PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Irrigation, Water Development and Flood Control

Bangladesh Water Development Board

CYCLONE PROTECTION PROJECT II - FAP 7
FEASIBILITY AND DESIGN STUDIES

FINAL PROJECT PREPARATION REPORT

APPENDIX E - SOCIO-ECONOMICS

May 1992

Joint Venture of
KAMPSAX INTERNATIONAL A/S,
BCEOM
DANISH HYDRAULIC INSTITUTE
in association with
DEVELOPMENT DESIGN CONSULTANTS LTD

Financed by European Community - Project No. ALA/87/05

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The present Report Volume is part of the

CYCLONE PROTECTION PROJECT II - FAP 7
FEASIBILITY AND DESIGN STUDIES
BWDB COMPONENT
FINAL PROJECT PREPARATION REPORT

Consisting of the following Volumes :

Volume 1	-	Main Report
Volume 2	-	Annexes I - XI, XIII
Volume 3	-	Annex XII - Polder Data
Appendix A	-	Hydraulic Studies
Appendix B	-	Field Surveys and Soil Investigations
Appendix C	-	Embankment Design
Appendix D	-	Agriculture
Appendix E	-	Socio-Economics
Appendix F	-	Operation & Maintenance
Appendix G	-	Cyclone Early Warning System
Appendix H	-	Afforestation
Appendix I	-	Feasibility Study on Patenga Project.
Appendix J	-	Fisheries.

ABBREVIATION AND ACRONYMS

AEZ	:	Agro Ecological Zone
BARC	:	Bangladesh Agricultural Research Council
B. Aman	:	Broadcast Aman
BBS	:	Bangladesh Bureau of Statistics
Bigha	:	One standard bigha measuring 0.33 acre of land
BRDB	:	Bangladesh Rural Development Board
BSCIC	:	Bangladesh Small & Cottage Industries Corporation
BWDB	:	Bangladesh Water Development Board
CPP-II	:	Cyclone Protection Project-II
FY	:	Fiscal Year : July - June
GDP	:	Gross Domestic Products
Gher	:	Ponded area for shrimp farming
GOB	:	Government of Bangladesh
Hari	:	Amount payable to lessor by lessee towards payment of lease money for use of land for shrimp culture
HYV	:	High-Yielding Variety
IDA	:	International Development Association of the World Bank
Khas land	:	Undisposed Government land
MCC	:	Meunonite Central Committee
NGO	:	Non-government Organization
O&M	:	Operation and Maintenance
Polder	:	Land area protected by embankment
SRDI	:	Soil Resources Development Institutes,Ministry of Agriculture
T. Aman	:	Transplanted Aman
VSST	:	Very Shrouded Shallow Tubewells

1. INTRODUCTION

The Cyclone Protection Project II covers feasibility and design studies pertaining to construction of embankments and associated hydraulic structures of the selected polders. The present report covers the socio-economic aspects of the study.

The study covers 34 polders in the coastal belts which are spread over in 32 upazilas and 11 districts. These polders are situated in three major agro-ecological zones protecting about 400,000 ha of valuable agricultural land, besides providing protection to human and animal life, properties and economic infrastructures worth billions of taka.

1.1 Problems of Data Collection

Collection of relevant agricultural and socio-economic data for the study polders was subject to certain constraints. Due to shortage of time and manpower to cover such large number of polders, no well planned sample survey could be carried out to generate precise polderwise relevant data. Such statistics are not available from any secondary sources either. Therefore, efforts were made to collect upazilawise relevant statistics from various sources covering a number of years during the post-liberation period. These data may not be truly representative of all the polders. But under the existing limitations, nothing better could be done. Examples from Noakhali and Patuakhali are shown to visualize some aspects of the socio-economic conditions but they are not necessarily representative for all polders.

Several quick reconnaissance visits were also made covering a number of polders in each of the three regions to have broad identification of major agricultural and socio-economic problems and characteristics. Various groups of people were contacted including farmers, fishermen, shrimp culturists etc to review the current status of their respective occupations and the benefits that are likely to accrue with implementation of the project. Also various govt. and non-govt. agencies servicing the polder areas were interviewed.

1.2 Grouping of Polders

The study polder areas have been grouped into 3 regions namely, South-West, Central and South-East, which also coincide with major agro-ecological zones: Ganges Tidal Floodplain (AEZ-13), Young Meghna Estuarine Floodplain (AEZ-18) and Chittagong Coastal Plain (AEZ-23) respectively. These regions have by and large distinct agricultural, physical and socio-economic characteristics.

1.3 Beneficiaries of the Project :

The study polders are inhabited by an estimated number of 3 million people having 528,900 households. Of these, about 30% are non-farmers, and 70% are farmers. The proportion of non-farm holdings is generally lower in the South-West region compared to the other two regions. The consolidated regionwise distribution of beneficiary population and households is shown below:

Region/Agro Ecological Zone	No. of Polders	Area Protected-(ha)	Estimated No.of Beneciary Population	Estimated No. of Benecifiary House-holds	P. C. Distribution of Holding		
					Non Farm	Farm	Total
I. South-West (AEZ-13)	16	163,373	1,138,100	202,000	24.2	75.8	100.0
II. Central (AEZ-18)	7	188,527	1,382,500	239,600	29.1	70.9	100.0
III. South-East (AEZ-23)	11	48,240	527,400	87,300	40.0	60.0	100.0
Total	34	400,140	3,048,000	528,900	29.6	70.4	100.0

Table 1.1 : Regionwise Area Protected by Polders and Their Beneficiaries

2. MAJOR CHARACTERISTICS OF THE REGIONS

2.1 Physiographic Characteristics

The study regions have the following major physiographic characteristics:

South-West : This region known as "Atlantic" type is characterised by large and close networks of inter-connected tidal rivers and creeks with stable land mass. The "Swatch of No Ground" sucks in the relatively small loads of sediments that are carried by smaller but deeper rivers, thereby limiting land erosion and land accretion considerably. The world's largest mangrove forest " the Sunderbans" is located to the South.

Central Region: This is the most active area of the delta where massive sediments of the Ganges-Brahmaputra-Meghna river system fall into the Bay of Bengal through the Meghna estuaries and thereby contribute to massive land accretion and land/bank erosion simultaneously.

South-East : This region, known as "Pacific Type" is the most settled land mass among the three regions having narrow strips with long sandy beaches interface with the sea on the western side and the hills of Cox's Bazar to the East.

2.2 Incidence of Flood Hazards

Frequency of flood hazards seems to be relatively low in the South-West compared to the other two regions. Table 2.1, presents the data on percentage distribution of areas under different frequency of flood hazards during a 10-year period. These data are based on SRDI Soil Survey Reports as maintained by BARC Computer Centre. The dominant category of flood occurrences in the South-West was twice in a 10-year period. The trend was generally the same in the other regions but with greater proportion of land flooded with frequency of 3-4 times and 5 times or more during the 10-year cycle.

2.3 Climate

One important climatic characteristic of the coastal regions is the relatively shorter length of the cool winter period with mean duration of 30-50 days compared to 3 months in the rest of the country. This climatic condition coupled with large scale drainage congestion and resultant late land preparation greately limits intensification of rabi crop cultivation in those regions.

Table 2.1 : Percentage Distribution of Areas Under Different Frequency of Flood Hazard in a 10-Year Period

Polder Number	Upazila	Once	Twice	3-4 Times	5 Times or more	Total
Group I: AEZ - 13						
Sub-group 1:						
P-5	Kaliganj	18.5	81.4	-	0.1	100
P-7/1 & P-7/2	Asashuni	7.9	89.1	2.8	0.2	100
P-10-12	Paikgacha	20.5	76.1	0.3	3.1	100
P-14/1 & P-14/2	Koyra	5.5	89.7	0.6	4.2	100
P-5 (part) & P-15	Shamnagar	3.4	93.5	3.1	-	100
P-31 & P-32	Dacope	12.0	84.2	-	3.8	100
Sub-group 2 :						
P-35/1	Sarankhola	44.4	55.6	-	-	100
Sub-group 3 :						
P-40/1 & P-40/2	Patherghata	-	99.2	0.8	-	100
P-45	Barguna	-	100.0	-	-	100
P-48 & P-46	Kalapara	-	98.9	1.1	-	100
Group II : AEZ - 18						
Group 4:						
P-57/56	Char Fasson	-	88.6	10.2	1.2	100
	Daulatkhan	-	14.2	85.8	-	100
	Burhanuddin	-	69.4	27.1	3.5	100
	Tazumuddin	-	49.5	50.5	-	100
	Lalmohon	-	81.9	16.7	1.4	100
P-59/2	Ramgati	48.3	1.2	37.6	12.9	100
P-59/3B & P-59/3C(Part)	Sudharam	36.4	5.6	33.0	25.0	100
P-59/3C (part)	Companiganj	29.8	8.6	40.0	21.6	100
P-60	Sonagazi	39.4	14.2	38.8	7.6	100
P-73/2B	Hatiya	36.4	-	39.4	24.2	100
P-72	Sandwip	-	63.0	19.9	17.1	100
Group III : AEZ - 23						
Sub-group 5:						
P-62	Chittagong Port	-	53.5	38.4	8.1	100
Sub Group 6:						
P-61/1	Sitakundu	1.0	67.5	13.1	18.4	100
P-63/1A	Anowara	-	78.1	-	21.9	100
P-64/2A	Banshkhali	0.5	74.1	3.2	22.2	100
P-64/2B	Chokoria	0.8	67.2	19.1	12.9	100
P-66/1	Ramu	1.1	93.4	2.5	3.0	100
P-66/3	Cox's Bazar	0.3	75.1	10.4	14.2	100
P-68	Teknaf	4.8	59.6	14.0	21.6	100
P-69 & P-70	Maheskhali	0.7	49.0	13.0	37.3	100
P-71	Kutubdia	-	77.6	8.3	14.1	100

Source : BARC Computer Centre

Tab-9/CPP-II/2

The most glaring climatic phenomenon is the periodic occurrence of cyclones and storm surges, which pose serious threats to life, properties and infrastructure in the regions. There were reportedly 59 recorded events of cyclones during the last two centuries. Frequency of these cyclones during 50-year cycle was as follows:

	Period	No. of major cyclone occurrences
I	1795-1845	4
II	1846-1896	3
III	1897-1947	13
IV	1948-1991	39
	Total	59

Table 2.2 : Frequency of Cyclone Occurrences

Source : 1990 Statistical Yearbook of Bangladesh

There are indications to suggest that the occurrence of severe cyclones might have increased in the recent decades.

2.4 Physical Infrastructures

There are grossly inadequate facilities of physical infrastructures like roads, markets and communication in the coastal belt which seriously impede development of these areas. Sense of isolation from the settled habitation without having civic facilities and constant threats to life and properties by climatic hazards and organized crimes make life of the people of the outlying polders highly miserable.

In some areas boats are the only means of transport, in most rickshaws are the only vehicle available. Roads are mostly dirt roads and unfit for travel during monsoon. The absence of a market or an inadequate market is not only a constraint for development, but has basic social implications too. The market is a very important institution in Bangladesh. The landless are highly dependent on it for their daily food. Farmers may have surplus production and depend on the market to sell it and buy what is not produced like fish, spices, oil, soap, molasses, kerosine, tobacco and betel nut. Not having radioes and television the market also provides news and is the basis of local political mobilization.

3. IMPORTANCE OF VARIOUS SUB-SECTORS OF AGRICULTURE

Importance of various sub-sectors of agriculture to the regional economies of the study area has been reviewed on the basis of available data on the contributions of these sub-sectors to the regional gross domestic products over the years. The details of these data on GDP at current prices for crops, livestock, fisheries and forestry for the regions of Chittagong, Noakhali, Barisal, Patuakhali, Khulna and those of Bangladesh are presented in Enclosure-1. Per capita GDP and percentage contributions of agriculture to the gross regional domestic products have also been shown therein. Data have been given for the period 1976-77 to 1988-89 based on BBS statistical publications.

The crop sub-sector continues to be the dominant contributor to the regional economies with maximum contribution in Noakhali region. Performances of the livestock sub-sector have been erratic. Contribution of the fisheries sub-sector registered drastic reductions in Noakhali, while in Patuakhali and Barisal higher productivity and value added contributions were observed in the recent years. Performances of Khulna region have been quite modest despite recent growth of shrimp culture in that region.

Forestry makes nearly 50% contribution to the regional domestic products of Khulna followed by Chittagong (17%). Growth in both these regions was also very high. Its contributions were minimal in Noakhali, Patukhali and Barisal ranging around 1-2%.

Indices of the value of gross domestic products were calculated with 1976-77 as the base year. Relative performances of the four sub-sectors could also be somewhat assessed from such indices. In some regions, forestry indices were high. These were indicative of increases from low bases. Value added annually from livestock exceeded that of crop in Noakhali, Barisal, Patuakhali and Khulna consistently over years. These are pointers to the greater comparative advantages of raising livestock in these regions vis-a-vis crops. Fisheries performances were relatively poor in Khulna.

4. AGRO SOCIO-ECONOMIC FEATURES

4.1 Characteristics of Farm and Non-Farmholdings

The rural landless and landpoor households can be categorized as squatters, sharecroppers, small farmers cum sharecroppers and marginal farmers.

Squatters are homestead and landless people settled on public land, such as coastal embankments and road-sides on newly gained coastal areas (char land). Squatters gain an income from agricultural labour, capture fisheries and traditional culture fisheries in road-side ditches and small canals. Sharecroppers without own homestead and land may be settled by absentee private large size or medium size landowners in the char land and earn their income from sharecropping plus capture fisheries in nearby rivers and irrigation canals. The same group of share-croppers, but settled by landowners in old areas (often highlands), earn their income by sharecropping, seasonal wage labour, seasonal capture fisheries for self consumption and occasional sale.

Small farmers cum sharecroppers with own homestead, a small pond and some cultivable land up to 0.5 acres living in old areas, cultivate own land, cultivate fish in own pond (traditional) and in some cases do sharecropping, and seasonal capture of fish for own consumption. The marginal farmers with own homestead, a small pond and cultivable land up to 2.5 acres cultivate their own land and have traditional fish culture in own pond.

