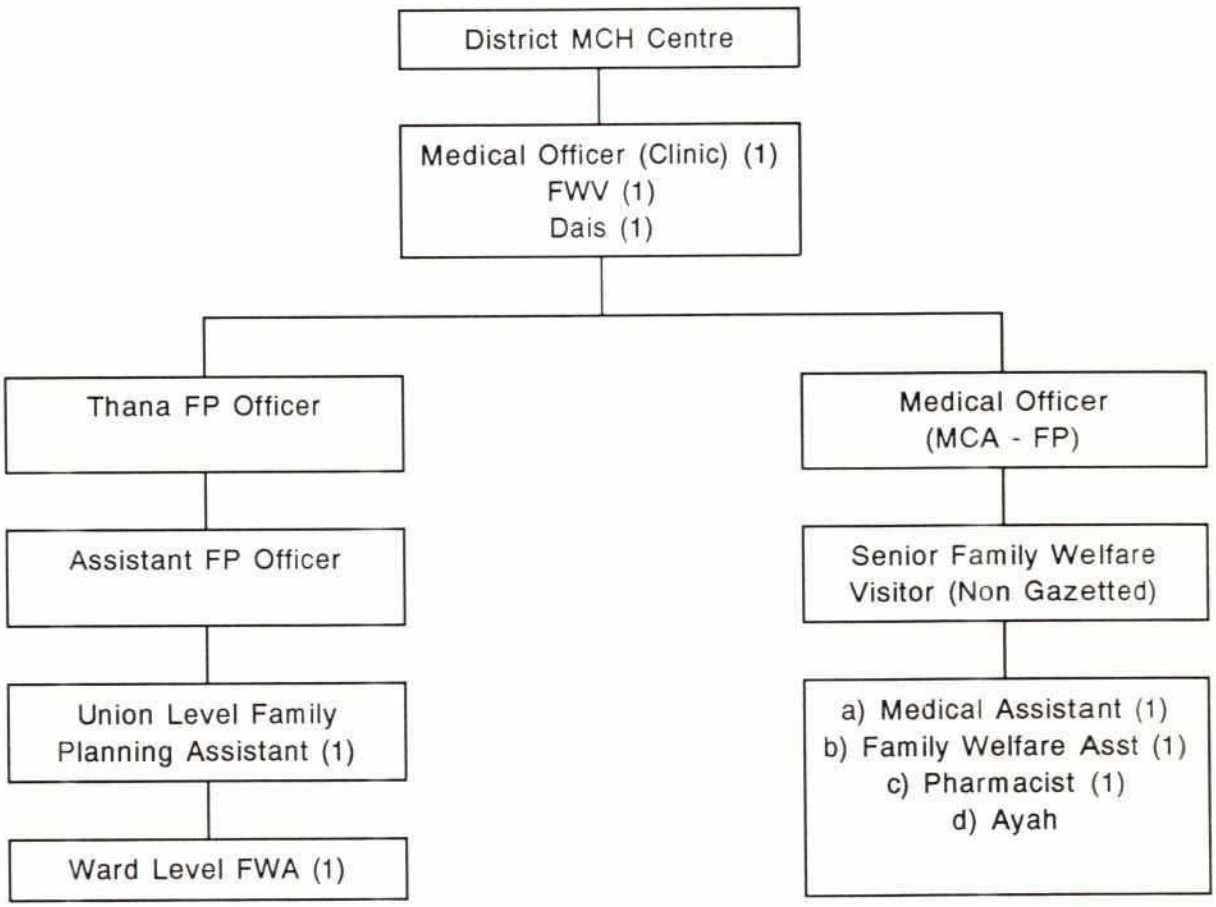
Fishery cooperatives are generally formed by local power groups and middlemen, who more or less dictate the terms of management and remunerate the involved fishermen in a minimal way. Their power usually stems from their control of marketing and the fact that many of the fishermen are indebted to them. These cooperatives are not much more than private entrepreneurships. If the cooperatives are not in control of fishermen themselves there is a possibility of losing benefits to fishermen. In absence of strong social organisations of fishermen conflict situations could arise between fishermen and non-fishermen elite and middlemen in the exploitation fish resources in JPP area.

E.2.8 Bangladesh Small & Cottage Industries Corporation (BSCIC)

- A semi-autonomous organisation under the Ministry of Industries
- Promotes small scale cottage industries specially in rural areas through distribution of loans and other raw materials.

E.2.9 Family Planning Services

Family planning at dist, thana & union level Organogram



- At the union level one family welfare center. One Family Planning Assistant working in each union and at the ward level
- One Family Welfare Assistant for every 5000 population to disseminate information, motivate the public, guides, supervise and assist the village dai & other agents in their work for promoting improvement and advises the higher family planning authorities to this end
- Family Planning Organisers (Dais) form the basis of the whole family planning programme at the local level, they come in direct, contact with the people, responsible not only for contraceptive distribution but also IUD insertion.

Programme Conducted:

a) Registration of eligible couples
b) Motivation

c) Service delivery
d) F.P. education and publicity
e) Maternal and Child health care programme
f) E.P.I. Programme
g) Training of Traditional birth attendant (Dai).

Reference Table: 6.E.8.

E.3 Credit Institutions

Outside BRDB cooperatives, BKB provides credit to the small farmers in the Project Area but coverage is small. Landless farmers are virtually out of these streams.

E.3.1 National Commercial Banks (NCB)

Improved access to credit in JPP area has been provided by NCBs consisting of following banks:

1) Sonali Bank
2) Agrani Bank
3) Janata Bank
4) Rupali Bank

Sonali Bank advances credit for rural development through BRDB which distributes loans through TCCA and TBCCA. Credits are advanced for fishermen and fishery development, purchase of agricultural inputs, rural housing and also for development of livestock in the Project Area.

Agrani Bank has a coverage of wider credit programme for agricultural development in JPP. It has brought following items under its performance budgeting:

a) deposit
b) general credit project
c) foreign trade
d) industrial credit distribution and recovery

Janata Bank gives rural credit to both skilled and unskilled borrowers such as farmers, industrial workers destitute women, unemployed education youth and rural craftsman. Advance of credits on fishery development, agricultural input and livestock development are the main objectives of the bank.

Janata Bank has to promote the following objective in the Project Area.

- to help villagers in their economic programme
- to decrease the dependency of the villagers on money lenders
- to generate employment opportunity in rural areas
- to help increase agricultural production
- to help expand cottage industry in rural areas
- to educate the farmers about modern method of agriculture.

Rupali Bank is contributing to the development of agriculture in JPP area. The following types of loan have been advanced

- crop loan
- irrigation implements
- loan on pond fishery
- rural housing loan
- loan for destitute women
- goat rearing loan

E.3.2 Bangladesh Krishi Bank (BKB)

Organogram Nationwise

BKB has a zonal office in Jamalpur under a zonal Manager with 6 (six) bank branches in Melandah, Islampur, Madarganj, Dewanganj, Sharishabari and Jamalpur under Branch Manager. The bank performs the following functions:

- make loan provision for those (individuals or corporate bodies) involved in crop production, fish culture, livestock raising, horticulture etc)

- make loans available to farmers for the purchase of irrigation implements (e.g. power pumps, deep tubewell, hand tubewell and shallow tubewell)

- give technical and financial assistance to agro-based industry and small cottage industry

- provide employment to educated unemployed youth in collaboration with nationalised bank

The performance of BKB could not be ascertained, the rate of interest and guaranty are same as NCB.

E.3.3 Grameen Bank

The Grameen Bank originally started like an NGO and spread rapidly a good reputation among the rural poor section of people before becoming official institution for credit.

- Several branches operating at thana level with district head office at Jamalpur under Area Manager
- Credit facilities to poor men and women (having no cultivable land)
- Credit advance without collateral (16.5% interest)
- Group formation
- Role of self-reliance in group
- Alleviation of rural poverty
- Loan recovery is almost 100%

E.4 Non-Governmental Organisations

NGO activities began in the Project Area in the aftermath of the war of liberation in 1971 and the famine in 1974 and were initially restricted to the areas of relief and rehabilitation. Since then most NGOs in JPP area have diversified into the field of rural development following the target group approach. Target groups are generally identified as women, children, landless and poor peasants and low income families. The distribution of NGOs in the project area is shown on Figure 6.E.1.

However, NGOs are heterogenous and distinctions between them can be drawn based on differences in their activities. Broadly two groups can be identified:

- Those whose activities are geared towards directly improving the economic conditions of the target groups;

- Those who see human development as a pre-condition to the economic welfare of target group.

The first group emphasises income generating programmes while the second emphasises "awareness raising". There is a whole range of NGOs in between, attempting at various combinations of two strategies.

- NGO's work outside the government structure but function within the legal framework of the country. They are associated with direct action oriented projects sometimes combined with study and research.

- The NGOs have now-a-days developed a network for upliftment of the poor people (target group) and their presence in a certain area will certainly help when motivation of people is concerned. Their role is not only confined to limited target, they also generally expand according to the need and aim at promoting general welfare of the area by the available resources.

- The survey has delivered some basic information about the working of NGOs and their coverage in the Project Area.

Reference Table: 6.E.9

NGOs have scope to developing solid partnerships with local bodies to assist flood control measures. Survey data suggest that the role of the NGOs will be vital for the implementation of flood control measures including construction and maintenancve of embankments. Many NGOs do not keep systematic activity records or data on programme achievement and they often do not make periodic evaluation of their performance.

The widest coverage is given by Unnayan Sangha. Grameen Bank, originally considered as an NGO, comes in second position in respect of membership coverage. The advantage of JPP working through NGOs is that they have the grassroots level staff and network to work directly with the poor. They can also provide integrated services such as training in health, literacy and productive activities.

The programmes taken up by the NGOs in the project area are all targeted for the same social group, namely the landless men & women. Main programmes undertaken by them are group formation, literacy, and income generating activities and the promotion of regular savings.

BRAC and Unnayan Sangha undertake fish farming programme, while Shanirvar Bangladesh takes up family planning programme which is not included in other NGOs programme. In addition to landless, Action Aid work with erosion victims.

NGOs seem to have been successful in building up effective organisations in the JPP area and at the local level have proven to have

a better distributed network than governmental agencies. They have generally been far more efficient and effective in the distribution of relief material, small credit, family planning and health information and services. The increasing strength of the local NGOs in JPP demand attention. They provide integrated services such as training in health, group formation income generation, nutrition, literacy etc. But their impact is limited by the scale of rural poverty problem in the area. Replicating some of these concentrated village level programmes on a wider scale is constrained by lack of funding and staff.

The overwhelming majority of all NGO members in the Project Area are either functionally landless or own less than one acre of land. At least 95% of NGO group members have landownership much below the subsistence level. Most of the members are either wage workers, share croppers or owners of a very small cottage industries. Almost all the NGOs working in the JPP area have strong female participation. In fact BRAC Programmes have indicated higher rates of success with their female groups. The wage rate of the female labour is found much lower than their male counterparts all over the Project Area.

Reference Table : 6.E.10

The Jamalpur Women's Programme (JWP), unlike other BRAC Projects, was initiated by the target people themselves, JWP began in 1975 as a women's education programme and evolved into a fully integrated development project for disadvantaged women. These women are landless. They sell their manual labour for survival and have no assets. The main objective of the JWP is to work with the women to raise their consciousness and motivate them towards social uplift and economic self-reliance to achieve this. JWP organizes the women into small groups and provides them with assistance in the form of credit, logistic services and human skills training.

The practical skill training programmes of BRAC have helped, among other things, poverty-stricken women to acquire skills and earn confidence. Some were given training in poultry rearing and vaccination.

NGO development efforts at poverty alleviation have however met with very limited success in the Project Area. Where credit has been made available for specific trades and where it has been closely monitored, increased incomes have resulted. In some cases, credit has been spent on consumption. However, it was stated that "the influx of new credit as held by the NGO executives in JPP area has not been accompanied by increased assets size by self generating income increases. The result has been one of continued dependence on credit".

Reference Table: 6.E.11

E.5 International Development Agencies

E.5.1 Food For Work

Food for work programmes have been provided in JPP area by both the World Food Programme and the US Aid. In these Projects, wheat is distributed to landless workers who participate in the construction of roads, embankments and canals. Some of the food for work programmes are channelled through BWDB for the construction and maintenance of their projects.

The majority of women involved in food for work at the present time in JPP are are involved both in the CARE and FFW earth moving Projects. Women who participate in food for work, come from an extremely needy segment of the population, and many of them have no other alternative means of livelihood.

Women working in FFW Projects are very poor, their families are the rural landless, and they encounter frequent food scarcity. They work in FFW Projects because they need food and they use most of their wheat earnings for their own household consumption.

Table 6.E.1: KSS Credit Activities: Jamalpur District (including Bakshiganj)

Credit Type	Total *	Recoverable *	Recovered *	Area (acre)	Outstanding	Rate of recovery
Crop	972.99	961.12	514.57	446.56	-	54%
Deep Tubewell	178.09	61.67	33.38	28.29	116.42	54%
Shallow tubewell	165.03	88.93	32.60	56.33	76.90	36%
Hand pump	4.94	4.94	1.46	3.48	-	30%
Power pump	0.50	0.50	0.17	0.33	-	34%
Women programme	23.43	20.18	15.16	5.02	3.26	75%
Rural finance programme	10.90	10.90	6.41	4.49	-	59%

Note: * in lak takas

Table 6.E.2 : Irrigation Related Information: Jamalpur

	General Prg	RD-12	ADB	Total
D T W	99	-	64	163
S T W	98	436	227	761
H P	-	-	-	7717
L L P	-	-	-	2

Source: Deputy Director's office, BRDB, Jamalpur.

Table 6.E.3 : Formation of cooperatives - 31.12.91

(Project Area)

Sl. No	Name of UBCCA	BSS					MBSS				
		Monthly formed	Yearly formed	Total formed	Yearly target	% achieved	Monthly formed	Yearly formed	Total formed	Yearly target	% achieved
1	Jamalpur	-	2	38	4	50%	-	11	50	11	100%
2	Islampur	2	2	57	2	100%	1	1	32	6	17%
3	Melandah	1	2	51	-	-	1	2	42	6	33%
4	Dewanganj	-	-	38	3	0%	4	8	51	10	80%
5	S. Bari	-	2	43	4	50%	1	5	42	8	62%
6	Madarganj	-	1	38	8	12%	1	2	32	15	13%
	Total:	3	9	265	21	2.12	8	29	249	56	305%

Table 6.E.4 : Members Enrolement 31-12-91

(Project Area)

Sl. No	Name of UBCCA	BSS					MBSS				
		Monthly enroled	Yearly enroled	Total enroled	Yearly target	% achieved	Monthly enroled	Yearly enroled	Total enroled	Yearly target	% achieved
1	Jamalpur	1	159	872	287	55%	10	356	1308	300	119%
2	Islampur	43	58	1459	180	32%	36	67	840	146	46%
3	Melandah	20	101	1314	50	202%	17	100	1031	183	55%
4	Dewanganj	11	38	727	310	12%	56	169	1022	472	36%
5	S. bari	2	69	1117	69	100%	29	164	1006	284	58%
6	Madarganj	-	20	969	176	11%	35	91	833	383	24%
	Total :	77	445	6458	1072	4.12	183	947	6040	1768	338%

Source: Deputy Director's office, BRDB, Jamalpur.

Table 6.E.5 : RD-12 Share Deposit 31-12-91 (in Taka)

(Project Area)

Sl. No	Name of UBCCA	BSS					MBSS				
		Monthly deposit	Yearly deposit	Total deposit	Yearly target	% achieved	Monthly deposit	Yearly deposit	Total deposit	Yearly target	% achieved
1	Jamalpur	400	7,280	34,000	10,000	73%	1,980	11,470	53,130	12,500	92%
2	Islampur	3,170	6,430	88,140	15,570	41%	1,060	5,510	27,250	9,210	60%
3	Melandah	2,030	7,460	74,740	12,630	59%	1,680	12,070	41,600	11,040	109%
4	Dewanganj	160	4,140	32,500	10,000	41%	2,890	12,210	40,010	13,250	92%
5	S. Bari	580	5,160	64,363	11,290	46%	3,250	9,640	66,693	11,330	85%
6	Madarganj	-	1,660	49,960	11,250	15%	1,270	5,110	30,600	13,000	39%
	Total :	6,340	32,130	343,703	70,740	275%	12,130	56,010	259,283	70,330	477%

Table 6.E.6 : RD-12 Savings Deposit 31-12-91 (in Taka)

(Project Area)

Sl. No	Name of UBCCA	BSS					MBSS				
		Monthly	Yearly	Total deposited	Yearly target	% achieved	Monthly	Yearly	Total deposited	Yearly target	% achieved
1	Jamalpur	4,695	36,063	134,580	40,000	90%		60,317	270,899	57,000	106%
2	Islampur	10,352	50,707	287,471	77,532	65%	11,841	41,987	151,526	43,992	95%
3	Melandah	3,060	16,567	139,167	64,376	26%	1,623	22,982	119,308	52,650	44%
4	Dewanganj	2,363	22,480	156,843	46,878	48%	10,241	40,253	175,237	53,300	76%
5	S. Bari	7,523	59,672	277,469	56,914	105%	11,008	61,523	240,492	62,504	98%
6	Madarganj	2,247	15,060	149,474	53,924	28%	6,111	31,657	147,103	48,542	65%
	Total :	30,240	200,549	1,145,004	339,624	362%	40,824	258,719	1,104,565	317,988	484%

Source: Deputy Director's office, BRDB, Jamalpur.