The proportion of non-farm holdings ranges around 20-31% in the South-West region, 22 to 51% in the Central and 30-63% in the South-West region. The percentage distribution of households as per ownership of land and homestead is shown in Table 4.1. There is wide range of polderwise variation in the proportion of holdings having no owned land and homestead and no cultivated land. Percentage of holdings having no owned land ranged between 3-16% in the South-West, 1-19% in the Central and 1-36% in the South-East regions. Proportion of holdings having no homestead ranges between 1-6%, 2-3% and 2-7% respectively. Many of such landless and homesteadless people, particularly those affected by river bank erosion, have taken shelters on embankments. Percentage of households having homestead but no cultivated land ranges between 11-25%, 11-45% and 19-47% in the three regions.

The following is an example from one of the surveyed areas, namely Patuakhali:

In this area 30.92% the land is homestead land. Average size of homestead land is increasing with the increase in landownership. 62.60% of landless, 35.21 % of marginal and 14.29% of small households own no homestead

Table 4.1 : Percentage Distribution of Households as per Ownership of Land and Homestea and Agricultural labour

(Figures in Percentage)

Polder Number	Upazila	Total Farm & Non-Farm	Households with no Owned Land	Households with no Homes-tead Area	Household with Home tead but no cultivated land	Agricultural Labour Households
Group I AEZ:13						
Sub-group 1:						
P-5	Kaliganj	100.0	10.4	1.5	18.0	46.3
P-7/1 & P-7/2	Asashuni	100.0	3.8	1.6	20.5	62.0
P-10-12	Paikgacha	100.0	6.5	1.3	15.0	42.4
P-15	Shamnagar	100.0	3.0	0.8	20.9	58.7
P-31 & P-32	Dacope	100.0	10.6	1.4	13.2	44.1
Sub-group 2 :						
P-35/1	Sarankhola	100.0	12.5	1.2	13.0	42.9
Sub-group 3 :						
P-40/1 & P-40/2	Patherghata	100.0	4.0	1.4	11.5	40.5
P-45	Barguna	100.0	5.1	2.6	10.9	36.2
P-46 & P-48	Kalapara	100.0	15.9	1.5	25.3	41.0
P-54	Amtoli	100.0	10.7	6.2	23.4	43.1
Group II AEZ 18						
Group 4:						
P-57/56	Char Fasson & OtherUpazila	100.0	18.7	1.8	19.6	51.0
P-59/2	Ramgati	100.0	17.8	1.7	19.2	48.7
P-59/3B & P-59/3C(Part)	Sudharam	100.0	1.0	1.9	11.3	40.7
P-59/3C (part)	Companiganj	100.0	3.9	1.7	15.1	33.7
P-60	Sonagazi	100.0	2.3	3.3	20.4	32.2
P-73/2B	Hatiya	100.0	1.8	2.0	17.2	47.5
P-72	Sandwip	100.0	16.7	1.9	47.3	35.9
Group III: AEZ 23						
Sub-group 5:						
P-62	Chittagong Port	100.0	2.2	1.9	46.7	24.9
Sub Group 6:						
P-61/1	Sitakundu	100.0	35.6	6.6	46.2	16.0
P-63/1A	Anowara	100.0	1.6	1.7	34.8	37.3
P-64/1A	Banshkhali	100.0	1.6	1.6	19.1	44.5
P-64/2B	Chokoria	100.0	9.8	1.7	26.1	39.7
P-66/1	Ramu	100.0	15.5	2.2	35.8	28.3
P-66/3	Cox's Bazar	100.0	10.8	2.6	37.4	45.7
P-68	Teknaf	100.0	19.2	2.5	36.1	27.0
P-69 & P-70	Maheskhali	100.0	6.6	3.1	45.7	34.5
P-71	Kutubdia	100.0	5.7	1.3	31.7	32.3

Source : Bangladesh Census of Agriculture & Livestock, 1983-84

Tab-58/CPP-II/3

land living on relatives land mainly. For (medium-1 households and medium-2 households the percentage is 23.53 and 6.25 respectively).

93.11% of the households in the Patuakhali project area own their own housing units. The number of housing units increases with the increase in land ownership. Average number of housing units as well as the average value of houses per household vary directly with the land status of the household.

A landless household owned average 1.42 housing units (worth Tk. 658.12). The corresponding figures for the marginal, small, medium-1, medium-2 and large categories were 1.98 (worth Tk. 1,682), 2.78 (worth Tk. 4,069), 2.62 (worth Tk. 4,593), 3.56 (worth Tk. 6,493) and 3.73 (worth Tk. 8,138) respectively. Most of the housing units in the non-target group households have clay made floors and tin-made walls and roofs.

Outside Patuakhali the housing materials vary according to availability of building materials and tradition. In areas where jute production is plentiful, the walls of the houses may be made by jute sticks, in Noakhali many target group households have walls of braided plant material, and along the coast line of Chittagong also walls of mud are seen.

4.2 Agricultural Labour Market

Kinship norms say that the more well-off households within a lineage are responsible for the poorer households, and thus should provide the poor households of their own lineage with land as share-croppers, employ their own poor kinsmen as daylabourers or provide them with urban jobs within the same factory or department where richer and better educated lineage members work.

The local power structure is built around the patron-client relationship. In order to secure support, be it for local elections or to built up a strong support when conflicts arise, the more wealthy households who want to complete or play a role in local politics will organize production in such a way that they get as many supporters as possible. One way to securing supporters, or clients, is to distribute the land for cultivation to as many sharecroppers as possible. Relations with day labourers may be built up to serve the same purposes as may the ability to secure a job for somebody. These relations are frequently reinforced by short-term consumption loans, advance payment and other favours.

Apart from the principle of kinship norms and local power structure, there is a third principle involved in the way working relationships are organized in the area, which relates to the market for labour. Here the price and the quality of labour become important, and the landowner or employer takes up individual contact with the labourers negotiating the time and price for a specific piece of work. Labour gangs can also be employed for larger

tasks. There is a tendency for the labour gang leaders to be co-opted by the local rural elite and they may gradually stop doing physical labour on their own. The labour leaders are often seen as a threat by the local patrons, as they have a certain authority with the labourers in their group and this authority can be used in situations of conflict. This is the main reason why the local elite might choose to co-opt such a man, if he becomes too powerful.

Generally wages and working hours are well defined in the project area though they are not alike. Wages vary according to the time of the year and to the heaviness of the job to be performed.

The distribution of agricultural labour households among farm and non-farm and among 3 groups of farm holdings has been shown in Table 4.2. The proportion of agricultural labour households which is an indicator inversely related to rural progress and prosperity, was relatively higher in both farm and non-farm holdings in the South West and the Central regions compared to the South-East region. Asashuni having Polders 7/1 and 7/2 ha the highest proportion of agriculture labour while Sitakundu with Polder 61/1 ha the lowest such holding among non-farm, farm/small farm holdings. Some of the medium and large farm holdings also took resort to agricultural labour. Proportion of agricultural labour holdings among medium farms was highest in Koyra (Polders 14/1 and 14/2) with 22.8% and lowest in Sonagazi (Polder 60) with 4.1%.

Labour is hired on a permanent basis (one year contracts) or on daily basis. In Patuakhali permanent labourers receive 20 mounds (744 kg) of paddy or the equivalent in money per year and new clothes yearly. Old and young/child labourers receive less. All permanent labourers receive 3 meals daily. Day labourers receive food, 2 meals and about twenty-five taka a day during the peak season, and 15 taka a day during the slack season.

During the peak season of the harvest, workers in the project area may get as much as 50 taka per day, because work has to be completed within a very limited time, before fields get flooded again.

Due to the rather short peak season for the most important activities in agriculture, even small farmers frequently require extra hands and employ wage labourers.

The seasonality also increases as peak seasons for HYV paddy are shorter, and this increases migrant labour in agriculture, as the peak seasons in different regions of Bangladesh fall at different times. An effect of this seasonal migration is a check on wage rates as migrant labour tends to be cheaper than local labour.

Table 4.2 : Percentage Distribution of Agricultural Labour Households Among Farm and Non-farm Holdings

Polder Number	Upazila	All Holdings	Non-Farm Holdings	Farm Holdings	Small Farm Holdings	Medium Farm Holdings	Large Farm Holdings
Group I : AEZ-13							
Sub-group 1:							
P-5	Kaliganj	46.3	68.9	37.7	50.3	16.1	1.5
P-7/1 & P-7/2	Asashuni	62.0	86.6	52.9	71.3	20.4	1.1
P-10-12	Paikgacha	42.4	61.5	37.8	51.7	19.8	0.6
P-14/1 & P-14/2	Koyra	49.1	71.7	42.6	56.5	22.8	1.5
P-5 (part) & P-15	Shamnagar	58.7	85.1	48.8	69.0	24.8	1.5
P-31 & P-32	Dacope	44.1	70.4	37.3	62.1	17.0	0.8
Sub-group 2 :							
P-35/1	Sarankhola	42.9	56.5	38.0	49.0	15.7	0.8
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	40.5	61.6	35.4	46.6	15.2	1.4
P-45	Barguna	36.1	80.3	24.9	32.8	5.2	0.1
P-48 & P-46	Kalapara	41.0	69.2	28.4	48.7	5.3	0.4
Group II : AEZ-18							
Group 4:							
P-57/56	Char Fasson	54.4	85.7	40.8	57.2	11.3	1.1
	Daulatkhan	46.5	66.6	35.6	41.9	14.2	2.7
	Burhanuddin	48.3	79.2	36.7	48.4	8.1	1.4
	Tazumuddin	59.8	70.6	44.9	57.5	11.4	2.4
	Lalmohon	52.0	89.5	37.1	49.3	10.3	0.9
P-59/2	Ramgati	48.7	72.5	38.1	51.8	15.2	1.0
P-59/3B & P-59/3C(Part)	Sudharam	40.7	60.9	35.1	41.9	20.4	2.5
P-59/3C (part)	Companiganj	33.7	64.9	23.0	27.6	5.8	0.3
P-60	Sonagazi	32.8	54.1	24.0	28.1	4.1	0.3
P-73/2B	Hatiya	47.5	65.3	40.0	54.2	6.0	1.3
P-72	Sandwip	35.9	47.2	24.2	31.0	8.7	1.9
Group III : AEZ-23							
Sub-group 5:							
P-62	Chittagong Port	24.8	26.8	22.5	25.6	9.7	1.3
Sub Group 6:							
P-61/1	Sitakundu	18.2	22.1	11.6	12.7	4.7	1.8
P-63/1A	Anowara	37.3	55.4	26.4	28.9	7.5	1.3
P-64/1A	Banshkhali	44.5	59.3	38.0	41.5	20.9	4.0
P-64/2B	Chokoria	39.7	58.1	31.6	39.8	10.3	2.7
P-66/1	Ramu	28.3	41.5	20.2	26.6	7.5	2.1
P-66/3	Cox's Bazar	45.7	56.7	38.0	43.2	21.3	8.9
P-68	Teknaf	27.0	42.3	15.9	21.9	4.2	0.5
P-69 & P-70	Maheskhali	34.5	49.6	20.6	24.5	7.5	3.6
P-71	Kutubdia	32.2	44.3	26.1	32.4	5.1	0.4

Source : Bangladesh Census of Agriculture and Livestock, 1983-84

The large number of migrant labourers is a predominant feature e.g. of Noakhali. Between 18 and 27% of the male population work so far away from their homes that they may become temporary visitors and supporters of women and children living in the village. They go to Dhaka, Sylhet, Chittagong, Pakistan and the Middle-East retaining their families in their home villages and keep their landholding, if they have any.

Many men combine two types of work, frequently agriculture, day-labour, and/or petty trade. During the monsoon, some may go to the cities finding employment in the building industry, as rickshawallahs or in petty trade.

Most women are engaged in household work and the processing of paddy, a few work with handicrafts, some raise chicken and livestock or cultivate vegetables. But the labour market is undergoing substantial changes regarding the traditional gender division of labour.

A few generations ago most of the rural households making their living from agriculture had sufficient land so that the women of the households could be employed with rice processing and household chores. But in the landless and landpoor families today, the traditional female activities are not sufficient to make a full working day. There is no rice to process, no vegetables to tend to and preserve and on some days there is not even any food to cook. A very strong illustration of this decrease in the "value" of woman can be observed in relation to marriage negotiations and arrangements in Muslim families.

A household owning enough land to support itself with food and able to make some surplus in order to buy clothes, salt, kerosine, and other basic necessities, also has sufficient work in the household for the women and the older children. A household with a large surplus agricultural production might even employ female and/or child labour from poor households. It is in the poor households with too little land women and children might become burdensome from an economic point of view. They become dependent of male earnings as it is considered socially degrading for a household, if the women have to seek employment outside. Out of necessity many women today have to seek work outside their households and family circles, often paying a very high social price.