Table 6.E.7 : RD-12: Credit Advanncement and Credit Recovery Statement 31-12-91

(Project Area)

Sl. No	Name of UCCA	Credit D (Tk).	Credit A (Tk).	Credit B (Tk).	Interest A (Tk).	Interest B (Tk).	Total A (Tk).	Total B (Tk).	Advance Capital (Tk).	Advance Interest (Tk).	Rate of Recovery Last month	Rate of Recovery Current month
1	Jamalpur	1990100	1296679	1276327	83181	83181	1379860	1359508	47725	21870	99%	99%
2	Islampur	3398300	2175163	1948053	224659	193830	2399822	2141883	1693	15718	93%	89%
3	Melandah	910000	578933	511173	23053	20289	601986	531462	2935	-	89%	88%
4	Dewanganj	2462000	1341967	1244455	90581	76831	1432548	1321286	-	-	91%	92%
5	S. Bari	2049700	1024467	1023917	34134	34134	1058601	1058051	31965	3551	100%	100%
6	'Madarganj	1586900	926175	788386	73850	48622	1000025	837008	10922	2313	80%	84%
	Total :	910000	1505108	1299559	529458	456887	601986	7249198	95240	43452	5.52	552%

Source: Deputy Director's office, BRDB, Jamalpur.

No **A = recoverable**
B = Recovered
D = Advancement

Table 6.E.8 Method-wise Family Planning Acceptors of Jamalpur District up to January 1991

Thana	No of el couple	Oral pill	C. dom	IUD	Inj	Vac	Tab	Otrs	Tot Acps	Acps Rate %
Melandah	45402	14667	1041	902	2528	281	6760	1486	27665	60.33
Islampur	433393	11667	2102	1409	1456	232	4405	2111	23382	53.88
S.bari	47205	14678	785	664	694	426	5035	2572	248854	52.88
Dewanganj	31597	8960	763	910	2252	76	3689	716	17366	54.96
Madarganj	32500	7447	970	975	383	138	6231	111	16255	50.01

Table 6.E.9 NGO Coverage

NGO's names	Nos of thanas	Nos of unions	Nos of villages	Nos of members		
				Male	Female	Total
Terre Des Hommes (France)	1	8	30	-	2000	2000
Save the Children (UK)	1	4	6	200	100	300
BRAC	1	6	63	500	4000	4500
Grameen Bank	3	14	-	1260	12740	14000
Action Aid	1	2	15	200	450	640
Service Civil International	4	9	140	2479	355	2834
Sosika	2	8	40	850	1300	2150
Unnayan Sangha	3	8	51	9800	10600	20400
Community Development Library	1	12	6	-	-	135
Provati Samaj Kalyan Songstha	3	7	34	3345	339	3684
Samaj Unnyan Sangstha	2	10	33	4170	3875	8045
Samaj Probhati Sanghsta	5	17	64	2650	3950	6600
Probhati Mohila Kolayan S.	1	1	4	-	350	350
Protibha Sahita o Sanskriti	1	5	8	100	60	160
Shanirvar Bangladesh	1	5	67	-	3600	3600
Total :				27860	43720	69250

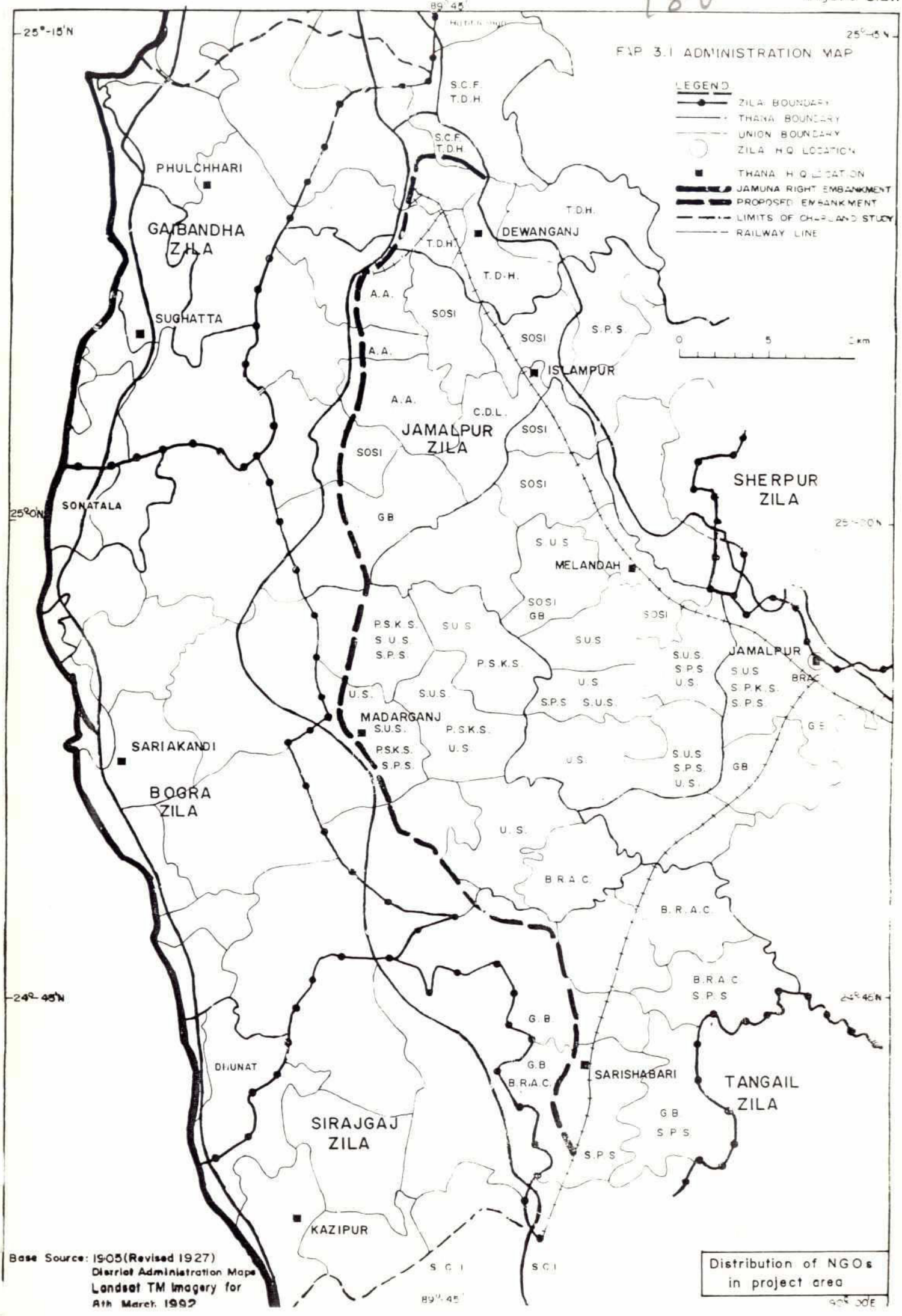
Table 6.E.10 Sexwise Average Daily Income

Year	Average Daily Income (Tk.)	
	Male	Female
1989	20	11
1991	29	19

Table 6.E.11 **NGO in the Project Area and Type of Programme**

NGO	TYPE OF PROGRAMME	SOCIAL GROUP
Samaj Unnayan Sangstha	(a) Group formation. (b) Skill development (c) Child education. (c) Adult education, (e) Health & Sanitation	Landless
BRAC	(a) Irrigation (b) Poultry & livestock (c) Sericulture (d) Adult education (e) Fisheries (f) Horticulture	Landless
Grameen Bank	Credit for livestock, paddy husking, small business, agriculture and fishing.	Landless
Shanirvar Bangladesh	(a) Family planning (b) Skill development (c) Group loan (d) Literacy	Mainly landless, but also other groups of people.
Action Aid Bangladesh	(a) Income generation (b) Health (c) Education (d) Disability	Landless and erosion victims.
SCF	(a) Literacy (b) Awareness training (c) Credit	Landless
Terre des Hommes (France)	(a) Functional education (b) Training and credit (c) Group formation	Orphans, destitute women.
Unnayan Sangha	(a) Group management (b) Child and adult education (c) Community health (d) Agriculture, Pisciculture (e) Sericulture, Handicraft	Landless and others
Provati Samaj Kallayan Songstha	(a) Adult and child education (b) Group formation (c) Livestock, (d) Water & sanitation	Landless
Shoshika	(a) Income generation (b) Literacy (c) Health (d) Agriculture	Landless men and women.
CDL	(a) Literacy (b) Group formation	Landless
SCI	(a) Health, Literacy (b) Group formation (c) Credit	Landless Char people
SUS	(a) Health, Literacy (b) Group formation (d) Income generation	Landless
SPS	(a) Skill development (b) Group formation	Landless