4.3 Distribution of Farm Holdings

The polderwise percentage distribution of the number, operated area and average farm has been shown in Table 4.3. The proportion of area operated by small farms is the lowest in the South-West region and highest in the South-East region. The opposite applies in respect of large farms. The concentration of big chunks of land in the hands of large land owners, most of whom are reportedly absentees, gives rise to serious problems of optimum land use and equity. There is also widespread prevalence of

Table 4.3 : Percentage Distribution of Farms as per Size of Holding

Polder Number	Upazila	Percentage Distribution No. of Farms				Percentage Distribution : Operated Area				Average Farm Size (In Hectare)				% of Non-Farm House-holds (No.)
		Small	Medium	Large	Total	Small	Medium	Large	Total	Small	Medium	Large	Average	
Group I : AEZ - 13														
Sub-group 1:														
P-5	Kaliganj	66.7	24.6	8.7	100.0	20.1	39.9	40.0	100.0	0.33	1.76	4.98	1.08	27.6
P-7/1 & P-7/2	Asashuni	67.0	24.8	8.2	100.0	22.7	39.5	37.8	100.0	0.37	4.32	5.04	1.08	26.8
P-10-12	Paikgacha	61.1	28.1	10.8	100.0	17.8	40.0	42.2	100.0	0.36	1.77	4.85	1.24	21.5
P-14/1 & P-14/2	Koyra	64.5	26.2	9.3	100.0	19.8	29.8	50.4	100.0	0.35	1.74	5.03	2.81	22.2
P-5 (part) & P-15	Shamnagar	60.7	27.2	11.8	100.0	15.4	38.5	46.1	100.0	0.32	1.80	5.00	1.28	27.2
P-31 & P-32	Dacope	50.1	35.8	14.1	100.0	12.5	43.2	44.3	100.0	0.38	1.82	4.73	1.51	20.5
Sub-group 2 :														
P-35/1	Sarankhola	69.1	25.4	5.5	100.0	22.6	48.6	28.8	100.0	0.29	1.71	4.64	0.70	26.6
Sub-group 3 :														
P-40/1 & P-40/2	Patherghata	67.1	26.8	6.1	100.0	22.8	48.5	28.7	100.0	0.32	1.72	4.52	0.95	19.3
P-45	Barguna	72.1	22.7	5.2	100.0	26.6	43.6	29.8	100.0	0.33	1.69	5.03	0.88	20.3
P-48 & P-46	Kalapara	55.0	29.5	15.5	100.0	12.1	32.7	55.2	100.0	0.35	1.76	5.64	1.59	31.0
Group II : AEZ - 18														
Group 4:														
P-57/56	Char Fasson	62.2	25.4	8.4	100.0	21.6	39.0	39.4	100.0	0.37	1.73	5.30	1.13	30.2
	Daulatkhan	78.7	18.1	3.2	100.0	36.2	41.4	22.4	100.0	0.33	1.66	4.96	0.72	35.1
	Burhanuddin	71.7	23.3	5.0	100.0	28.8	42.2	27.0	100.0	0.35	1.67	4.78	0.88	27.3
	Tazumuddin	73.4	22.6	4.0	100.0	32.6	45.5	21.9	100.0	0.37	1.67	4.57	0.83	26.5
	Lalmohon	70.0	23.8	6.2	100.0	26.4	42.2	31.4	100.0	0.36	1.69	4.84	0.95	28.5
P-59/2	Ramgati	66.8	25.8	7.4	100.0	23.3	42.0	34.7	100.0	0.36	1.70	4.95	1.05	29.8
P-59/3B & P-59/3C(Part)	Sudharam	73.3	20.3	6.4	100.0	26.8	36.5	36.7	100.0	0.34	1.65	5.30	0.92	21.9
P-59/3C (part)	Companiganj	79.6	17.1	3.3	100.0	35.9	37.9	26.2	100.0	0.33	1.61	5.71	0.73	25.5
P-60	Sonagazi	82.9	15.7	1.4	100.0	49.0	40.2	10.8	100.0	0.36	1.55	4.72	0.61	29.4
P-73/2B	Hatiya	66.2	25.0	8.8	100.0	20.5	39.3	40.2	100.0	0.34	1.75	5.10	1.11	25.6
P-72	Sandwip	70.6	25.6	3.8	100.0	31.8	46.1	22.1	100.0	0.38	1.50	4.80	0.84	51.0
Group III : AEZ - 23														
Sub-group 5:														
P-62	Chittagong Port	86.7	11.9	1.4	100.0	50.9	36.5	12.6	100.0	0.32	1.66	4.98	0.54	53.9
Sub Group 6:														
P-61/1	Sitakundu	86.0	13.2	0.8	100.0	55.4	37.5	7.1	100.0	0.35	1.53	5.24	0.54	62.8
P-63/1A	Anowara	88.9	10.4	0.7	100.0	62.9	30.2	6.9	100.0	0.37	1.52	4.64	0.52	37.6
P-64/1A	Banshkhali	84.2	14.3	1.5	100.0	50.7	37.1	12.2	100.0	0.36	1.55	4.94	0.60	30.5
P-64/2B	Chokoria	73.4	22.4	4.2	100.0	33.7	41.7	24.6	100.0	0.40	1.70	4.52	0.96	38.1
P-66/1	Ramu	68.1	26.9	5.0	100.0	28.6	47.7	23.7	100.0	0.40	1.70	4.52	0.96	38.1
P-66/3	Cox's Bazar	77.7	19.5	2.8	100.0	38.0	43.0	19.0	100.0	0.36	1.63	4.90	0.74	41.3
P-68	Teknaf	67.4	26.0	6.6	100.0	22.4	45.4	32.2	100.0	0.33	1.76	4.92	1.00	42.2
P-69 & P-70	Maheskhali	77.9	19.4	2.7	100.0	41.6	40.9	17.5	100.0	0.41	1.62	5.12	0.77	47.8
P-71	Kutubdia	77.3	19.8	2.9	100.0	40.7	42.2	17.1	100.0	0.40	1.64	4.46	0.77	33.8

Source :Bangladesh Census of Agriculture & Livestock, 1983-86

share cropping in the areas with higher concentration of large absentee farm holders.

Kalapara (Polder 46,48) has the highest proportion of land (55.2%) operated by large farms while Anowara (Polder 66/1) has the lowest percentage (6.9%) of such land. The opposite applies to the distribution of small farms in these two upazilas.

The average farm sizes were relatively higher in the South-West compared to the other two regions. This was highest in Koyra (Polder 14/1, 14/2) with 2.81 acres and lowest in Anowara (Polder 63/1A) having 0.52 acre.

4.4 Holding Rearing Livestock

Rearing of livestock is undertaken by farm and non-farm households in varying degrees to provide nutritious animal products, augment family income and provide traction power. These resources are subject to periodic cyclones and storm surges hazards when thousands of them are washed away.

Bovine Animals

The percentage distribution of holdings with bovine animals and their availability per 100 hectares of operated land and per 1000 population upazilawise and polderwise have been shown in Enclosures 2 and 3. Bovine animals are primarily for traction, milk and meat purposes. The higher the farm sizes the greater is the proportion of holdings rearing these animals with non-farms having the lowest proportion. Availability of bovine animals per 100 ha decreases with increase in farm sizes. Small farmers rear more of these animals mainly to supplement their meager farm income as animals are less susceptible to damages/losses due to climatic hazards than crops.

Cows and oxen are still being used to plough and harrow, but land for grazing has become so scarce that many farmers no longer own their own animals, but hire the services of one of the households which specialize in this.

Many small farmers and tenants have even started to dig the fields with a hoe once or twice in order to save one or two of the ploughings (total 3-6 depending on the soil conditions).

Non farm holdings have low operated land and therefore their per 100 ha availability is very high e.g. several times larger than those of farm holdings. Highest number of bovine animals was observed in Kalapara (Polder 46, 48) having 483 animals per 1000 population, followed by Dacope (Polder 31, 32) with 464, while the second lowest availability was observed in Sitakundu (Polder 66/1) having 145 animals. Chittagong Port

with its heavy urban population has only 60. The South-West region in general has the higher bovine animals per 1000 population. In the case of availability of animals per 100 ha of operated land the South-East region generally is ranking highest followed by the South-West and the Central regions.

Sheep and Goats

Percentage distribution of holdings rearing goats and sheep has been shown in Enclosure 4 while their average number per household is shown in Enclosure 5. Rearing of such animals was more popular among the households in the Central and the South-East regions, particularly among the large farm holdings. Highest no, of sheep/goat was observed among the large farmers in Sonagazi (P-60) with 25 followed by Sandwip (P-72) having 19 Sheep and Goats per household.

Poultry

Percentage distribution of holdings having poultry birds and their availability per household have been shown in Enclosure 6 and 7 respectively. Separate data for ducks and hens are not available. A high proportion of both farm and non-farm holdings particularly in the Central and the South-East regions rear poultry birds. The larger availability of farm and fish by products and abundant natural feedstocks like oysters in those areas facilitate rearing of such birds, particularly ducks. The number of households having 50 or more poultry birds recorded highest number (721) in Chokoria, followed by Sudharam (688) and lowest in Dacope (12). These data relate to the year 1983-84. Latest upazilawise data on poultry are not available with the Department of Animal Husbandry and Livestock Resources. It was observed during the field trips that the commercial rearing of poultry birds was getting increasingly popular among the affluent rural families. In Dacope, about 200 of such farms have reportedly been set up.

Prospect for livestock development in many of the study polders seems to be encouraging. In order to attain optimum benefits from the project which will seek to offer greater protection to livestock resources against normal tidal inundations and floodings, there should be commensurate investment in livestock development through intensification of research and extension efforts by the concerned agencies. Greater logistic support for improved veterinary services like roving boat hospitals should be provided for. Most of the embankments, which are presently without any tree plantation could be covered with suitable species of trees and bushes, which could meet part of the fodder requirements besides protecting the embankments against erosion.

Table 4.4 : Availability and Settlement of Khas Agricultural Land in the Coastal Districts.

(Area in Hectares)

Coastal District	Khas Agril.land Available for settlement	Land actually settled upto 31.10.90	No. of farm families benefitted	Average land alloted per family	Agril. land yet to be settled	% of Total available land
1 Khulna	875.82	557.51	1,657	0.34	318.31	36.3
2 Bagerhat	854.27	672.65	3,131	0.21	181.62	21.3
3 Borguna	1399.94	1219.35	2,464	0.50	180.59	12.9
4 Patuakhali	4720.88	713.31	1,302	0.55	4007.57	84.9
5 Bhola	7046.43	4577.50	7,858	0.53	2468.93	35.6
6 Satkhira	3066.70	2341.43	8,683	0.27	724.05	23.6
7 Chittagong	7669.32	4035.99	11,127	0.36	3633.33	47.4
8 Cox's Bazar	4497.08	960.71	3,924	0.24	3536.38	78.6
9 Feni	2364.08	1938.00	8,409	0.23	426.07	18.0
10 Laxmipur	12252.08	2046.37	4,286	0.48	426.07	83.3
11 Noakhali	9211.95	6086.91	7,650	0.80	3125.03	33.9
Total :	53958.55	25149.73	60,491	0.42	19027.95	35.26

Source : Ministry of Land Reforms and Land Administration.
Government of Bangladesh , Dhaka.

4.5 Holdings Undertaking Cottage Industries

Rural households are taking up a variety of undertakings on cottage industries to augment their income. The upazilawise/polderwise percentage distribution of holdings engaged in such activities is presented in Enclosure 8. A fairly good proportion of farm and non-farm holdings are taking up such enterprises in several upazilas, particularly in the South-West region. The smaller the farm sizes the larger is the percentage of such holdings taking up cottage industries. There is, therefore, greater propensity among the poorer households to supplement their income through such activities. In the South-East region, however, there is a reverse tendency with large farm holdings undertaking more of such enterprises. The rate of growth in non-farm income of the households could be accelerated through promotion of such employment and income generation activities.

4.6 Forestry

Forestry provides an important erosion protection of the embankments. Adequate tree covers of suitable species on the forelands as well on the slopes of embankment provide long term protection to embankments stability and reduce O & M costs. It is unfortunate that large proportions of embankments remain without any tree plantation. The present project will have an important component on afforestation of the embankments forelands and slopes. Successful models of such afforestation should first be developed involving groups of landless and marginal farmers and particularly those living on the embankments on lease-hold basis under the overall guidance and supervision of the Forestry Department and assisted by some of the dedicated NGO's. It is only through the involvement of the local beneficiaries that the tree plantation programme will have any chance of success on an enduring basis. Such plantation should take care of the fuelwood, fodder and timber requirements of the participating parties.

4.7 Agricultural Credit and Co-operatives

Friends and relatives on average provide about 20% of all loans for non-target families and 9% for target families in the surveyed area of Patuakhali. Borrowing among equals is based on reciprocal understanding, and borrowing amongst unequal is based on kinship and factional loyalties and at times the provision of free labour.

Landless not having the possibility of formal credit sources or family loans take up loans from professional money lenders in the village or nearby village. Most loans among the landless are taken up from this source and the annual interest varies between 120%-300% in the project area.

Loans can either be advanced against crop payments made in kind at harvest time, or against land, i.e. the borrowers forfeit their rights to landownership if repayments are not made in time. These kinds of loan exists all over the project area, but the tendency now is that the cash credit market is becoming stronger.

Agricultural lending by the institutional credit agencies in the far flung coastal areas seems to be quite poor in terms of quality and coverage. Unsatisfactory transport and communication facilities, large scale prevalence of share cropping system in the backdrop of absentee land owning classes, inadequate monetization of rural economy and above all, climatic hazards exposing agricultural production to instability and a host of other socio-economic factors contribute to the poor state of agricultural lending. Most of the interviewed farmers were bitterly critical of the role of the functionaries of the credit agencies in their respective areas and complained about inadequacy of agricultural loans.

There are no precise data on the quantum of agricultural loans channelized through the institutional credit agencies in the study areas. The status of agricultural credit in the country was already poor as reflected from the data furnished in Enclosure 9. The recovery position of loans continued to deteriorate and came down to as low as 17.6% with overdue loans reaching a staggering level of Tk. 3284 crore by the end of FY 1989-90. The position of agricultural lending in the polder areas is expected to be no better. Serious erosion by river banks has rendered many of the bank loans landless with no possibility of having those loans recovered. The recent decision of the Government to write off unrecovered loans inclusive of interest upto Tk. 5,000 has brought much needed relief to the small producers. This measure, unless followed by other necessary improvements in loan delivery and loan administration ensuring speedy and timely availability of loans to the producers at minimum cost, will tend to erode repayment discipline among the borrowers. Crop and livestock husbandry in the coastal belt is subjected to periodic serious risks and ecological hazards which have rendered loan operation for these activities risky. Crops and livestock insurance should therefore be popularized in some of these areas where required logistics could be made available for mounting such a programmes. This will tend to protect the investment made by the households and the lending agencies.

The status of BRDB Co-operatives and credit in the study upazilas is shown in Enclosure 10. These cooperatives so far covered only small proportions of rural households ranging below 20% in majority of these upazilas. The ratio of share capital to savings mobilization is quite low. This is an indicator of relatively poor performances, of BRDB co-operatives in generating more employment and income and resultant savings to its members. Loan performances however seems to be modest . Co-operative movement has to be strengthened and intensified to bring in its fold the vast masses of marginal farmers and landless rural men and women

within the shortest possible time and make them organized productive forces by providing them necessary training, inputs, credit and marketing facilities. Involvement of NGOs under well planned co-operative policies with group formation and training components initially entrusted to them under phased programme can accelerate the process of co-operativisation.

4.8 Structure of Land Holdings and Land Tenure Aspects

Generally speaking 50% of the households in the project area can be regarded as functionally landless as they own less than 0.5 acres each. Apart from the seriousness of such an unequal distribution of property rights the two most important problems seem to be the following : Each individual farm holding is highly fragmented. Small fields belonging to one single farm might be located in all directions from the village. Fragmentation is brought about by the inheritance system where each field may be divided between sons. Another problem is that sharecropping is widespread.

In many of the outlying poldered areas, accretion of new land is taking place with continuing massive deposition of silts, particularly in the Central region. The availability and settlement of khas (Govt.) land in the study coastal districts may be seen at Table 4.4. The extent of khas land yet to be settled among the people was quite sizeable in Cox's Bazar, Bhola, Chittagong and Noakhali. The existing system of giving annual lease of such land and pressure created by the influx of huge number of landless erosion affected people make settlement of khas land highly complex and difficult. Optimum use of land is being impeded in many polder areas due to concentration of large tracts of land among big absentee land owners. Many of them seem to have evaded the statutory land ceiling limiting holding size to the maximum of 33 acres through dubious means. Besides, due to defects in land records system it is quite difficult for the Revenue officials to obtain precise information on landownerships.

Desirable improvements in land records system are therefore urgently called for to facilitate maintenance of "one person one khatian/one holding" basis by amalgamating multiples of holdings into one holding for each land owning individual in order to minimize the incidence of such evasion. Radical improvements are also needed in the land settlement policies to reduce the occurrences of physical violences and litigations that take place widely over land possessions and ownership rights. Necessary reforms in land records, land tenure and settlement are basic prerequisites to optimization of agricultural production potentials that will be opened up with project implementation.

The tenurial aspects vary from place to place. 36.9% of all rural households are entirely without arable land in Noakhali. Another 27.6% own up to merely 0.5 acres of land, an area by far too insufficient to generate enough income for a family. 17.7% of households own up to 1.5 acres

which is still an area too small to rely on entirely for a family income. This actually shows that 82.2% of all rural households in old Noakhali District depend on income from other sources.

In the case of small landholding additional income has to be derived outside the farm economy in order to make a family survive on these small holdings. Another factor is also important. When land gets concentrated in fewer hands, more land becomes available for sharecroppers, and sharecropping has become a system which allows some small peasant farms to survive.

In the Noakhali sharecropping system, the landowner takes half of the harvest and the cultivator gets the other half as his share. In many cases the tenant is not even certain about the duration of his lease ; it might last only one season if he displeases the landowner, or it might last a lifetime.

Many families with ownership rights sharecrop out all their land and devote their labour time to trade or services locally, or get employment away from home thus being unable to care for their own cultivation. The pride of subsistence farmers who do not have to buy anything from the market but kerosine, salt and cloth is seldom met in Noakhali. Physical labour,including the work of a farmer has less prestige than office,trade, etc.

There is an active land leasing market in the project area of a Patuakhali, which to some extend redistributes the amount of land economically operated. All landowning groups take in land and all groups except landless give out land.

Cash leasing takes two forms : Leasing for one year and leasing for seven years. For one year leasing the normal rate is Tk. 2,500-3,000 per acre and seven years leases vary from Tk. 9,000-12,000 per acre.

The terms of sharecropping in Patuakhali are harsh deviating from the normal 50-50% share in many parts of the country. Wage employment exists but constitutes about a fourth of the total labour used in crop cultivation. A form of bonded labour still exists in the permanent labourers. The absent landlord, does not exist in this area.

Mortgage can also transfer land userights. The most common motive for which households mortgage in land is to gain userights in land. Most agreements on mortgage specify not the last date on which the money has to be paid, but rather the period before which the mortgage can not be redeemed, thus guaranteeing the household who takes land in on mortgage a minimum period of userights. Households within all the landsize groups take and give land on mortgage. The mortgage system can be seen to function as an informal short-term loan market.
All over the project area large landowners too are cultivators. They

sometimes lease out land expropriating a part of production through harsh. sharecropping terms. In their own land they expropriate a part of the surplus by providing subsistence wages to hired labourers. Landowners have however not restored to reinvestment in agricultural production or attempted increased production through the adoption of modern inputs. They prefer investments in land, preferably urban land, for speculation and expenditures for increased consumption. Huge profits are sucked out by townspeople too, a situation which further hastens the process of landlessness and pauperization, a tendency specially visible in char areas.

Poor landowning households are caught in the trap of low landownership levels, low productivity, natural problems with waterlogging, low production, low consumption or borrowing. Even a slight destabilizing factor like higher crop damage, extra expenditure for health, wedding or court cases, is enough to push them towards landlessness.

4.9 Education and Literacy

Availability of primary schools in desired number and quality is a basic necessity to provide fundamental education to the people. Government's involvement in providing such facilities is another important element in view of the growing pauperization of the rural economy. The status of primary education in the study upazilas has been shown in Enclosure 11. The proportion of govt. primary schools was generally higher in the South-East and the Central regions compared to the South-West Enrolment and population covered per school was also higher in the Central and the South-East relative the South-West region.

The upazilawise availability of the educational institutions and rates of literacy for population of 5 years and above as per census report of 1981 may be seen in Enclosure 12. There were relatively larger number of high school and madrashas in the South-West compared to the other two regions.

Literacy rates for population of 5 years and above in the study upazilas were generally lower than Bangladesh averages. Literacy rates for male, female and both sex ranged higher in the South-West compared to the other two regions. Highest literacy rates were in Patharghata (P-40/1, 40/2) having 39.3% 44.5% and 33.1% far both sex, male and females respectively against Bangladesh average of 23.8%, 31.0% and 16% The lowest literacy rates were in Teknaf (P-68) with 8.8% 13.9% and 3.3% literacy respectively.

4.10 Sources of Drinking Water

Sources of drinking water are important indicators of basic needs availability to the people. The data on the sources of drinking water are presented in Enclosure 13. Ponds and shallow wells are the major sources

of drinking water for the people living in the South-West and the Central regions, while tubewells are major sources in the South-East. Rivers, streams and canals are also the sources of drinking water in some of the study upazilas though to a minor extent. Impure water from these sources is the major cause of diarrhoeal diseases that are rampant in these areas. Sources of sweet water aquifers in the coastal belts exist at much lower levels, thereby limiting the installation of tubewells on a large scale.

Inadequate availability of pure drinking water is a serious health hazard to human and animal life in the coastal belt. Greater efforts are called for to harvest rain water by installation of public low-cost ferrocement water tanks in the villages to store rain water. Besides, the VSST technologies devised by MCC to harness underground sweet water lenses below ponds and tanks need to be introduced on large scale.

5. MAJOR ECONOMIC ACTIVITIES

5.1 Fisheries

Fisheries constitute an important sector of economic activity in the study polders. Their contributions to the regions' employment and income generation activities and foreign exchange earnings, especially through export of shrimp are of high magnitude.

Numerous rivers, streams and estuarine water bodies in the coastal belts provide fertile living and breeding habitats for a large variety of open water fish species. The polders have opened up greater opportunity for shrimp culture and pond fisheries by reducing the risks of floodings and tidal surges.

Marine fishing is an important occupation of fishermen inhabiting many of the polders, particularly in the Cox's Bazar and Chittagong regions. There were about 123,000 marine fishermen as per last survey report (1984-85) and their number increased nearly three folds during the preceding 17 years. In absence of any data on polderwise population of such fishermen, the regional distribution of marine fisheries household and availabilities of fishing boats have been presented in the following Table 5.1.

Region	Number of Fishery Management Households					% to Total Marine Fishermen	Fishery Labourers Households		Total Marine Fishermen
	with Boat	%	without Boat	%	Total		Number	%	
1. Chittagong	6,886	65.6	3,614	34.4	10,500	28.7	26,123	71.3	36,623
2. Cox's Bazar	3,636	53.6	3,143	46.4	6,779	10.0	33,050	83.0	39,829
3. Patuakhali	4,383	79.7	1,113	20.3	5,496	38.8	8,680	61.2	14,176
4. Noakhali	2,169	55.2	1,762	44.8	3,931	22.7	13,419	77.3	17,350
5. Barisal	2,810	72.0	1,091	28.0	3,901	30.9	8,715	69.1	12,616
6. Khulna	1,288	73.4	466	26.6	1,754	59.1	1,214	40.9	2,968
Bangladesh Total	21,172	65.4	11,189	34.6	32,361	26.2	91,201	73.8	123,572

Table 5.1 : Marine Artisanal Fisheries : 1984-85

The concentration of fishery management households was highest in Chittagong, followed by Cox's Bazar and Patuakhali and lowest in Khulna. Nearly two-thirds of them were with boats of their own while one third were without. About three fourths of fishermen were fisheries labourers with considerable regional variations. Fisheries labourers

generally receive higher wages compared to agricultural labourers. There were reportedly shortages of agricultural labourers, particularly in the major fishing areas like Maheshkhali, which affected crop housbandary to some extent. Unemployment and under-employment of fishery labourers were also reported during the slack fishing seasons and with reduced fish catches as in Char Fassion areas. The details of Marine Artisanal Fisheries are shown in Enclosure 14.

There has been tremendous increase in open water shrimp catches through artisinal sources. Part of such catches are the product of the Sundarban-Mangrove estuaries. Catches of marine fish also increased substantially through artisanal means while catches through industrial means e.g. trawlers registered decreases over the years. Annual growth rates of shrimp and marine production from open water bodies through these two sources during 1984-85 to 1987-88 period were as follows:

Type	Shrimp	Marine Fish	Average
Artisanal	184.7	5.7	7.5
Industrial	4.1	(-)9.7	(-) 5.8
Average	60.6	5.0	6.8

Growth in production from shrimp farms during the same period was, on the other hand, 33.1% only. High profitability of shrimp enterprises tremendously boosted up open water shrimp catches through the artisanal means.

5.2 Shrimp Farming

Shrimp farming has expanded rapidly in the coastal belts where suitable physical and socio-economic environments exist for extensive brackish aquaculture. High international demand for shrimp has encouraged expansion of shrimp culture. Shrimp farming is a profitable land use activity and when alternated with paddy or salt production it generates significantly income and employment opportunities. Shrimp export has already become an important contributor to foreign exchange earnings.

The major area under shrimp farming is located in Satkhira and Cox's Bazar. The Shrimp area expanded annually @ 16.6% in Satkhira-Khulna as against 5.3% in Cox's Bazar/Chittagong during the period 1982-83 to 1988-89. The average shrimp farm size increased more than three folds in the South West Zone, while it shrank by more than half in the South East Zone.

Production of shrimp registered an increase of 211.4% in the South-East. Fin- fish, which is an important by product of shrimp culture, showed relatively higher productivity in the South-West compared to the South--East. The following table will illustrate the comparative performances of each of these major producing areas expressed in terms of annual growth rates. Table 5.2.

Period : 1984 - 1985 to 1989-1990

Sl No	Region	Area under Shrimp Farms	Production			Per hectare Yield		
			Shrimp	Fin-Fish	Total	Shrimp	Fin-fish	Total
1	Khulna and Satkhira	15.11	25.51	28.76	26.47	9.04	11.86	9.87
2	Chittagong and Cox's Bazar	3.21	4.79	2.58	3.94	1.53	(-)0.61	0.71
3	Others	(-)4.12	6.88	(-)0.42	4.23	11.46	8.21	9.03
Bangladesh Total		11.00	19.70	19.11	19.51	7.83	8.83	7.66

Table 5.2 : Regionwise Overall Annual Growth Rates of Shrimp Area and Productivity of Shrimp & fin-fish in shrimp Farms;

The growth rates in productivity of shrimp and fin-fish in the South-West far exceeded those of the South-East.

Cropping Pattern Followed in Shrimp Culture

Due to variations in the level of water and soil salinity and timing/availability of shrimp post-larvae, the pattern of shrimp culture alternated with crop cultivation or other economic activity are somewhat different in the two main producing regions. In the South-West region there is abundant availability of post-larvae from December onward due to proximity of the mangrove estuaries, which provide ideal living and breeding grounds for mother shrimps. Besides, relatively lower levels of water salinity suitable for brackish aquaculture and presence of wide networks of polders enabled raising of a shrimp crop and make lands available for cultivation of a local variety of salinity resistant transplanted aman crop in that region.

In the South-East region, high levels of water salinity and late availability of shrimp post-larvae from March/April onward delay starting and harvest of shrimp culture and therefore do not allow raising of transplanted aman crop except on a limited scale. Largescale use of public land for shrimp culture mostly on leasehold basis is another contributing factor. In some of the shrimp lands, salt making is done after harvest of shrimp. There is considerable scope for raising double crops of shrimp and salt in this

region for which the required infrastructural facilities, inputs, policy support and price incentives should be provided to the growers.

Some Basic Socio-Economic Issues Involving Shrimp Culture

Introduction of shrimp culture in the mono-cropped areas, particularly in the South-West region, has provided sizeable employment and income generation opportunities involving a variety of activities. Among these, collection of shrimp post-larvae has alone kept engaged thousands of rural people of all ages and both sexes, particularly the rural poor during the slack months. Besides, marketing of post larvae, production, processing, storages, packaging etc. are also generating substantial employment opportunities. Shrimp has also become an important foreign exchange earner. Shrimp farming has nevertheless been throwing up several socio-economic issues relating to equitable distribution of income to the production factors. Control of nearly 50% of shrimp "Ghers" is by the outsiders, And this often becomes a source of social conflict and tension. Worst hit in this process are the small and marginal farmers whose lands are taken on lease by the entrepreneurs through "voluntary" or "forced" consent and who oftentimes do not receive their agreed leasehold money known as "Hari". These rates vary from Tk. 1000 to Tk. 1500 per standard bigha . Another source of social tension is the delayed release of "gher" land for raising T aman crop, which results in poor aman yields.

The prevalent unscientific "spillage" of saline water into "ghers" with inadequate or no facilities for regular water exchanges contributes to increased soil salinity into the adjacent areas leading to serious adverse impacts on ecology like decreasing tree covers. Part of the mangrove forest in Chokoria has already been damaged due to the greed for shrimp culture which has caused serious damages to the ecology. Largescale catching of shrimp post-larvae under the present practices is contributing to wanton destruction of those post-larvae and fries of many fish species with serious repercussions on their subsequent availability and stocking density. Largescale shrimp culture also affected grazing lands for livestock. Serious depletion of cattle resources was reported from such area which had adverse effects on tillages, crop production costs and availability of nutritious animal products. In many of these areas, hire charges for bullocks, which were payable in kind for the season, were going up. Sources of drinking water were being increasingly salinised and therefore, causing public health hazards.

These and many other socio-economic and ecological issues have given rise to increasing social tensions and resultant litigations discouraging many of the prospective entrepreneurs from entering into shrimp culture. These problems need to be studied at depth and necessary remedial measures undertaken so that the promising shrimp culture and shrimp industry can thrive on popular support and participation with minimal ill effects on local economy and ecology.