Figure 6.E.1


MAP 3.1 ADMINISTRATION MAP
LEGEND
ZILA BOUNDARY
THANA BOUNDARY
UNION BOUNDARY
ZILA H.Q LOCATION
THANA H.Q LOCATION
JAMUNA RIGHT EMBANKMENT
PROPOSED EMBANKMENT
LIMITS OF CHARLAND STUDY
RAILWAY LINE
0 5 10km
25°-15'N
89°45'
PHULCHHARI
GAIBANDHA ZILA
SUGHATTA
DEWANGANJ
ISLAMPUR
JAMALPUR ZILA
SHERPUR ZILA
SONATALA
MELANDAH
JAMALPUR
MADARGANJ
SARIAKANDI
BOGRA ZILA
DHUNAT
SIRAJGAJ ZILA
SARISHABARI
TANGAIL ZILA
KAZIPUR
S.C.F.
T.D.H.
A.A.
SOSI
C.D.L.
G.B
S.U.S
P.S.K.S.
S.P.S
U.S.
B.R.A.C.
Base Source: 1905(Revised 1927) District Administration Maps
Landsat TM Imagery for 8th March, 1992
Distribution of NGOs in project area

Appendix - F

APPENDIX F

SAMPLE SURVEY QUESTIONNAIRES

F.1 Questionnaire for Socio-Economic Survey

F.2

F.2.1 Household Census Sheet

F.2.2 Pilot Survey Sheet (completed for every 10 households

F.3 Agricultural Information

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JAMALPUR PRIORITY PROJECT

SOCIO-ECONOMIC SURVEY 1992

1. Identification No. [illegible] 6
2. Name of the Household Head/Respondent Dudu Mondal
3. Father's/Husband's Name [illegible]
4. Name of the Upazila Islampur
5. Name of the Union Sandhori
6. Name of the Village [illegible]
7. Name of the Para Karu
8. Land Status :
   - [1] 00.00 to 00.05 acre Landless
   - [2] 00.06 to 00.50 acre Marginal
   - [3] 00.51 to 02.50 acre Small
   - [4] 02.51 to 07.50 acre Medium
   - [5] 07.51 and Above acre Large
9. Religion (Use Code) _____
   (Hinduism 1, Muslim 2, Buddhist 3, Christianity 4, Others 5)
10. Surrounding Area (Use Code) F2
    (F0 Highland, F1 Medium-high, F2 Medium-low, F3 Low land
    F4 Low to very-low)

==========

11. Name of the Interviewer [illegible]
12. Signature with Date [illegible] 19-1-92
13. Name of the Supervisor _____
14. Signature with Date _____

Eastern

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SECTION - A.

1. Please give information of your family members.

ID. No.	Sl. No.	Name of the Family member	Relationship with Head of the family (see code)	Sex (Male=1) (Female=2)	Present age (in full years)	Marital status: Married=1 Unmarried=2 Widowed = 3 Divorced= 4 Separated=5	Age at marriage (in full Years
01			02	03	04	05	06
510	1	[illegible]	01	1	35	1	22
511	2	Sultan	06	1	10	2	
512	3	Joki	06	1	9	2	—
513	4	[illegible]	06	1	7	2	
514	5	[illegible]	06	1	5	2	
515	6	[illegible]	05	2	30	1	[illegible]
	7						
	8						
	9						
	10						

Sl. No.	Literacy and Educational status: Whether you can read and write a letter? Yes=1, No=0	Literacy and Educational status: Your academic qualification (See Code)	Employment status: Employed=1 Unempl'd=2	Occupational Status: Main occupation (See Code)	Occupational Status: Secondary occupation (See Code)	If unemployed whether looking for job (Yes=1 No=0)	If not looking for job why? (Presently ill-1 Work is not available-2)	Whether you [illegible] do more work? (Only for employed Yes=1 No=0)
	07	08	09	10	11	12	13	14
1	0	0	1	02		—	—	1
2	0	0	2	0				
3	0	0	2	0				
4	0	0	2	0				
5	0	0	2	0				
6	0	0	2	6				
7								
8								
9								
10								

Sl. No.	Whether you are suffering from any choronic disease? (Yes=1 No=0)	Whether you received any training? (Yes=1 No=0)	If yes, name the kind of training you received (see code)	Are you member of any of the following organisations? (Yes=1, No=0)					
				Co-operative	Union parishad	School management committee	Mosque/ puja committee	Club	Others
	14	15	16	17	18	19	20	21	22
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

2. Please give information of your household members working in various cash income generating activities in the reference year

Sl. No.	Regular Service			Agricultural labour on other's farm			Livestock and Poultry (other's farm)		
	Average hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year	Average hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year	Average hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year
	01	02	03	04	05	06	07	08	09
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Sl. No.	Pisciculture/Fishing (other's farm			Employment in commercial farm			Daily labour (non-agriculture)		
	Average hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year	Average of hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year	Average hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year
	10	11	12	13	14	15	16	17	18
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Sl. No.	Employment in Transport service			O t h e r s'			Estimated earnings would increase per year if flood control measures are taken (in Tk.)
	Average of hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year	Average of hours worked per day	Daily average wages (in Tk.)	No. of days worked in the year.	
	19	20	21	22	23	24	25
1							30
2							
3							
4							
5							
6							
7							
8							
9							
10							

Fertility, Mortiality and Birth Rate:

ID. No.	Sl. No.	Name of the ever married women of the family	Age in full year	Number of live birth		No. of children stay together		No. of live birth in the reference year	
				Male	Female	Male	Female	Male	Female
01			02	03	04	05	06	07	08
103	1	Shama	30	4	—	4	—	—	—
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								

Sl. No.	No. of deaths of different age-group in the reference year.								Do you know about family planning methods? Yes =1 No. =0.	Do you practice any of the F.P. methods Yes =1 No. =0.
	Less than one month age		1 month to 12 months of age		1 year to 4 years of age		Above 4 years of age			
	Male.	Female	Male.	Female	Male.	Female	Male.	Female		
	09	10	11	12	13	14	15	16	17	18
1										3
2										
3										
4										
5										
6										
7										
8										
9										
10										

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SECTION - B

Homestead, Housing and Dwelling Units

01. Please state whether you have own homestead ? ~~Yes =1~~, No = 0

02. If, answer to the question No.1, is No, where do yo live ?

(Use code) ____________

03. If answer to the question No.1 is yes, please state area and estimated value (in Taka). A. Area (in decimal) 3
B. Estimated Value (in Tk.) 1500

04. Whether you have non agricultural land ? Yes=1, No.=0.

05. If answer to the question No.4 is yes, please give detail informations:

Type of Non agricultural land	Area in decimal	Estimated value of land (in Taka)	Total production (in Taka)	Total hired labour costs (in Taka)	Total material costs (in Taka)	Total costs (in Taka)	Total income (in Taka)	Total sale (in Taka)	Per acre estimated increased value if flood control measures are taken	If flood control measures are taken is any NAL be converted to Agri. land
BA	01	02	03	04	05	4+5	[illegible]	[illegible]	09	[illegible]
1 Pond.										
2 Ditch/canal										
3 Bamboo Bush	.5	250	800	—	—	—	800	[illegible]	—	—
4 Grass/chanland										
5 Fellow land										
6 Flower/kitchen gardern										
7 Others										
8 Total :			800				800	[illegible]	—	—

**Code for Column 10 (Yes=1, No=0)

06. Please give detail information of your forestry resources:

Sl. No.	Name of the trees	Banana tree	Wood tree	Fuel tree	Coconut tree	Fruits tree	Betlle nut tree	Date tree	Bamboo tree	Palm tree	Others	Total
	BB	01	02	03	04	05	06	07	08	09	10	
1	No. of trees	30	-	10	-	14			4	-	-	44
2	Estimitted value(in Tk.)	15	2	5		7	-	-	800	-		5000
3	Total input costs(in Tk.)	-	-	-					-			-
4	Total hired labour costs(in Tk.)	-	-	-		-			-			-
5	Total production value(in Tk.)	-	-	-		-			-			-
6	Total sale (in Tk.)	-	15			15			700			-