Future Prospects of Shrimp Culture in the Study Polder Areas

There is reportedly high demand for shrimp in the international markets. Bangladesh enjoys comparative advantages in producing shrimp at competitive prices. The South-West region is particularly bestowed with suitable production environment having the requisite salinity regimes. The World's largest mangrove forest and their estuaries are in this region, which provide ideal habitats for shrimps. The large tracts of mono cropped areas under T aman, part of which is presently being used for shrimp "ghers" could be brought under shrimp cultures. The basic pre requisites would be to evolve an ecologically sound shrimp farming system, which could also fit into the small farm economy and its organization and management constraints. Research, extension and development efforts of the Fisheries Department and other relevant agencies need to be geared up to address the basic technological and other important issues towards developing a sustainable and environment friendly shrimp farming system. Infrastructural facilities for ensuring regular water exchanges, availability of low-cost locally produced shrimp feed are also some of the basic requirements.

5.3 Ponds

There are about 196,000 ponds in the study upazilas. Precise data on the number of ponds located within the polders are not available. These ponds serve the dual purpose of fish culture and providing water for domestic washings including drinking water. The regional distribution of these ponds is shown below

Regions	Cultured		Culturable		Derelict		Total		Ponded Area	
	No.	%	No.	%	No.	%	No.	%	Area (ha)	%
1.South-West	26051	24.7	10569	16.9	6798	24.1	43418	22.2	3793	12.2
%	60.0	-	24.3	-	15.7	-	100.0	-	-	-
2.Central	62362	59.2	33654	53.8	16403	58.3	112419	57.3	21413	69.0
%	55.5	-	30.0	-	14.5	-	100.0	-	-	-
3.South-East	16926	16.1	18333	29.3	4946	17.6	40205	20.5	5818	18.8
%	42.1	-	45.6	-	12.3	-	100.0	-	-	-
Total	105339	100	62556	100	28147	100	196042	100	31024	100
	53.7	-	31.9	-	14.4	-	100.0	-	-	-

Table 5.3 : Distribution of Ponds

Source : Department of Fisheries, Govt. of Bangladesh.

Nearly 54% of these ponds were cultured, while 32% were culturable and 14% derelict ones. 22% of them were located in South-West region having 12% of the ponded area. The Central region accounted for 57.3% of ponds

covering 69% of ponded area. The South-East region had 21% of ponds with 19% of ponded area. The average size of pond was comparatively higher in the Central region (0.19 ha.) and lower in the South-West region (0.09 ha) with average of 0.16 ha in the entire study areas. The proportion of the cultured ponds was highest in the South-West region (60%) and lowest in the South East (42%). Percentage of culturable ponds was in the reverse order. Proportion of derelict ponds ranged between 12-16% within the regions.

The upazilawise distribution of ponds availability of ponds per 100 household and concentration/dispersal of ponds as indicated by proportion of ponded area to net cropped area are shown in Enclosure 15. Maximum number of ponds per 100 households was in Tazumuddin (66) located in Polder 57/56, followed by Hatiya (45) and lowest in Teknaf (4), Highest concentration of ponds area relative to cropped land was in Ramu (1:10) and lowest in Shamnagar (1:461).

There is great potential for increasing fish production from the ponds, which are protected from normal tidal flooding by embankments. And for this, development efforts of the Fisheries and other concerned agencies need to be intensified. Many of these ponds located in the char areas could also serve the purpose of providing pure drinking water through harnessing their underlying fresh water lenses by installation of "very shrouded shallow tubewell" (VSST), a technology successfully devised by MCC, a leading NGO working in the Charland of Noakhali.

5.4 Salt Production

Salt making is another important economic activity carried out exclusively in the South-East region. Preparation of salt is undertaken either as an exclusive activity or alternated with shrimp culture. On a limited scale, salt production is also carried out after harvest of T. Aman. There are no precise data on the polderwise distribution of salt area. BSIC however maintains some statistics on centerwise salt areas spread over 12 salt production centres. As per such estimation, about 14,600 ha was put to salt making during the current year by about 29,000 farmers. More than two-thirds of these areas were located in Kutubdia/Maheskhali (Polders 69,70,71), followed by Cox's Bazar (Polder 66/1) Banshkhali (Polder 64/1A) and Teknaf (Polder 68). Details of such statistics are presented in Enclosure 16.

Production of salt is carried out during 15 December-16 May. Salt output has been fluctuating widely over the years due to incidence of excessive and untimely rains, cyclones and storm surges, particularly towards the end of production periods. Under normal conditions, one hectare of salt area produces nearly 50 metric tons of unrefined salt. Total annual production ranges around 700,000 tons. The trend in production, import, availability and per capita consumption of salt may be seen in Enclosure 17.

Presently institutional credit facilities are made available to the salt growers @ Tk.4000 per acre with a maximum limit of Tk. 10000 per borrower. A sum of Tk. 1460 millions was disbursed to salt producers of which Tk. 672 millions was recovered upto September 1990. Nearly 99% of the recoverable amount was overdue. This was indicative of serious maladies sapping the vitality of the salt making enterprises. It appeared that in many cases, loans were not reaching the genuine producers.

Enclosure 1 : Gross Domestic Products at Current Prices

Region : Khulna

(Value in Million Taka)

Year	Crops		Livstock		Fisheries		Forestry		Total GDP from Agriculture		Per Capita GDP	Total GDP at Factor cost	% contribution of Agriculture
	Value	%	Value	%	Value	%	Value	%	Value	%	(Tk)		
1976-77	1,839	61.1	222	7.4	400	13.3	550	18.2	3,011	100	1,296	5,405	55.7
1977-78	2,287	55.4	385	9.3	401	9.7	1,058	25.6	4,131	100	1,656	7,023	58.8
1978-79	2,304	51.7	518	11.6	399	9.0	1,237	27.7	4,458	100	1,739	7,566	58.9
1979-80	3,256	54.2	643	10.7	830	13.8	1,278	21.3	6,007	100	2,247	10,022	59.9
1980-81	3,212	51.8	616	9.9	833	13.4	1,537	24.9	6,198	100	2,512	11,306	54.8
1981-82	4,124	61.6	643	9.6	307	4.6	1,622	24.2	6,696	100	3,038	14,036	47.7
1982-83	4,225	57.3	761	10.3	324	4.4	2,062	28.0	7,372	100	3,223	15,244	48.4
1983-84	5,270	56.1	901	9.6	398	4.2	2,832	30.1	9,401	100	3,838	18,460	50.9
1984-85	7,278	58.0	1,468	11.7	534	4.3	3,262	26.0	12,542	100	4,687	23,108	54.3
1985-86	6,608	46.4	1,749	12.3	657	4.6	5,229	36.7	14,243	100	5,322	28,146	50.6
1988-89	6,165	40.0	958	6.2	642	4.2	7,664	49.6	15,429	100	6,656	38,013	40.6
Region : Bangladesh (Total)													
1976-77	40,172	74.8	4,494	8.4	6,893	12.8	2,112	4.0	53,671	100	1,221	99,874	53.7
1977-78	53,494	74.0	7,774	10.8	6,916	9.6	4,064	5.6	72,248	100	1,471	123,129	58.7
1978-79	56,604	71.9	10,501	13.3	6,886	8.7	4,754	6.1	78,745	100	1,587	135,864	58.0
1979-80	68,443	73.3	12,998	13.9	6,998	7.5	4,860	5.3	93,299	100	1,848	162,098	57.6
1980-81	70,113	73.5	12,451	13.0	7,022	7.4	5,848	6.1	95,434	100	2,015	181,183	52.7
1981-82	94,922	77.9	12,713	10.4	7,654	6.3	6,550	5.4	121,839	100	2,729	251,329	48.5
1982-83	104,470	76.9	14,769	10.9	8,131	6.0	8,501	6.2	135,871	100	2,891	272,953	49.8
1983-84	129,841	76.7	16,709	9.9	10,902	6.4	11,876	7.0	169,328	100	3,420	331,068	51.1
1984-85	154,671	74.4	26,732	12.9	14,641	7.0	11,932	5.7	207,976	100	3,984	395,168	52.6
1985-86	139,489	74.0	15,401	8.2	14,511	7.7	18,981	10.1	188,382	100	4,333	440,711	42,7
1986-87	164,975	75.1	16,222	7.4	18,020	8.2	20,544	9.3	219,761	100	4,891	509,111	43.2
1987-88	167,646	73.4	17,875	7.7	20,728	8.9	25,374	10.0	231,623	100	5,295	564,441	41.0
1988-89	176,467	71.9	21,266	8.7	23,472	9.6	24,187	9.8	245,392	100	5,701	621,997	39.5

Enclosure 1 : Gross Domestic Products at Current Prices

Region : Patuakhali

(Value in Million Taka)

Year	Crops		Livstock		Fisheries		Forestry		Total GDP from Agriculture		Per Capita GDP	Total GDP at Factor cost	% contribution of Agriculture
	Value	%	Value	%	Value	%	Value	%	Value	%	(Tk)		
1976-77	1,034	82.9	101	8.2	103	8.3	10	0.6	1,248	100	1,202	2,008	62.1
1977-78	1,316	81.5	176	10.9	104	6.4	19	1.2	1,615	100	1,409	2,438	66.2
1978-79	1,214	77.0	237	15.0	103	6.5	23	1.5	1,577	100	1,407	2,476	63.7
1979-80	1,619	76.0	294	13.8	188	8.8	29	1.4	2,130	100	1,827	3,271	65.1
1980-81	1,723	77.4	281	12.6	188	8.4	35	1.6	2,227	100	1,909	3,628	61.4
1981-82	2,515	80.0	371	11.8	220	7.0	35	1.2	3,141	100	2,668	5,176	60.7
1982-83	2,581	76.9	445	13.3	287	8.5	42	1.3	3,355	100	2,738	5,448	61.6
1983-84	3,397	78.5	440	10.2	432	10.0	59	1.3	4,328	100	3,367	6,902	62.7
1984-85	3,822	75.5	670	13.2	501	9.9	66	1.4	5,059	100	3,860	8,068	62.7
1985-86	3,689	70.1	840	16.0	639	12.1	91	1.8	5,259	100	4,090	9,376	56.5
1988-89	4,111	54.9	534	7.1	2,687	35.9	161	2.1	7,493	100	6,182	14,751	50.8
Region : Barisal													
1976-77	2,270	77.1	256	8.7	414	14.1	5	0.1	2,945	100	1,152	5,067	58.1
1977-78	2,735	75.9	444	12.3	415	11.5	9	0.3	3,603	100	1,314	5,888	61.2
1978-79	2,913	74.0	598	15.2	413	10.5	10	0.3	3,934	100	1,425	6,486	60.7
1979-80	3,595	70.6	742	14.6	748	14.7	9	0.1	5,094	100	1,816	8,225	61.9
1980-81	3,689	71.5	711	13.8	751	14.5	11	0.2	5,162	100	1,872	9,024	57.2
1981-82	4,685	81.4	687	11.9	357	6.2	30	0.5	5,759	100	2,323	11,475	50.2
1982-83	4,948	79.3	843	13.5	387	6.2	35	1.0	6,243	100	2,415	12,218	51.1
1983-84	6,414	82.0	848	10.8	512	6.5	47	0.7	7,821	100	2,870	14,895	52.5
1984-85	7,399	78.4	1,331	14.1	658	7.0	53	0.5	9,441	100	3,314	17,595	53.7
1985-86	7,290	74.1	1,657	16.8	816	8.3	78	0.8	9,841	100	3,605	21,016	46.8
1988-89	8,593	58.0	1,040	7.0	5,034	34.0	141	1.0	14,808	100	5,791	35,834	41.3

Enclosure 1 : Gross Domestic Products at Current Prices

Region : Chittagong

(Value in Million Taka)

Year	Crops		Livstock		Fisheries		Forestry		Total GDP from Agriculture		Per Capita GDP	Total GDP at Factor cost	% contribution of Agriculture
	Value	%	Value	%	Value	%	Value	%	Value	%	(Tk)		
1976-77	1,871	59.3	275	8.7	812	25.7	198	6.3	3,156	100	1,772	8,965	35.2
1977-78	2,696	61.7	477	10.9	815	18.6	382	8.8	4,370	100	1,957	10,254	42.6
1978-79	2,884	60.3	642	13.4	811	16.9	448	9.4	4,785	100	2,203	11,942	40.1
1979-80	3,959	71.9	797	14.5	288	5.2	463	8.4	5,507	100	2,503	14,016	39.3
1980-81	3,651	69.4	763	14.5	289	5.5	557	10.6	5,260	100	2,786	15,769	33.4
1981-82	4,935	69.5	666	9.4	907	12.8	595	8.3	7,103	100	4,095	23,751	29.9
1982-83	5,480	64.5	799	9.4	1,308	15.4	905	10.7	8,492	100	4,450	26,434	32.1
1983-84	7,121	64.4	798	7.2	1,932	17.5	1,213	10.9	11,064	100	5,435	33,156	33.4
1984-85	7,512	59.3	1,202	9.5	2,555	20.2	1,407	11.0	12,676	100	6,000	37,558	33.8
1985-86	7,084	54.2	1,391	10.6	2,973	22.8	1,620	12.4	13,068	100	6,501	43,296	30.2
1988-89	8,765	56.8	1,144	7.4	2,837	18.4	2,677	17.4	15,423	100	8,880	61,092	25.2
Region : Noakhali													
1976-77	2,114	60.8	210	6.1	1,144	32.9	7	0.2	3,475	100	1,480	5,416	64.2
1977-78	2,645	63.4	364	8.7	1,148	27.5	14	0.4	4,171	100	1,683	6,262	66.6
1978-79	2,716	62.2	490	11.2	1,143	26.2	16	0.4	4,365	100	1,742	6,638	65.8
1979-80	3,192	76.2	608	14.5	369	8.8	21	0.5	4,190	100	1,760	6,848	61.2
1980-81	3,015	75.5	583	14.6	370	9.3	25	0.6	3,993	100	1,840	7,248	55.1
1981-82	3,807	83.9	507	11.2	196	4.3	25	0.6	4,535	100	2,339	9,425	48.1
1982-83	4,476	84.4	567	10.7	229	4.3	31	0.6	5,303	100	2,528	10,466	50.7
1983-84	5,548	84.8	647	9.9	305	4.7	43	0.6	6,543	100	2,950	12,507	52.3
1984-85	6,536	81.6	1,018	12.7	408	5.1	50	0.6	8,012	100	3,441	14,934	53.6
1985-86	5,963	76.3	1,249	16.0	525	6.7	82	1.0	7,819	100	3,583	17,064	45.8
1988-89	8,157	81.4	862	8.6	890	8.9	112	1.1	10,021	100	4,944	23,633	42.4

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Enclosure 2 : Percentage Distribution of Holdings with Bovine Animals

Polder Number	Upazila	All Holdings	Non- Farm Holdings	Farm Holdings	Small Farms	Medium Farms	Large Farms
Group I : AEZ - 13							
Sub-group 1:							
P-5	Kaliganj	49.5	13.6	63.2	48.1	92.4	97.2
P-7/1 & P-7/2	Asashuni	51.6	16.5	64.5	51.2	81.6	97.3
P-10-12	Paikgacha	53.3	15.8	63.5	47.2	86.4	96.6
P-14/1 &P-14/2	Koyra	48.3	13.4	58.2	41.5	86.0	96.0
P-15	Shamnagar	48.1	12.0	61.5	41.9	89.5	97.6
P-31 & P-32	Dacope	60.6	20.0	71.1	50.0	90.0	97.6
Sub-group 2 :							
P-35/1	Sarankhola	43.3	8.6	55.8	38.3	94.6	96.9
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	49.4	10.2	58.8	41.5	93.2	98.2
P-45	Barguna	52.8	13.0	63.0	50.5	94.8	96.4
P-46 & P-48	Kalapara	47.7	11.7	63.9	42.7	87.1	94.5
Group II : AEZ-18							
Group 4:							
P-57/56	Char Fasson &	47.1	14.0	61.5	45.9	90.4	97.4
	Daulatkhan	39.7	14.3	53.5	44.5	85.4	91.4
	Burhanuddin	46.2	14.1	58.3	46.2	88.2	92.7
	Tazumuddin	53.0	14.9	66.9	57.4	92.8	95.2
	Lalmohon	45.2	11.2	58.7	45.0	89.5	95.5
P-59/2	Ramgati	44.0	11.7	57.7	41.1	89.6	97.0
P-59/3B & P-59/3C(Part)	Sudharam	45.1	13.7	53.9	41.7	84.5	95.6
P-59/3C (part)	Companiganj	42.3	15.9	51.3	43.2	81.1	92.7
P-60	Sonagazi	48.7	17.6	61.7	55.8	90.0	92.8
P-73/2B	Hatiya	50.0	14.2	65.3	49.9	94.4	98.2
P-72	Sandwip	39.0	17.0	61.8	52.9	81.3	96.5
Group III: AEZ - 23							
Sub-group 5:							
P-62	Chittagong Port	39.2	16.2	66.1	61.8	93.7	97.4
Sub Group 6:							
P-61/1	Sitakundu	35.3	13.8	71.7	67.9	95.0	94.7
P-63/1A	Anowara	58.1	27.1	76.7	74.3	96.1	96.7
P-64/1A	Banshkhali	58.7	21.8	75.0	70.9	96.3	97.5
P-64/2B	Chokoria	56.9	17.9	74.0	66.2	95.1	96.8
P-66/1	Ramu	51.6	16.4	73.4	62.5	96.4	97.7
P-66/3	Cox's Bazar	45.9	13.2	68.9	61.9	93.2	95.2
P-68	Teknaf	42.7	13.9	63.8	49.3	93.2	96.1
P-69 & P-70	Maheskhali	36.4	13.4	57.5	50.8	79.6	93.4
P-71	Kutubdia	52.7	13.5	72.7	66.2	94.0	99.6

Enclosure 3 : Average Number of Bovine Animals per 100 ha. of Operated Land & Per 1000 Population

Polder Number	Upazila	Non-Farm	Farm	Small Farm	Medium Farm	Large Farm	All Household	Per 1000 Population
Group I : AEZ-13								
Sub-group 1:								
P-5	Kaliganj	1093	221	393	214	143	229	271
P-7/1 & P-7/2	Asashuni	907	265	442	260	164	275	330
P-10-12	Paikgacha	1557	249	577	257	168	256	380
P-14/1 & P-14/2	Koyra	1422	247	382	257	171	255	355
P-5 (part) & P-15	Shamnagar	1189	224	399	229	161	230	305
P-31 & P-32	Dacope	2044	245	474	253	174	254	464
Sub-group 2 :								
P-35/1	Sarankhola	654	237	349	230	161	241	228
Sub-group 3 :								
P-40/1 & P-40/2	Patherghata	917	117	390	256	166	265	320
P-45	Barguna	700	314	521	287	170	319	319
P-48 & P-46	Kalapara	1006	235	421	269	174	242	483
Group [illegible]Z-18								
Gr[illegible]								
P-57[illegible]	Char Fasson	1194	196	304	191	141	205	257
	Daulatkhan	1080	218	315	184	126	234	174
	Burhanuddin	993	194	298	176	112	203	211
	Tazumuddin	847	253	394	212	128	262	226
	Lalmohon	728	174	267	164	108	180	193
P-59/2	Ramgati	847	178	263	175	125	185	208
P-59/3B & P-59/3C(Part)	Sudharam	697	172	259	160	121	177	194
P-59/3C (part)	Companiganj	884	192	274	162	124	201	172
P-60	Sonagazi	825	265	341	202	151	278	188
P-[illegible]	Hatiya	684	190	332	187	122	196	244
P-7[illegible]	Sandwip	316	225	346	188	130	198	164
Group III : AEZ-23								
Sub-group 5:								
P-62	Chittagong Port	964	390	509	297	174	426	60
Sub Group 6:								
P-61/1	Sitakundu	1335	384	515	242	113	436	145
P-63/1A	Anowara	912	343	429	218	101	374	203
P-64/1A	Banshkhali	1289	342	479	228	121	364	239
P-64/2B	Chokoria	639	307	476	263	151	318	281
P-66/1	Ramu	807	319	494	288	171	334	312
P-66/3	Cox's Bazar	431	312	488	235	135	320	172
P-68	Teknaf	1066	282	484	266	162	303	263
P-69 & P-70	Maheskhali	655	287	410	231	126	310	187
P-71	Kutubdia	686	310	442	247	152	319	248

Source : Bangladesh Census of Agriculture & Livestock 1983-84

Enclosure 4 : Percentage Distribution of Holdings with Goat/Sheep

Polder Number	Upazila	All Holdings	Non- Farm Holdings	Farm Holdings	Small Farms	Medium Farms	Large Farms
Group I : AEZ - 13							
Sub-group 1:							
P-5	Kaliganj	39.2	25.9	44.3	40.9	50.0	53.8
P-7/1 & P-7/2	Asashuni	41.4	27.2	46.7	43.3	52.8	56.0
P-10-12	Paikgacha	37.5	21.4	41.9	38.0	46.3	52.4
P-14/1 &P-14/2	Koyra	42.6	26.1	47.4	42.9	54.7	57.5
P-15	Shamnagar	46.9	29.8	53.3	48.1	60.3	64.3
P-31 & P-32	Dacope	24.8	17.2	26.7	23.5	28.3	34.1
Sub-group 2 :							
P-35/1	Sarankhola	28.9	18.1	32.8	29.2	39.1	49.1
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	27.6	16.3	30.1	26.8	35.9	41.0
P-45	Barguna	24.2	14.8	26.6	24.2	30.8	40.3
P-46 & P-48	Kalapara	31.5	18.9	37.1	32.5	40.4	47.1
Group II : AEZ-18							
Group 4:							
P-57/56	Char Fasson &	27.3	17.9	31.4	26.7	36.9	51.8
	Daulatkhan	29.9	24.1	33.0	30.9	39.5	50.1
	Burhanuddin	25.7	17.8	21.7	24.8	37.0	45.3
	Tazumuddin	28.5	23.6	30.2	28.0	33.8	50.3
	Lalmohon	25.6	15.8	29.6	25.9	35.9	46.4
P-59/2	Ramgati	32.3	20.9	37.1	32.3	44.5	54.9
P-59/3B & P-59/3C(Part)	Sudharam	22.0	15.3	23.9	21.2	29.1	38.1
P-59/3C (part)	Companiganj	17.2	13.9	18.3	17.2	20.7	32.7
P-60	Sonagazi	18.3	13.7	20.2	20.2	19.6	27.5
P-73/2B	Hatiya	32.4	19.5	37.9	33.1	44.4	56.1
P-72	Sandwip	28.5	22.4	34.9	31.0	43.9	45.9
Group III: AEZ - 23							
Sub-group 5:							
P-62	Chittagong Port	20.6	15.4	26.6	24.9	35.8	51.9
Sub Group 6:							
P-61/1	Sitakundu	20.4	13.7	31.8	31.8	31.7	33.3
P-63/1A	Anowara	21.4	20.3	22.1	21.7	25.3	28.9
P-64/1A	Banshkhali	30.3	21.5	34.2	32.5	42.1	50.5
P-64/2B	Chokoria	27.7	15.8	33.0	27.9	44.7	39.0
P-66/1	Ramu	27.4	15.1	26.9	22.5	34.7	45.5
P-66/3	Cox's Bazar	18.3	15.2	20.5	18.5	26.6	34.0
P-68	Teknaf	23.0	15.2	28.7	24.9	34.3	45.3
P-69 & P-70	Maheskhali	31.0	23.5	37.8	35.5	45.4	51.1
P-71	Kutubdia	26.5	14.2	32.8	28.2	46.7	57.6

Enclosure 5 : Average Number of Goats/Sheep per Household:

Polder Number	Upazila	Non-Farm House-hold	Farm House-hold	Small Farm Household	Medium Farm Household	Large Farm Household	Large Farm Household
Group I : AEZ - 13							
Sub-group 1:							
P-5	Kaliganj	2	3	3	3	5	3
P-7/1 & P-7/2	Asashuni	2	3	3	4	4	3
P-10-12	Paikgacha	3	3	3	4	4	3
P-14/1 & P-14/2	Koyra	3	3	3	4	5	3
P-5 (part) & P-15	Shamnagar	3	4	3	4	5	3
P-31 & P-32	Dacope	2	3	3	3	3	3
Sub-group 2 :							
P-35/1	Sarankhola	2	3	2	3	4	3
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	2	3	3	3	4	3
P-45	Barguna	3	3	3	4	6	3
P-48 & P-46	Kalapara	3	4	3	4	6	4
Group II : AEZ - 18							
Group 4:							
P-57/56	Char Fasson	2	3	3	3	5	3
	Daulatkhan	2	3	3	4	5	3
	Burhanuddin	2	3	3	3	5	3
	Tazumuddin	3	3	3	3	5	3
	Lalmohon	3	3	2	3	7	3
P-59/2	Ramgati	2	3	3	3	6	3
P-59/3B & P-59/3C(Part)	Sudharam	2	3	2	4	7	3
P-59/3C (part)	Companiganj	2	3	2	4	11	3
P-60	Sonagazi	2	3	2	5	25	3
P-73/2B	Hatiya	2	4	3	4	19	3
P-72	Sandwip	2	3	3	4	8	3
Group III : AEZ - 23							
Sub-group 5:							
P-62	Chittagong Port	2	2	2	3	5	2
Sub Group 6:							
P-61/1	Sitakundu	2	2	2	3	5	2
P-63/1A	Anowara	2	2	2	3	4	2
P-64/2A	Banshkhali	2	3	3	3	6	3
P-64/2B	Chokoria	2	4	3	4	8	3
P-66/1	Ramu	3	2	3	3	4	3
P-66/3	Cox's Bazar	3	3	3	4	6	3
P-68	Teknaf	3	4	3	4	7	4
P-69 & P-70	Maheskhali	3	4	4	5	7	4
P-71	Kutubdia	3	4	3	4	7	3

Figures rounded off

Source : Bangladesh Census of Agricultural and Livestock, 1983-84

Enclosure 6 : Percentage Distribution of Holdings with Poultry

Polder Number	Upazila	All Holdings	Non- Farm Holdings	Farm Holdings	Small Farms	Medium Farms	Large Farms
Group I : AEZ - 13							
Sub-group 1:							
P-5	Kaliganj	65.2	48.5	71.5	66.5	80.5	86.4
P-7/1 & P-7/2	Asashuni	67.2	52.0	72.8	68.4	85.0	86.8
P-10-12	Paikgacha	80.7	37.2	63.5	47.2	86.5	96.6
P-14/1 & P-14/2	Koyra	48.3	13.4	58.2	41.5	86.0	96.0
P-15	Shamnagar	72.9	56.5	79.0	73.9	85.8	89.3
P-31 & P-32	Dacope	66.6	49.2	71.0	64.1	76.4	82.2
Sub-group 2 :							
P-35/1	Sarankhola	74.5	58.9	80.1	76.5	87.6	90.4
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	74.1	56.3	78.4	74.5	85.6	89.3
P-45	Barguna	78.8	56.8	84.4	81.4	91.9	94.1
P-46 & P-48	Kalapara	74.2	54.6	83.0	78.3	88.2	89.9
Group II : AEZ-18							
Group 4:							
P-57/56	Char Fasson &	84.6	74.6	89.0	87.0	92.4	96.1
	Daulatkhan	81.0	71.2	86.2	84.9	40.8	92.6
	Burhanuddin	75.8	65.2	79.7	77.6	85.0	86.5
	Tazumuddin	76.0	67.2	79.1	78.1	80.9	87.9
	Lalmohon	78.0	62.4	84.2	81.6	89.8	91.3
P-59/2	Ramgati	80.5	65.9	86.7	84.2	90.8	95.5
P-59/3B & P-59/3C(Part)	Sudharam	85.2	73.3	88.5	86.5	93.8	95.4
P-59/3C (part)	Companiganj	86.8	79.6	89.3	88.3	92.4	95.7
P-60	Sonagazi	85.0	72.4	90.2	89.3	94.3	97.1
P-73/2B	Hatiya	83.1	69.8	88.7	86.1	93.6	95.0
P-72	Sandwip	77.0	68.8	85.6	83.8	89.9	91.3
Group III: AEZ - 23							
Sub-group 5:							
P-62	Chittagong Port	78.6	76.7	86.6	86.0	91.7	84.4
Sub Group 6:							
P-61/1	Sitakundu	61.1	44.5	89.1	88.2	94.9	91.2
P-63/1A	Anowara	79.5	70.0	85.2	84.8	88.9	91.4
P-64/1A	Banshkhali	83.7	72.2	88.8	88.0	92.9	93.0
P-64/2B	Chokoria	87.5	76.9	92.2	90.7	96.1	97.1
P-66/1	Ramu	87.3	78.4	92.7	91.7	94.8	95.6
P-66/3	Cox's Bazar	83.0	74.6	88.8	87.1	94.4	98.0
P-68	Teknaf	83.8	74.4	90.6	89.4	93.1	92.5
P-69 & P-70	Maheskhali	86.9	81.6	91.7	90.7	95.4	94.6
P-71	Kutubdia	88.6	78.0	94.0	92.9	97.6	97.1