07. Please give details of the area & value (in Tk.) of your house/building

Sl. No.	Location.	Length (in ft.)	Width (in ft.)	Total area in sq.ft.	Estimated value in (Taka)	No. of kamras	Estimated value in (Taka)	Damage due to flood (in Taka) High	Normal
	BC	1	2	*	3	4	5	6	7
1	Main	18	15	270	4	2			
2									
3									
4									
5	Total :								

90

08. Please give detail information of your main housing condition

(use code) _____ 5

09. Please give information on land purchased and land sold out in this reference year:

A. Purchase: X

Area (in decimal) _____ Estimated value (in Tk.) _____

Main use (use code) _____

B. Sold out: X

Area (in decimal) _____ Estimated value (in Tk.) _____

Main use (use code) _____

10. Have you given land share cropping out? Yes = 1 No = 0

11. If answer to the question no. 10 is Yes, please state reasons? (use code) _____

12. Have you given land mortgaging out ? Yes = 1 No = 0

13. If answer to the question no. 12 is yes, please state reasons ? (use code) _____

14. Have you given land leased out ? Yes = 1 No = 0

15 If answer to the question no. 14 is yes, please state reasons ? (use code) _____

16. Please give detail informations on land use pattern in the reference year:

Sl. No.	Type of land	No. of Plots	Area in Decimal	Estimated value (in Taka)	Area under irrigation (in Decimal)	Amount given/ taken (in Tk)	Price of land per acre estimated increased value if flood control measures taken (in Taka)	How much land be irrigated more if FCD measures are taken (in decimal)
	B D	1	2	3	4	5	6	7
1	Land owned	1	10	60	10	-	5000	—
2	Land leased in	-						
3	Land mortgaged in	-						
4	Land share cropped in	-						
5	Land leased out							
6	Land Mortagaged out	-						
7	Land share cropping out							
Total=(1+2+3+4)-(5+6+7)								

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SECTION - C.

Assets (other than land)

Please give information on the following assets other than land:

Sl. No.	Name of the Assets.	Opening stock in reference year. Number	Opening stock in reference year. Value (in Tk.)	Purchased in the reference year. Number	Purchased in the reference year. Value (in Tk.)	Sold out in the reference year. Number	Sold out in the reference year. Value (in Tk.)	Closing stock in the reference year Number	Closing stock in the reference year Value (in Tk.)	Flood situation Normal=1 Abnormal=2	Assets damaged due to flood Number	Assets damaged due to flood Value (in Tk.)
C A		1	2	3	4	5	6	7	8	9	10	11
1	Horse											
2	Buffalo											
3	Bullock											
4	Cow											
5	Sheep											
6	Goat	3	1500			1	350		750			
7	Pigeon											
8	Hen/cock	5	120			1	30	4	96			
9	Dove											
10	Plough											
11	Tructor											
12	Power Tiller											
13	Yolke											
14	Ladder											
15	Kastha											
16	Spade											
17	Anchra											
18	Wider	1	5					1	5			
19	Don											
20	Sewti											

Sl. No.	Name of the Assets.	Opening stock in reference year.		Purchased in the reference year.		Sold out in the reference year.		Closing stock in the reference year		Flood situa-tion Normal=1 Abnormal=2	Assets damaged due to flood	
		Number	Value (in Tk.)	Number	Value (in Tk.)	Number	Value (in Tk.)	Number	Value (in Tk.)		Number	Value (in Tk.)
	C A	1	2	3	4	5	6	7	8	9	10	11
21	Seed dril											
22	Paddy thresher											
23	DTW											
24	STW											
25	LLP											
26	HTW											
27	Cart											
28	Rickshaw/Van											
29	Almirah											
30	Cot/Chowki	[illegible]	[illegible]						[illegible]			
31	Table/Bench/chair											
32	Clock											
33	Radio											
34	Cassette Player											
35	Motor cycle											
36	Television											
37	Bi-cycle											
38	Fishing Net											
39	Boat											
40	Dheki	1	200					1	200			
41	Pottery instruments	3	100					1	100			
42	Blacksmith Instru.	3	50					3	50			
43	Carpentry Instru.											
44	Da/Bati etc.	2	50					2	50			
45	Others.											

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SECTION – D.

Cropping pattern, cropping intensity, cost, structure and production.

Sl. No.	Crop name	Area in decimal	No. of Plots	Whether the given crop was damaged (Yes =1, No= 0.)	Amount of crop damaged: Quantity in Kg.	Amount of crop damaged: Value in Tk.	Seasons for crop damage (Use Code)	Stages of crop damage (Use Code)
		1	2	3	4	5	6	7
1	Aus B							
2	Aus.T							
3	Aman.B							
4	Aman.T							
5	Aman(HYV)							
6	Mixed Aus-Aman							
7	Jute							
8	Boro local							
9	Boro(HYV)							
10	Wheat							
11	Potato							
12	Pulses							
13	Onion							
14	Mustard							
15	Sugarcane							
16	Others (Specify)							

Sl. No.	Crop name	Whether irrigation was used? Yes =1, No= 0.	Name of the irrigation instruments (Use Code)	Area irrigated. in Decimal	Irrigation costs in Tk.	Seed costs	
						Quantity in Kg.	Value in Tk.
		8	9	10	11	12	13
1	Aus B						
2	Aus.T						
3	Aman.B						
4	Aman.T						
5	Aman(HYV)						
6	Mixed Aus-Aman						
7	Jute						
8	Boro local						
9	Boro(HYV)						
10	Wheat						
11	Potato						
12	Pulses						
13	Onion						
14	Mustard						
15	Sugarcane						
16	Others (Specify)						

Sl. No.	Crop name	Fertlizer costs: UREA Quantity in Kg.	UREA Value in Tk.	TSP Quty. in Kg.	TSP Value in Tk.	MP Quty. in Kg.	MP Value in Tk.	Others Quty. in Kg.	Others Value in Tk.	Land topography (see code)
		14	15	16	17	18	19	20	21	22
1	Aus B									
2	Aus.T									
3	Aman.B									
4	Aman.T									
5	Aman(HYV)									
6	Mixed Aus-Aman									
7	Jute									
8	Boro local									
9	Boro(HYV)									
10	Wheat									
11	Potato									
12	Pulses									
13	Onion									
14	Mustard									
15	Sugarcane									
16	Others (Specify)									

Sl. No.	Name of the crop	Insecticide Pesticide costs (in Taka)	Hired labour used. No. of man days used	Hired labour used. Costs in Tk.	Owned labour used (in man day)	Hired Animal labour used. No. of Animal days used	Hired Animal used. Costs in Tk.
		23	24	25	26	27	28
1	Aus B						
2	Aus.T						
3	Aman.B						
4	Aman.T						
5	Aman(HYV)						
6	Mixed Aus-Aman						
7	Jute				120	3	2 80
8	Boro local						
9	Boro(HYV)	75	4	120	3	2	80
10	Wheat						
11	Potato						
12	Pulses						
13	Onion						
14	Mustard						
15	Sugarcane						
16	Others.						

Sl. No.	Name of the crop	Owned animal labour used (in animal days)	Other costs in Tk.	Total Production costs in Tk.	Production Qunty. in Kg.	Production Value in Tk.	By products Qunty. in Kg.	By products Value in Tk.	Total production Value in Tk.
		29	30	**	31	32	33	34	**
1	Aus B								
2	Aus.T								
3	Aman.B								
4	Aman.T								
5	Aman(HYV)								
6	Mixed Aus-Aman								
7	Jute								
8	Boro local								
9	Boro HYV)								
10	Wheat								
11	Potato								
12	Pulses								
13	Onion								
14	Mustard								
15	Sugarcane								
16	Others.								

Cropped area, yield, gross value of production and damage

SL No.	Name of Crops	Area in Dec.		Total Production (in Kg.)	Production damaged by flood? Yes=1 No=0	Share retained(%) if share cropped	Local market price Tk/Kg.	Quantity of production left after flood damage (in Kg.)
		Own	Share					
1	Aus B	1	2	3	4	5	6	7
2	Aus.T							
3	Aman.B							
4	Aman.T							
5	Aman(HYV)							
6	Mixed Aus-Aman							
7	Jute	10	—	74		—	5	74
8	Boro local							
9	Boro(HYV)	16		120		—	5	120
10	Wheat							
11	Potato							
12	Pulses							
13	Onion							
14	Mustard							
15	Sugarcane							
16	Others.							

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CROP DAMAGE INFORMATION

Year of flood	Name of main crop damaged	Area damaged & cause				% of total area
		Flood		Poor drainage		
		Fully	Partly	Fully	Partly	
		1	2	3	4	5
1974	Aus					
1974	Aman	✓				10
1974	Jute	✓				15
1981	Aus					
1981	Aman	✓				5
1981	Jute	✓				60
1987	Aus					
1987	Aman	✓				20
1987	Jute	✓				30
1988	Aus					
1988	Aman	✓				10
1988	Jute	✓				15
1991	Aus					
1991	Aman	✓				20
1991	Jute	✓				70

Year of flood	Name of main crop damaged	Loss of yield (Kg.)			Stage of Damage			
		Potential yield per acre	Actual yield per acre	Yield damaged per acr	Seeding	Growing	Flowering	Harvesting
	1	2	3	4	5	6	7	7
1974	Aus							
1974	Aman	30	0	30				
1974	Jute	15	0	15				
1981	Aus							
1981	Aman							
1981	Jute	15						
1987	Aus							
1987	Aman							
1987	Jute	15	10	5				
1988	Aus							
1988	Aman	30	0					
1988	Jute	15	0	15				
1991	Aus							
1991	Aman	30	27	3				
1991	Jute	15	14	1				

Frequency of flood damage :

Times 6 in the last 10 years

Frequency of damage by drainage congestion :

Times _____ in the last 10 years

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Availability/Effectiveness of Agricultural support services

Name of organizations offers agri. support services	Distance from the farm (in K.M)	Are you aware of the services (Yes=1 No=0)	Do you get the service when needed Yes=1 No-0	Major difficulty in obtaining service (see code)
	1	2	3	4
Agril,Ext				
BRDB Co-Operative				
Market facility				
BKB				
Grameen Bank				
NGO Support				
Livestock Deptt.				
NCBs				

Major Problem in marketing goods faced by farmers

1.Non-availability of transport.....[ ]
2.Long distance from market.....[ ]
3.Lack of storage facility.....[ ]
4.Immediate financial need.....[ ]
5.Lack of storage.....[ ]
6.Others (specify).....[ ]

Major means of transport facilities used to carry goods to market (Please give weight using 1-2 and/or 3 etc. according to importance)

Means of transport	Dry season	Wet season
1.Boat		
2.Train		
3.Van/Rickshaw		
4.Bullock curt		
5.Bi-cycle		
6.Trucks		
7.Buses		
8.Manual		

SECTION - E.

Consumption expenditure, degree of self sufficiency and market dependency.

Sl. No.	Consumption items.	Unit of measurement.	Reference Yr. Production (in Kg.).	Per unit market value in the Ref. year. (in Tk.)	Daily consumption (physical unit)	No. of days the given item was consumed. in a week
			1	2	3	4
1	Rice.	Kg	155	12	2	7
2	Wheat/Flour.	Kg		8	.5	7
3	Milk and Milk products.	Lit		12	.5	1
4	Meat.	Kg		40	.5	1
5	Fish.	Kg			.125	2
6	Egg.	No.		-	1	-
7	Sugar/Gur.	Kg		32		-
8	Edible oil.	Lit		86		-
9	Pulses.	Kg		32		-
10	Spices.	-		-		
11	Vegetables.	-	20	-		4
12	Fruits.	-		-		-
13	Clothes	Met.		-		-
14	Fuel.	kit		14		7
15	Edn. expenses.			-		
16	Other expenditure.					

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Sl. No.	Consumption items.	No. of weeks the given item was consumed. in a year	Total consumption (in Taka).	Yearly Quantity purchased (in Kg.)	Yearly collection from other sources (in Kg.)	Quantity sold out (in Kg.)	Closing stock at the end of the year (in Kg.)
		5	6**	7	8	9	10
1	Rice.	50	4,20				
2	Wheat/Flour.	50	2[illegible]				
3	Milk and Milk products.	41	[illegible]	[illegible]			
4	Meat.	[illegible]	[illegible]	[illegible]			
5	Fish.	[illegible]	[illegible]	[illegible]			
6	Egg.	[illegible]	[illegible]				
7	Sugar/Gur.	[illegible]	[illegible]	[illegible]			
8	Edible oil.	[illegible]	[illegible]	[illegible]			
9	Pulses.	[illegible]	[illegible]				
10	Spices.						
11	Vegetables.	50	[illegible]				
12	Fruits.	[illegible]					
13	Clothes		75	150			
14	Fuel.	[illegible]	250	250			
15	Edn. expenses.						
16	Other expenditure.						

SECTION - F.

Credit and Indebtedness:

Sl. No.	Name of the organization.	Have you ever taken loan during last 5Yr? Yes=1 N=0	Please state reason of taking loan? (Use code)	Credit amount at the begnning of the Refer. year	Total amount of credit taken during the Ref. year	Total amount of credit repaid during the Ref. year (in Tk.)	Total amount of credit at the end of the Ref. year (in Tk.)	Name the security against which credit was teken (Use code)	Your level of satisfaction to the employee & service (Use code)	Your level of satisfaction to the organization. (Use code)
		1	2	3	4	5	6	7	8	9
1	Cooperative society									
2	Bangladesh Krishi Bank (BKB)									
3	BRDB									
4	Grameen Bank									
5	Nationalized Commerical Bank									
6	Money Lender									
7	N.G.Os									
8	Private Bank									
9	Relatives									
10	Others									

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SECTION-G

Cottage Industry, Trade and Pisciculture & Fish Catching

I. Cottage Industry: If you are involved in any of the Cottage industries Please give following information

Sl. No.	Name of the industry.	Unit of measure.	Production		Sale	
	G A		Quantity	value in Tk.	Quantity	value in Tk.
1						
2						
3						
	Total :					

Sl. No.	Name of the industry.	Cost structure (in Taka)						Gross income in Tk.
	G A	Total Raw materials	Hired labour	Rent	Transport	Depre-ciation	Total costs in Tk.	
1								
2								
3								
	Total :							

II. Trade: Please give detail information of your trade.

Sl. No.	Name of the trade	Type of business: (Whole sale=1, Retai-ler=2)	Unit of measure-ment	Value per unit in Tk.	Sale	
					Quantity (in physi-cal unit)	value in Tk.
	G B	1	2	3	4	5
1						
2						
3						
4						
	Total :					

Sl. No.	Name of the trade	Cost structure (in Taka)						Total costs in Tk.	Total income in Tk.
		Quantity Purchased	value in Tk.	Transport	Labour	Rent	Depreciation		
	G B	6	7	8	9	10	11	12	13**
1									
2									
3									
4									
	Total :								

3 PISCICULTURE and FISH CATCHING

1 If you fish, are you? Full time.....[ ]
Part time.....[ ]
Occasional.....[ ]

2. Where do you fish? Rivers & canals.....[ ]
(Please tick with Beels.....[ ]
number % of importance) Jamuna river.....[ ]
Ponds.....[ ]
Flood plain.....[70]

How do you sell the fish? with %
- Direct to consumer.....[ ]
- To middle man.....[ ]

Where do you do the transaction with %

	Middle man	Consumer
- On site	[ ]	[ ]
- At landing	[ ]	[ ]
- Market	[ ]	[ ]

5) What share of catch do you keep for own consumption [10]%

Selling price variation

Fish species name	Highest Price	Month	Lowest Price	Month

7) If only catch in the flood plain? (June to September)

How many your HH catch in Kg/week

own consumption % 100%

Sale %

8) If fishing on beels (Jhal mohals)

Member of society Yes: [ ] No: [ ]

Investment cost	Operating cost	Return per year		
		Qty	Tk	% of carps

9) Yearly how many days are you involved in the fishing activity

7

Other activities names	% of yearly income

10) Please state the value of your fishing materials:

Nets : 50

Boats : /

Others : /

Total:- : 50

11) If you are fishing in pond, please give detail information

Sl. No.	Area of Pond (in decimal)	Pattern (own=1, Share=2, others=3)	Production		Sale	
	G C		Qty in Kg	val in Tk	Qty in Kg	val in Tk
1						
2						
3						
4						
5						
	Total:					

Sl .no.	Area of pond (in decimal)	Cost structure (in Taka).					Total costs in Taka	Total income in Taka
	G C	Prepa-ration	Pona	Food	Hired labour	Maint-enance		
1								
2								
3								
4								
5								
	Total :							

12. Please give information of the following:

Fish catch in a week		Sale		Cost structure (in Taka)					Total income in Tk.
Quantity Kilogram	Value in Taka	Qty in Kg	Val in Kg	Instru-ments	Hired labour	Rest if hired labour	Dipre-ciation	Others	

13) How do you evaluate the major problems you face in fishing?