Enclosure 7 : Average Number of Poultry Birds per Household

Polder Number	Upazila	Non-Farm House-hold	Farm House-hold	Small Farm House-hold	Medium Farm House-hold	Large Farm House-hold	All House-hold	No. of House-hold having 50 or more Poultry Bird
Group I : AEZ-13								
Sub-group 1:								
P-5	Kaliganj	3	5	4	6	9	5	18
P-7/1 & P-7/2	Asashuni	3	5	4	5	8	4	17
P-10-12	Paikgacha	1	5	3	5	8	3	59
P-14/1 & P-14/2	Koyra	2	5	3	5	15	5	17
P-5 (part) & P-15	Shamnagar	3	5	4	6	8	5	30
P-31 & P-32	Dacope	4	5	4	5	8	5	12
Sub-group 2 :								
P-35/1	Sarankhola	5	8	7	10	14	7	45
Sub-group 3 :								
P-40/1 & P-40/2	Patherghata	5	9	7	11	16	9	101
P-45	Barguna	6	11	9	14	20	10	414
P-48 & P-46	Kalapara	6	11	8	12	18	10	264
Group II : AEZ-18								
Group 4:								
P-57/56	Char Fasson	6	11	9	13	21	10	484
	Daulatkhan	7	11	10	15	22	10	172
	Burhanuddin	10	10	8	13	19	9	259
	Tazumuddin	6	10	8	14	23	9	103
	Lalmohon	6	10	8	12	18	9	210
P-59/2	Ramgati	6	11	9	13	19	10	462
P-59/3B & P-59/3C(Pa	Sudharam	6	10	8	13	20	9	688
P-59/3C (part)	Companiganj	6	10	9	13	19	9	116
P-60	Sonagazi	6	9	8	12	17	8	100
P-73/2B	Hatiya	6	11	9	13	20	10	502
P-72	Sandwip	6	9	8	10	13	8	152
Group III : AEZ-23								
Sub-group 5:								
P-62	Chittagong Port	6	9	8	14	22	7	44
Sub Group 6:								
P-61/1	Sitakundu	5	8	7	11	17	7	69
P-63/1A	Anowara	6	8	8	11	19	7	56
P-64/1A	Banshkhali	7	9	9	13	22	9	243
P-64/2B	Chokoria	7	12	10	15	25	11	721
P-66/1	Ramu	7	10	8	12	17	9	109
P-66/3	Cox's Bazar	8	11	10	15	22	10	281
P-68	Teknaf	7	11	9	13	21	10	203
P-69 & P-70	Maheskhali	9	12	11	15	17	11	112
P-71	Kutubdia	8	11	10	15	19	10	104

Source : Bangladesh Census of Agriculture and Livestock, 1983-84

Enclosure 8 : Percentage Distribution of Holdings among Farmer & Non-farmer Households Undertaking Cottage Industries:

Polder Number	Upazila	All Holdings	Non-Farm Holdings	Farm Holdings	Small Farm Holdings	Medium Farm Holdings	Large Farm Holdings
Group I : AEZ -13							
Sub-group 1:							
P-5	Kaliganj	9.0	10.3	8.5	9.9	6.5	3.6
P-7/1 & P-7/2	Asashuni	16.8	11.9	18.6	18.3	20.7	15.0
P-10-12	Paikgacha	18.5	15.1	19.5	19.0	21.0	17.8
P-14/1 & P-14/2	Koyra	5.7	6.1	5.5	6.0	5.0	3.4
P-5 (part) & P-15	Shamnagar	13.2	12.2	13.6	14.2	12.7	13.0
P-31 & P-32	Dacope	5.6	12.6	3.7	4.2	3.4	2.8
Sub-group 2 :							
P-35/1	Sarankhola	2.8	3.1	1.7	2.0	0.9	1.0
Sub-group 3 :							
P-40/1 & P-40/2	Patherghata	6.5	7.9	6.2	6.9	4.9	3.7
P-45	Barguna	2.1	2.1	2.1	2.3	1.4	2.6
P-48 & P-46	Kalapara	1.3	1.5	1.0	1.0	0.9	1.2
Group II : AEZ - 18							
Group 4:							
P-57/56	Char Fasson	5.0	5.0	5.6	5.4	4.5	3.8
	Daulatkhan	4.5	6.1	3.6	4.0	2.3	1.9
	Burhanuddin	2.6	2.2	2.7	3.1	1.9	1.7
	Tazumuddin	5.4	4.9	5.5	5.9	4.7	3.3
	Lalmohon	3.8	4.4	3.6	3.9	2.8	2.8
P-59/2	Ramgati	5.4	6.6	4.9	5.0	5.2	2.1
P-59/3B & P-59/3C(Part)	Sudharam	4.9	5.1	4.8	5.3	3.4	3.9
P-59/3C (part)	Companiganj	2.5	2.8	2.3	2.7	1.1	1.0
P-60	Sonagazi	19.7	20.5	19.4	21.7	7.6	3.9
P-73/2B	Hatiya	5.8	5.5	5.9	6.3	5.7	4.0
P-72	Sandwip	2.7	2.9	2.6	3.1	1.4	1.6
Group III : AEZ - 23							
Sub-group 5:							
P-62	Chittagong Port	9.0	10.8	6.9	7.2	4.2	5.2
Sub Group 6:							
P-61/1	Sitakundu	5.4	5.0	6.3	6.8	2.9	5.2
P-63/1A	Anowara	11.7	13.9	10.4	10.8	7.5	7.2
P-64/2A	Banshkhali	25.4	27.1	24.1	24.2	23.4	24.5
P-64/2B	Chokoria	16.6	14.8	17.4	15.1	22.4	30.8
P-66/1	Ramu	6.5	7.0	6.2	5.6	2.8	1.4
P-66/3	Cox's Bazar	18.4	21.5	16.2	14.0	23.3	26.6
P-68	Teknaf	3.9	3.2	4.5	3.9	5.6	5.8
P-69 & P-70	Maheskhali	9.5	9.3	10.1	9.7	10.0	10.3
P-71	Kutubdia	13.8	6.9	17.4	13.9	28.9	22.4

Source : Bangladesh Census of Agriculture and Livestock, 1983-84

Enclosure 9 : Position of Agricultural Lending by the Institutional Credit Agencies

(Amount in Crore Taka)

Year	Target for Disbursement	Disbursed	P.C. of Target Achieved	Demand for Recovery	Recovery	Net Credit Flow (Col. 3 - 6)	P.C. of Recovery	Overdues	Outstanding including overdues	P.C. of Overdue to Outstanding
1	2	3	4	5	6	7	8	9	10	11
1980-81	548.30	373.42	68.1	452.36	221.35	152.07	48.9	234.91	678.51	34.6
1981-82	653.74*	423.84	64.8	648.30	314.34	109.50	48.5	322.30	839.87	38.4
1982-83	817.20*	678.55	83.0	817.27	342.33	336.22	41.9	456.69	1321.51	33.8
1983-84	1115.00**	1005.30	90.1	1238.22	517.57	488.73	41.8	755.67	2077.35	36.4
1984-85	1150.00	1149.68	100.0	1515.00	583.90	565.78	38.5	1158.89	3034.24	38.2
1985-86	1276.50	631.72	49.5	2375.19	607.15	24.57	25.6	1778.77	3514.25	50.6
1986-87	1075.00	667.28	62.1	2683.54	1107.56	(-) 440.28	41.3	1575.98	3294.41	47.8
1987-88	1050.00	656.31	62.5	2528.16	595.78	60.53	23.6	1932.38	3863.49	50.0
1988-89	1250.00	807.62	64.6	2933.66	577.96	229.66	19.7	2355.68	4711.66	50.0
1989-90	1350.00	686.78	50.9	3986.27	701.95	15.17	17.6	3284.33	5381.29	61.0

(Provisional)

* Includes Tk. 200 Crore under SACP

** Includes the Tk. 625 Crore Earmarked for misc.Agriculture

Source: Bangladesh Bank

Tab-14/CPP-II/2

Enclosure 10 : Functioning of BRDB Co-Operatives As on 30.6.90

(Amount in Lakh Taka)

Polder Number	Upazila	% of Rural Household Covered	No. of Socities	Member-ship	Share Capital	Savings Deposit	Loans Advanced	Loans Recovered	Over due Loans	Average Loan per Member (Tk)
Group I : AEZ - 13										
Sub-group 1:										
P-5	Kaliganj	12.95	218	5788	5.79	11.57	254.64	210.49	23.31	4397
P-7/1 & P-7/2	Asashuni	11.10	212	5626	6.90	8.29	145.86	102.91	24.87	2546
P-10-12	Paikgacha	18.00	116	3076	1.70	4.08	40.06	35.23	5.79	1302
P-14/1 & P-14/2	Koyra	-	-	-	-	-	-	-	-	-
P-5 (part) & P-15	Shamnagar	17.10	234	8337	11.17	21.69	373.38	338.39	6.79	3999
P-31 & P-32	Dacope	10.10	106	3324	2.67	5.57	52.75	52.29	4.69	1587
Sub-group 2 :										
P-35/1	Sarankhola	24.20	181	4877	3.90	5.87	140.35	123.07	2.97	2878
Sub-group 3 :										
P-40/1 & P-40/2	Patherghata	57.70	314	11834	7.35	8.72	272.79	225.59	35.91	2305
P-45	Barguna	100.00	421	17766	10.54	10.69	309.50	263.35	46.13	1742
P-48 & P-46	Kalapara	26.90	336	8470	9.36	10.46	317.48	273.99	41.84	3748
Group II : AEZ - 18										
Group 4:										
P-57/56	Char Fesson	16.70	243	8515	7.09	10.87	170.06	142.02	25.72	1997
	Daulatkhan	30.30	205	8114	6.70	9.97	241.52	167.95	49.13	2977
	Burhanuddin	27.80	326	11321	13.49	14.90	526.54	435.43	35.60	4651
	Tazumuddin	48.70	151	7469	7.77	13.61	263.24	234.75	25.73	3524
	Lalmohon	17.50	237	7766	5.61	12.09	192.86	115.32	18.81	2483
P-59/2	Ramgati	19.10	227	9416	11.25	11.63	271.19	170.09	44.67	2880
P-59/3B & P-59/3C (Part)	Sudharam	18.50	248	17090	8.66	12.63	127.37	93.71	25.09	745
P-59/3C (part)	Companiganj	18.10	129	8579	4.18	7.72	85.56	69.35	5.96	997
P-60	Sonagazi	27.40	181	10821	6.34	10.25	183.18	125.64	42.82	1698
P-73/2B	Hatiya	24.90	257	7903	10.59	14.13	186.25	115.76	18.39	2357
P-72	Sandwip	15.80	114	7067	7.89	18.21	438.60	381.21	18.74	6206
Group III : AEZ - 23										
Sub-group 5:										
P-62	Chittagong Port	-	-	-	-	-	-	-	-	-
Sub Group 6:										
P-61/1	Sitakundu	20.80	118	7661	6.08	15.90	144.39	106.79	5.68	1885
P-63/1A	Anowara	10.70	101	3368	3.47	4.72	120.54	101.83	9.34	3579
P-64/2A	Banshkhali	7.10	56	3309	2.13	3.24	38.10	25.73	5.29	1151
P-64/2B	Chokoria	16.40	205	8040	2.65	5.71	74.11	66.47	8.35	922
P-66/1	Ramu	23.00	123	4861	4.36	5.32	78.90	48.49	18.04	1623
P-66/3	Cox's Bazar	13.10	134	3546	1.92	2.72	4.20	23.63	9.27	964
P-68	Teknaf	14.70	64	2462	1.15	1.61	23.63	16.81	3.51	960
P-69 & P-70	Maheskhali	8.70	78	4424	2.00	2.14	89.77	26.81	5.46	899
P-71	Kutubdia	17.00	101	2073	1.57	1.81	35.57	25.55	4.69	1716

- = Not available

Source : BRDB

Enclosure 11 : Status of Primary Education

Polder Number	Upazila	No. of Primary School			% Distribution		Total Enrole-ment	Enrolment per School	No. of Village per School	Population Covered by one School
		Govt.	Non-Govt.	Total	Govt.	Non-Govt.				
Group I : AEZ -13										
Sub-group 1:										
P-5	Kaliganj	89	27	116	76.7	23.3	21809	188	2.3	2233
P-7/1 & P-7/2	Asashuni									
P-10-12	Paikgàcha	74	22	96	77.1	27.9	23741	247	2.1	2375
P-14/1 & P-14/2	Koyra	54	11	65	83.1	16.9	13156	202	1.8	2585
P-5 (part) & P-15	Shamnagar	96	20	116	82.8	17.2	22183	191	1.8	2603
P-31 & P-32	Dacope	56	12	68	82.4	17.6	15412	227	1.3	1853
Sub-group 2 :										
P-35/1	Sarankhola	34	50	84	40.5	59.5	13091	156	0.5	1345
Sub-group 3 :										
P-40/1 & P-40/2	Patherghata	61	21	82	72.4	27.6	17417	212	0.8	1854
P-45	Barguna	109	50	159	68.6	31.4	32447	204	0.9	1572
P-48 & P-46	Kalapara	78	23	101	77.2	22.8	26730	265	2.4	1525
Group II : AEZ - 18										
Group 4:										
P-57/56	Char Fasson	71	40	111	64.0	36.0	38687	349	0.8	2946
	Daulatkhan	63	2	65	96.9	3.1	16852	259	0.7	2754
	Burhanuddin	61	18	79	77.2	22.8	24009	304	0.9	3443
	Tazumuddin	48	16	64	75.0	25.0	12475	195	1.4	1453
	Lalmohon	72	17	89	80.9	19.1	24299	273	0.7	2809
P-59/2	Ramgati	91	37	128	71.1	28.9	24139	189	0.5	2664
P-59/3B & P-59/3C(Part)	Sudharam	182	34	216	84.3	15.7	58721	272	1.4	2870
P-59/3C (part)	Companiganj	56	12	68	82.4	17.6	23599	347	0.5	2603
P-60	Sonagazi	76	12	88	86.4	13.6	27247	310	1.1	2648
P-73/2B	Hatiya	105	23	128	82.0	18.0	25299	198	0.5	2305
P-72	Sandwip	103	7	110	93.6	6.4	41134	374	0.4	3082
Group III : AEZ - 23										
Sub-group 5:										
P-62	Chittagong Port									
Sub Group 6:										
P-61/1	Sitakundu	73	8	81	90.1	9.9	29247	310	0.9	3778
P-63/1A	Anowara	88	8	96	91.7	8.3	28563	298	0.8	2375
P-64/1A	Banshkhali	110	14	124	88.7	11.3	29553	238	0.8	2734
P-64/2B	Chokoria	104	27	131	83.9	16.1	55453	423	2.6	3015
P-66/1	Ramu	55	6	61	90.2	9.8	17690	290	0.7	2574
P-66/3	Cox's Bazar	64	15	79	81.0	19.0	27632	350	1.6	2937
P-68	Teknaf	34	4	38	89.5	10.5	20011	527	0.9	3526
P-69 & P-70	Maheskhali	47	3	50	94.0	6.0	14080	282	3.6	2900
P-71	Kutubdia	32	3	35	91.4	8.6	11217	320	0.3	2714