		No	Average	Acute.
a.	Scarcity of all fish	[ ]	[ ]	[✓]
b.	Scarcity of valuable species	[ ]	[ ]	[ ]
c.	Increasing number of fishermen	[ ]	[ ]	[ ]
d.	Financial difficulties	[ ]	[ ]	[ ]
e.	Water quality problems	[ ]	[ ]	[ ]
f.	Insufficient flooding	[ ]	[ ]	[ ]
g.	Drainage too quick	[ ]	[ ]	[ ]
h.	Heavy flood	[ ]	[ ]	[ ]
i.	Slow drainage	[ ]	[ ]	[ ]

14) Describe shortly what you expect from a flood control and drainage project to improve your production by fishing:

15) What share of your yearly income is coming from fishing ?

[ ][ ] %

16) If you had to either to improve your agricultural production (In decreasing your fishing production) or maintain (or improve) your fishing production (without improvement your agricultural activities), what would you prefer?

Improve agriculture [ ] Maintain fisheries [ ]

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Section-H.
Embankments and its consequences.

1. Do you think that embankments constructed for controlling flood or drainage will improve your present situation.

   Yes = 1 ✓ No= 0

2. Which kind of improvement would you expect ?

   Free of cost Increase

3. Do you think that construction of embankments to control flood or drainage will bring some problems & difficulties (specify)?

   A. to your personally: No

   B. to the local people : No

4. Have you left your home during the flood of 1988 ?

   Yes = 1 ✓ No = 0

5. If answer to the question No.4 is yes, where have you taken shelter (Please give tick mark)?

   1. Relief camp, ✓
   2. Club/School,
   3. Relative's house,
   4. High land and
   5. Others

6. Have you faced any problem of drinking water during the flood of 1988 ?

   Yes = 1 ✓ No = 0

7. If answer to the question No.6 is yes, degree of problem that you have faced (please give mark) ?

   1. Not at all,
   2. Do not,
   3. Somewhat,
   4. Much,
   5. Very much

8. Whether your family members were affected by water-born diseases during the flood of 1988 ?

   Yes = 1, ✓ No = 0.

9. If affected, whether you have got proper medical treatment ?

Yes = 1. No = 0.

11. If answer to the question No.9 is No, what was the basic problem of getting proper treatment ?

- Scarcity of medicine
- Good Doctor not available
- Lack of money
- Others (specify)

12. Whether communication system was damaged during the flood of 1988?

Yes = [ ] No = [ ]

13. What would you suggest in protecting against flood ?

- Full protection
- Better drainage
- Flood shelter
- Others (specify)

14. How your local administration could help you during the flood ?

- R & Relief
- Warning
- Distribution of medicines.
- Measures to help (boat etc.)
- Proper discipline

15. How non-government organizations could help you during the flood?

- R & Relief
- Warning
- Distribution of medicines.
- Measures to help (boat etc.)
- Proper discipline

16. What would be your suggestion in proper maintenance of the embankment ?

- Appointed people to maintain
- Self maintenance by occupational groups
- Plantation
- Use/Occupation forbidden.

17. Breaches in embankment why ?

- Irrigation - Navigation - drainage.

18. With no much flood water what could happen ?

- then less grass for cattle
- less fallow land
- less public fisheries.

19. Do you think that more employment opportunity is for the women folk and child labour would be created if flood control measures are taken?

Yes = [ ] No = [ ]

20. Whether your neighbouring areas would be affected if flood control measures are taken only in your other areas ?

Yes = [ ] No = [ ]

21. Will your neighbouring people be resistant if flood control measures are taken only in your area?

Yes = [ ] No = [ ]

22. Will the people of the area participate in the maintenance of the embankment ?

Yes = [ ] No = [ ]

Expected Benefit (if there is control flooding) :

23. If there is control flooding, do you think flood damage to your houses & other infrastructure will.....

Totally reduce.....[ ]
Partially reduce.....[ ]
Not reduce.....[ ]
Increase.....[ ]

24. If there is control flooding, do you think flood damage to government and public owned assests (infrastructure, buildings & equipment) will

Totally reduce.....[ ]
Partially reduce.....[ ]
Not reduce.....[ ]
Increase.....[ ]

25. If there is control flooding, do you think flood damage to agricultural crops will.....

Totally reduce.....[ ]
Partially reduce.....[ ]
Not reduce.....[ ]
Increase.....[ ]

26. If there is control flooding, do you think that disruption to economic and social activities transportation, marketing of goods and communication system will

Totally reduce.....[✓]
Partially reduce.....[ ]
Not reduce.....[ ]
Increase.....[ ]
Others (Specify).....[ ]

27. What impact do you expect on fishing after the project (Water control and drainage) is implemented ?

Much benefit.....[ ]
Some benefit.....[✓]
No benefit.....[ ]
Detrimental to fishing....[ ]

28. Sources of drinking water

(1) Tubewell.....[✓]
(2) Pond.....[ ]
(3) River.....[ ]

29. If tubewell, Who is the owner of well

(1) Respondent.....[ ]
(2) Neighbour.....[ ]
(3) Government.....[✓]
(4) NGO.....[ ]

30. Do you have Electricity ? Yes...[ ] No...[✓]

31. Amount of loss by flood 1988 interms of money Tk. 3,000

CO-OPERATIVE :

1. Are you or any member of the household a member of any co-operative ?

Yes = 1 No = 0.

2. If yes, what type of co-operative is it ?

Fishermen.....[ ]
K.S.S.....[ ]
BSS/MBSS.....[ ]
NGO group.....[ ]
Handicraft.....[ ]
Others(specify).....[ ]

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NGO :

1. Are you aware if any NGO Programme/Project in your village ?

   Yes = 1 No = 0.

2. If yes, Name the NGO

   (1) _____

   (2) _____

   (3) _____

   (4) _____

3. Specify the kind of programme taken by the NGO

   (1) _____

   (2) _____

   (3) _____

   (4) _____

4. Are you or any member of your household involved in the programme ?

   Yes = 1 No = 0.

5. If yes, in which capacity,

   (1) _____

   (2) _____

   (3) _____

6. What benefit have you got so far from the NGO Programme ?

   (1) Technical inputs.....[ ]
   (2) Credit.....[ ]
   (3) Health/Family planning.....[ ]
   (4) Education.....[ ]
   (5) Others (specify).....[ ]
   (6) None.....[ ]

SECTION=I

I. Migration Pattern

1. From how long is the family (hh) settled here 40

2. If recently, from where did they come? ---

3. Is respondents father settled in this village: Yes [ ] No [ ]

4. If yes, for how long(years) 40

5. No. of member of the family left the family

   for more than 5(five) years _____

   since 1987 - 88 flood _____

   Last year _____

6. Why ? _____

7. If they left do they come back from time to time in the village and why

   _____

8. Do they still have own agricultural land in the village

   Yes [ ] No [ ]

II. Labour Force Mobility:

9. Are there some members of the family leave from time to time the household for a job ?

   No of male _____

   No of female _____

10. The kind of job:

Sex	Kind of Job (use code)	Season/Month	Place/Upazila	Wage/day	Days of work
Male:					
Female:					

Code:
Ploughing...1 Sowing...2 Wedding...3 Harvesting...4 Transpont...5
Others (Specify)...6

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III. **Land Acquisition:**

11. Would you agree if your land is acquired for embankment ?

Yes [ ] No [ ]

12. If yes, would you agree with the amount of compensation at present fixed by authority ?

Yes [ ] No [ ]

13. Did your land ever requisitioned for embankment or any other public work?

Yes [ ] No [ ]

14. If, yes, amount of land _____ decimal

Did you receive the compensation ?

Yes [ ] No [ ]

15. If yes,

Year of acquisition

Year of receiving compensation

16. If compensation was received, where was payment made

In the field

In the office

17. Whether you applied for arbitration

Yes [ ] No [ ]

18. If yes,

(a) How much money did you spent on arbitration

Tk _____

(b) How many visits made to the court

_____ visit

(c) How long did it take to get a verdict

_____

(d) How much did you spent to get the compensation after verdict

_____

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SECTION-J

INCOME AND EXPENDITURE OF HOUSEHOLD

Average Income for 7 days

Sl No.	How much earned during the last 7 days	
	Farm Income (in Taka)	Non-farm Income (in Taka)
1.		90
2.		
3.		
4.		
5.		
Total =		90

Food Expenditure for 7 Days

Sl No.	Name of Item	Amount (In Taka)
1.	Rice	110
2.	Wheat	16
3.	Pulse	
4.	Fish	5
5.	Meat	
6.	Vegetables	
7.	Fruits	
8.	Edible Oil	2
9.	Tea	
10.	Sugar/Molases	
11.	Milk	

Non-Food Expenditure for 7 Days

Sl No.	Name of Item	Amount (In Taka)
1.	[illegible]	2
2.		
3.		
4.		
5.		

Annual Housing Expenditure

Sl No.	Name of Item	Amount (In Taka)
1.	Construction house	
2.	Repairing cost	200
3.	Furniture	
4.	Utensils	
5.	Taxes	
6.	Land Revenue	
7.	Interest on loan	

Annual Farm Expenditure

Sl No.	Name of Item	Amount (In Taka)
1.	Land Purchase	—
2.	Renting Land	
3.	Hired Labour	240
4.	Seed+seedlings	125
5.	Fertilizer	152
6.	Insecticide	7—
7.	Irrigation costs	
8.	Harvesting,etc.	
9.	Agri.Tools	
10.	Others	

Annual Social Expenditure

Sl No.	Name of Item	Amount (In Taka)
1.	Wedding	
2.	Gifts to relatives	
3.	Education	
4.	Health	52
5.	Clothing	152
6.	Electricity	—
7.	Jewelery	
8.	Religious ceremony	
9.	Social ceremoney	
10.	Entertainment	
11.	Others	

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JAMALPUR PRIORITY PROJECT

Pilot survey

Upazela: Melandah Union: Adra Village: Bagadoba

Para: X Date: 24.11.91 Serial no. 170 Sheet no-1/2

I. HOUSEHOLD PARTICULARS:

Total cultivable land owned (decimals): 26, Homestead land: 05

Average Tk. spent during the last seven days: 280|00

Does any member of your HH fish ?

Yes [✓] No [ ]

Full Time [ ], Part Time [✓], Occasionaly [ ]

Does any member of your HH belong to cooperative/Group ?

Yes [✓] No [ ]

Agriculture [ ], Fishing [ ], NGO [ ], Others [✓] Gram...

II. HOUSEHOLD MEMBER'S INCOME AND EMPLOYMENT:

HH (male) particulars	1	2	3	4	5
Earning Member's name	Abdullah Mondal	X	X	X	X
Last Week income	300|00				
Last month income	1300|00				
last year income	13000|00				
How many month unemployed	02				
HH (female) particulars	1	2	3	4	5
Earning Member's name	X	X	X	X	X
Last Week income	X				
Last month income	X				
last year income	X				

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Total land irrigated (owned +sharecropped): 26

Irrigation means: [ ] Traditional
[✓] Mechanical

Owned cultivable land elevation:
[ ] high (not flooded or up to 1 foot)
[ ] Medium high (1 to 3 feet)
[ ] Medium low (3 feet to 6 feet)
[ ] Low land (3 feet to 9 feet)
[ ] very low (never dries up, beels)

IV. FISHERY

INFORMATION ON FISHING PERIODS & LOCATIONS:

	MONTH	DAYS/ MONTHS	BEEL	RIVER	FLOOD LAND
OCT 90	KARTICK	10 days	1	X	X
NOV 90	AGRAYAN	5 "	1	X	X
DEC 90	POUSH	X	X	X	X
JAN 91	MAGH	X	X	X	X
FEB 91	FALGUN	X	X	X	X
MAR 91	CHAWITRA	X	X	X	X
APR 91	BAYSAKH	X	X	X	X
MAY 91	JAYSTHAW	5 days	1	X	X
JUN 91	ASSAR	12 days	1	X	X
JUL 91	SRABAN	15 "	1	X	2
AUG 91	BHADRAW	20 "	1	X	2
SEP 91	ASSIN	30 "	1	X	2
	Type [1],[2],[3] as order of importance of each fishing location. Type [0] each time no fishing was done in one or several locations.				

INFORMATION ON CATCH X

	Today	Yesterday	Day before yesterday
Total catch (Kg) 3Kg.	3Kg.	X	X
Location	1	X	X

Beel & Kua (1), Jamuna (2), Brahmaputra (3), Others river and Khals (4) Flood plain (5).

Name of interviewer: Arunkumar Ray 24.11.91 Supervisor check: _____

JAMALPUR PRIORITY PROJECT STUDY.

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HOUSEHOLD CENSUS. Sheet No.: 57

Date: 6.11.91

Category of agricultural land owned.

Upazila : Melandah
Union : Mahmudpur
Village : Kasikata
Para : West Para

[1] 00.00 to 00.05 acre — Landless.
[2] 00.05 to 02.50 acre — Marginal.
[3] 00.51 to 02.50 acre — Small.
[4] 02.51 to 07.50 acre — Medium.
[5] 07.50 and above acre — Large.

Sl No	Name of Household head.	Father's name	Total member	Occupation (Code No.)	Agri land own.
26	Md Taher Ali Mondal	Late Mirzadduzaman	4	I	50
27	" Hason Ali "	Do	5	I	50
28	" Abdul Wahab Mondal	Late Hyder Ali	5	3	15
29	Monwaran Bibee Mst	Late Wahes	3	4 Begam	0
30	Md Abdur Rahim Mondal	Late Bihariullah	5	1	30
31.	" Abdur Rashid.	Late Abdul Hamid.	18	3	30
32	" Abdur Rouf "	Abdur Rahim	6	1	150
33	" Abdul Wared "	Do	4	1	80
34	" Abdul Kadir "	Late Hyder Ali (S)	6	3	20
35	" Abdul Hug "	Do	7	1	200
36	Abdul Hakim Miyasat	Late Abdul Jabbar	7	1	50
37	Mohammad Sekandar Ali "	Do	6	3	40
38	" Abdus Samad "	Do (Md)	7	1	60
39	" Akkas Ali Mondal	Late Waseemuddin (M)	8	1	35
40	Md. Samad Mondal	Late Karimuddin	9	1	120
41.	" Altaful Rahman	Late Mojharul Islam	5	1	50
42	" Abul Hossain "	Do	8	2	40
43	" Abul Kasem "	Do	5	1	150
44	" Ahed Ali Fakir	Late Ayezuddin	16	2	0
45	" Jalil Fakir	Ahed Ali	4	4 Rickshaw	0
46	" Saiful "	Do	4	4 "	0
47	" Esmail "	Late Ayezuddin	9	4 day labour	0
48	" Gufur Ali "	Do	8	2	0
49	" Sokrab Ali Mondal	Late Kalia	5	4 day labour	0
50	" Alauddin Mondal (L)	Late Kalia	5	4 day labour	0

Occupation Code :

1- Agriculture (Livestock, fishery)
2. Business (Manufacture)
3- Service
4. Others.

Name of interviewer: Nripendra Nath Bain 6.11.91

Supervisor check: [signature] 10.11.91

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JAMALPUR PRIORITY PROJECT

Complementary Agro-information (year 91-92)

.No...

Thana..Dewanganj........ Union..[illegible]..........

Village..[illegible]............

Farmers name...Md. Khalilur Rahman Father's name..[illegible].......

[LL] [MF] √[SF] [MedF] [LF]

Total operated land :(in decimals)..[illegible]..........

(Owned + Sharecropped in + Leased in + Mortgaged in) - (Sharecropped out + Leased out + Mortgaged out)

CROPPING PATTERN (From June 91 to July 92)

	Plot No.	Size (dec)	Type (*)	Crop 1 Code	Area (dec)	Prod (Md)	Irri. cost (Tk)	Damage %	Crop 2 Code	Area (dec)	Prod (Md)	Irri. cost (Tk)	Damage %	Crop 3 Code	Area (dec)	Prod (Md)	Irri. cost (Tk)	Damage %
249	[illegible]	135	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]						
250		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]						
251	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	[illegible]	[illegible]						

What changes will occur if the surrounding area is protected against flood?...Increase of [illegible]...

.........will be changed...

....

....

Will the cropping pattern change?, explain if yes.....[illegible] HYV [illegible]...................................

..Sugarcane [illegible]...................................

.... [illegible]

....

* Land elevation: (1) flooded up to 1 foot (normal flood)

(2) flooded from 1 to 3 feet

(3) flooded above 3 feet

Date..28/9/92

Name of interviewer...Shankar Kumar [illegible]