Source : Bangladesh Bureau of Educational Information & Statistics.
Ministry of Education
Government of Bangladesh

Enclosure 12 : Number of Educational Institutions

Polder Number	Upazila	Primary School	High School	College	Madrasha	Total	Rate of Literacy (1981)		
							Both Sex	Male	Female
Group I : AEZ - 13									
Sub-group 1:									
P-5	Kaliganj	116	27	1	45	189	27.2	37.6	16.4
P-7/1 & P-7/2	Asashuni	128	32	1	38	199	24.3	36.1	12.8
P-10-12	Paikgacha	96	29	3	60	188	24.3	35.5	13.1
P-14/1 & P-14/2	Koyra	65	19	1	32	117	24.5	37.4	12.6
P-5 (part) & P-15	Shamnagar	116	22	1	71	210	22.9	34.1	12.0
P-31 & P-32	Dacope	68	21	2	7	98	28.6	40.8	15.7
Sub-group 2 :									
P-35/1	Sarankhola	84	9	1	39	133	38.1	43.2	32.9
Sub-group 3 :									
P-40/1 & P-40/2	Patherghata	82	15	1	95	193	39.3	44.5	33.7
P-45	Barguna	159	36	2	44	241	30.9	37.7	23.9
P-48 & P-46	Kalapara	101	78	1	64	244	29.8	36.5	22.6
Group II : AEZ - 18									
Group 4:									
P-57/56	Char Fasson	111	9	1	30	151	17.2	22.3	11.5
	Daulatkhan	65	9	1	15	90	20.8	25.7	15.1
	Burhanuddin	79	9	1	23	112	19.4	25.3	13.3
	Tazumuddin	64	4	0	39	107	20.1	26.4	12.8
	Lalmohon	89	11	1	19	120	18.1	24.0	11.8
P-59/2	Ramgati	128	14	2	28	172	15.3	20.6	9.5
P-59/3B & P-59/3C(Part)	Sudharam	216	29	6	28	279	23.5	30.4	16.5
P-59/3C (part)	Companiganj	68	16	1	8	93	24.0	32.4	9.8
P-60	Sonagazi	88	12	2	10	112	23.0	32.7	13.8
P-73/2B	Hatiya	128	15	2	15	160	17.0	24.0	9.8
P-72	Sandwip	110	21	1	6	138	22.6	34.6	18.7
Group III: AEZ 23									
Sub-group 5:									
P-62	Chittagong Port								
Sub Group 6:									
P-61/1	Sitakundu	81	17	3	7	108	31.7	42.2	17.5
P-63/1A	Anowara	96	17	2	13	128	21.1	29.4	12.9
P-64/1A	Banshkhali	124	18	2	13	157	25.5	21.7	9.3
P-64/2B	Chokoria	131	6	1	22	160	15.1	20.8	8.9
P-66/1	Ramu	61	5	1	35	102	11.6	17.3	5.6
P-66/3	Cox's Bazar	79	12	3	23	117	18.2	25.3	5.6
P-68	Teknaf	38	3	1	18	60	8.8	13.9	3.3
P-69 & P-70	Maheskhali	50	9	1	37	97	9.5	14.3	4.3
P-71	Kutubdia	35	3	1	8	47	15.1	21.9	8.2

Enclosure 13 : Sources of Drinking Water (P.C. of Households Using):

Polder Number	Upazila	Tap Water	Tube-Wells	Pond, Shallow Wells	Rivers, Streams Canals	Total
Group I : AEZ-13						
Sub-group 1:						
P-5	Kaliganj	0.01	73.05	26.92	0.02	100.0
P-7/1 & P-7/2	Asashuni	0.01	48.76	51.08	0.15	100.0
P-10-12	Paikgacha	-	61.43	38.38	0.19	100.0
P-14/1 & P-14/2	Koyra	-	1.21	98.61	0.18	100.0
P-5 (part) & P-15	Shamnagar	0.01	7.77	92.05	0.17	100.0
P-31 & P-32	Dacope	0.08	9.02	83.48	7.42	100.0
Sub-group 2 :						
P-35/1	Sarankhola	0.05	4.37	78.59	16.99	100.0
Sub-group 3 :						
P-40/1 & P-40/2	Patherghata	0.03	8.90	72.89	18.18	100.0
P-45	Barguna	0.25	50.78	27.94	21.03	100.0
P-48 & P-46	Kalapara	0.06	49.10	46.34	4.50	100.0
Group II : AEZ-18						
Group 4:						
P-57/56	Char Fasson	0.06	44.29	48.71	6.94	100.0
	Daulatkhan	0.13	66.66	24.89	8.32	100.0
	Burhanuddin	0.26	44.15	52.08	3.51	100.0
	Tazumuddin	0.15	43.01	52.69	4.15	100.0
	Lalmohon	0.11	46.91	46.85	6.13	100.0
P-59/2	Ramgati	0.13	46.98	48.18	4.71	100.0
P-59/3B & P-59/3C(Part)	Sudharam	0.99	38.72	60.08	0.21	100.0
P-59/3C (part)	Companiganj	0.30	60.76	38.59	0.35	100.0
P-60	Sonagazi	-	67.46	31.90	0.64	100.0
P-73/2B	Hatiya	0.22	46.43	51.74	1.61	100.0
P-72	Sandwip	0.70	34.50	64.60	0.90	100.0
Group III : AEZ-23						
Sub-group 5:						
P-62	Chittagong Port					
Sub Group 6:						
P-61/1	Sitakundu	5.57	50.34	43.58	0.51	100.0
P-63/1A	Anowara	-	62.78	37.20	0.02	100.0
P-64/1A	Banshkhali	0.40	67.70	31.00	0.90	100.0
P-64/2B	Chokoria	-	78.12	17.13	4.75	100.0
P-66/1	Ramu	0.96	72.83	14.58	11.63	100.0
P-66/3	Cox's Bazar	2.57	68.90	25.71	2.82	100.0
P-68	Teknaf	0.96	40.37	57.58	1.09	100.0
P-69 & P-70	Maheskhali	0.09	59.08	39.43	1.40	100.0
P-71	Kutubdia	-	67.00	33.00	-	100.0

Source : Upazila Statistics of Bangladesh 1988, BBS

Enclosure 14 : Marine Artisinal Fisheries

Sl. No.	Year District	Number of Marine Fishermen				Number of Marine Fishing Boats		
		Total	Fishery Management Household		Fishery Labourers Household	Total	With Engine	Without Engine
			With Boat	Without Boat				
1.	Chittagong :							
	1967 - 1968	12,700	2,868	2,868	3,795	1,855	-	1,855
	1984 - 1985	36,623	6,886	3,614	26,123	6,400	1,128	5,272
	% Change	+ 288.37	+ 240.10	+ 126.01	+ 688.35	+ 345.01		+ 284.20
2.	Cox's Bazar							
	1967 - 1968	19,088	6,577	6,397	6,114	4,071	40	4,031
	1984 - 1985	39,829	3,636	3,143	33,050	3,911	1,822	2,089
	% Change	208.66	(-)	(-)	+ 540.56		+	(-)
3.	Noakhali :							
	1967 - 1968	1,817	952	15	850	965	-	965
	1984 - 1985	17,350	2,169	1,762	13,419	2,039	179	1,860
	% Change	+ 954.87	+ 227.00			+ 211.30		+ 192.75
4.	Barisal :							
	1967 - 1968	2989	1,283	-	1,706	1,025	-	1,025
	1984 - 1985	12616	2810	1091	8715	1933	81	2044
	% Change	+ 422.08	+ 219.02	+	+ 510.84	+ 188.59	+	+ 199.41
5.	Patuakhali :							
	1967 - 1968	3,665	1,013	150	2,502	1,189	1	1,188
	1984 - 1985	14176	4383	1113	8680	2142	98	2044
	% Change	+ 386.79	432.68	742	346.92	180.15	+	172.22
6.	Khulna							
	1967 - 1968	1,619	507	47	1,065	448	-	448
	1984 - 1985	2968	1288	466	1214	906	9	897
	% Change	+ 183.32	254.04	991.49	113.99	202.23		220.22
7.	Bangladesh Total :							
	1967 - 1968	19,088	6,577	6,397	6,114	4,071	40	4,031
	1984 - 1985	39829	3636	3143	33050	3911	1822	2089
	% Change	208.66	(-)	(-)	+ 540.56	(-)	+	(-)

- + Not available

Source : Department of Fisheries, Government of Bangladesh

Enclosure 15 : Distribution of Ponds in the Study Areas

Polder Number	Upazila	Number of Ponds				Total Area Under pond (ha)	No. of ponds per 100 households	Prop. of pond area to net cropped area
		Cultived	Culti-vable	Derelict	Total			
Group I : AEZ - 13								
Sub-group 1:								
P-5	Kaliganj	1835	636	408	2959	279.2	9	1:82
P-7/1 & P-7/2	Asashuni	1104	383	293	1780	168.0	5	1:168
P-10-12	Paikgacha	2121	735	565	3421	322.5	11	1:93
P-14/1 & P-14/2	Koyra	4217	1462	133	6802	641.4	30	1:30
P-5 (part) & P-15	Shamnagar	485	168	130	783	73.7	2	1:461
P-31 & P-32	Dacope	4443	1541	1182	7166	675.8	44	1:24
Sub-group 2 :								
P-35/1	Sarankhola	387	134	103	624	58.7	4	1:176
Sub-group 3 :								
P-40/1 & P-40/2	Patherghata	2736	1315	932	4983	375.6	24	1:53
P-45	Barguna	4377	2105	1491	7973	601.4	25	1:44
P-48 & P-46	Kalapara	4346	2090	1481	7917	597.0	32	1:53
Group II : AEZ - 18								
Group 4:								
P-57/56	Char Fasson	8177	3932	2785	14894	1123.0	33	1:40
	Daulatkhan	3556	1710	1212	6478	488.5	27	1:29
	Burhanuddin	3435	1651	1170	6256	471.9	17	1:56
	Tazumuddin	4073	1959	1387	7419	559.7	66	1:28
	Lalmohon	4425	2032	1439	7696	580.3	23	1:41
P-59/2	Ramgati	6734	3442	1374	11550	1297.9	26	1:32
P-59/3B & P-59/3C(Part)	Sudharam	11148	5699	2276	19123	2148.5	23	1:29
P-59/3C (part)	Companiganj	2870	1467	586	4923	553.3	20	1:40
P-60	Sonagazi	2594	1326	530	4450	499.8	14	1:26
P-73/2B	Hatiya	11011	5628	2247	18886	2121.8	46	1:23
P-72	Sandwip	4439	4808	1297	10544	1461.0	24	1:12
Group III : AEZ - 23								
Sub-group 5:								
P-62	Chittagong Port	755	818	220	1793	248.5	5	1:37
Sub Group 6:								
P-61/1	Sitakundu	2355	2551	689	5595	775.0	13	1:16
P-63/1A	Anowara	876	948	256	2080	288.1	15	1:32
P-64/1A	Banshkhali	2114	2290	617	5021	695.5	11	1:26
P-64/2B	Chokoria	3518	3811	1028	8337	1157.8	17	1:26
P-66/1	Ramu	2250	2437	65.7	5344	740.2	25	1:10
P-66/3	Cox's Bazar	1163	1260	339	2762	382.8	12	1:23
P-68	Teknaf	2144	2322	627	5093	705.4	4	1:16
P-69 & P-70	Maheskhali	1887	2044	552	4483	621.2	19	1:13
P-71	Kutubdia	619	670	181	1470	203.6	12	1:21

Source : Department of Fisheries, Govt. of Bangladesh

Tab-3/CPPII/2

Enclosure 16 : Area Used for Salt Preparation

Polder No.	Upazila	Salt-Centre	Area Under Salt Making (in ha.)	P.C.
P 71	1.Kutubdia	1.Lemsikhali	1473.09	10.08
P 69 P 70	2.Maheskhali	2.Uttara Nalbila 3.Gorokghata 4.Matarbari	2024.28 1274.38 1809.80	13.86 8.72 12.39
		Sub-Total	5108.46	34.97
P 66/3	3.Cox's Bazar	5.Gomatoli 6.Choufaldandi 7.Dulhazari 8.Fulchari	1341.96 842.17 49.78 1320.52	9.19 5.76 0.34 9.04
		Sub-Total	3554.43	24.33
P 64/2B	4.Chokoria	9.Darbeshata	3282.88	22.47
P 64/1A	5.Banskhali	10.Purbo Boroghona 11.Sarol	800.48 299.07	5.48 2.05
		Sub-Total	1099.55	7.53
P 68	6.Teknaf	12. Teknaf	91.06	0.62
		Total	14609.47	100.00

Source : BSIC

Enclosure 17 : Production and Availability of Salt

(Quantity in '000' m. tons)

Year	Local Production	Import	Total Availability	Available for Human Consmption	Per Capita Consumption (1b)
1974-75	609	2	611	411	11.61
1975-76	466	-	466	411	11.33
1976-77	361	14	375	411	11.07
1977-78	624	17	641	411	10.82
1978-79	678	2	680	418	10.76
1979-80	370	-	370	418	10.50
1980-81	215	-	215	418	10.25
1981-82	463	765	1228	448	10.95
1982-83	194	322	516	463	10.91
1983-84	529	517	1046	466	10.74
1984-85	526	186	712	483	10.90
1985-86	597	345	942	503	10.90
1986-87	523	166	689	503	11.09
1987-88	409	220	629	537	11.09
1988-89	449	376	825	545	11.03
1989-90	710				

Source : Statistical Yearbooks of Bangladesh,1987-1990