

- Increased employment and establishment of 70 groups with 2,100 members in profitable fish culture.
- Establishment of extension and credit delivery system or model for future expansion.
- Participation of women in homestead integrated fishery activities, and thereby increase family income as well as protein intake .

7.7.4 Organizations

The organizations which will be involved, and their function or activities are shown in Figure 7.4. The programme will be operated at the village level under the control of BRDB. UCCA will assist in coordinating the Resources-less Fish Farmers Groups (RFFG) in the BSS/KSS.

BRDB

BRDB role in this programme will be, with the assistance of aquaculture expert and fisheries officers in respective upazilas, as follows.

- Survey and identification of ponds
- Acquiring and transfer of public (khas) ponds and leasehold ponds to BRDB/UCCA
- Re-activation of the identified and potential ponds
- Allocation and transfer of the acquired and prepared ponds to RFFG

UCCA

- Mobilize, organize and form the rural poor-landless and assetless farmers and fishermen - into groups (RFFG)
- Make timely availability of funds for pond preparation, purchase of stocking materials, feed fertilizer, etc.
- Provide technical guidance and extension agents/leader training
- Provide critical inputs free of charge wherever required to encourage enthusiasm among members.
- Record keeping
- Reporting to BRDB and programme adviser
- Mobilize savings and introduce a system for its productive uses
- Arrange and provide training on management and human development
- Facilitate marketing of fish of members
- Monitor and evaluate project activities, and develop action programme gradually.

RFFG - BSS/KSS

RFFG is the borrower and pond operators of the credit inputs from UCCA through BSS/KSS. BSS will assist in the sales of produced fish. It will ensure the collection of loan/credit from RFFG and repayment to UCCA.

7.7.5 Training

Training and extension is very important in the programme. Training should be arranged through UCCA. UCCA should seek the assistance of aquaculture experts in DOF and research institutions in Bangladesh in the programme preparation and planning. The services of DOF should be sought for demonstration, training and extension. Audio-visual aids and other materials are being prepared by DOF and they should be used in this programme. The training courses for the leader/co-leader of RFFGs who will disseminate the knowledge and experiences gained, to their fellow members, are as follows.

- Pond preparation
- Food and feeding habits of fish
- Stocking rate and ration of fingerlings
- Predator control
- Feeding and fertilization
- Record keeping

7.8 Proposed Priority Project Works and Supporting Programs

7.8.1 Proposed Works

Four major project components, such as (i) Irrigation and Drainage Improvement, (ii) Feeder and Rural Road Improvement, (iii) Growth Center Improvement, and (iv) UCCA Complex Establishment, are finally proposed as an infrastructural development works in the priority projects. The following is a summary of the proposed work items, and Table 7.3 shows the main feature of these works.

- 1) Irrigation and Drainage Improvement Works
 - 1.1 Channel re-excavation
 - 1.2 Supply of Low Lift Pumps
 - 1.3 Supply of Fractional Pumps

- 2) Feeder and rural Road Improvement Works
 - 2.1 Feeder Road Improvement
 - 2.2 Rural Road Improvement
- 3) Growth Center Improvement Works
- 4) UCCA Complex Establishment Works
 - 4.1 Establishment of Godown
 - 4.2 Establishment of Rice, Oil, Flour, and Oil Mills
 - 4.3 Establishment of Store for Cash Crops, Fish and Poultry.

7.8.2 Supporting Programme

The existing cooperatives would be activated by participation to the priority projects as user of the project works. To strengthen UCCA and primary societies, the priority projects will ensure not only facilities and equipments but also stable technical support. The major supports are:

- 1) Model Farm Credit Programmes
 - 1.1 Short term package crop credit for procurement of inputs and water charge
 - 1.2 Long term fishery credit for embankment of existing ponds
 - 1.3 Short term fishery credit for procurement of inputs
- 2) Training Programmes
 - 2.1 Day-to-day parallel management for administrative staff of BRDB and UCCA
 - 2.2 On-the-job training for extension workers, pump operators, mechanics, etc.

Project Supporting Unit (PSU) is essential for successful execution of such project components as irrigation, fishery, post-harvest processing, joint-marketing and credit operation. PSU will exert its tasks as advisor to BRDB and as assistant to UCCA and cooperative members. External or third party such as PSU is also expected to function well in project monitoring for identification and elimination of constraints to the project implementation.

7.9 Cost Estimate

7.9.1 Basic Conditions of Cost Estimate

The construction works and schedule for priority project are shown in Table 7.3 and Figure 7.5 respectively. The construction cost is estimated based on the preliminary design and on the following conditions:

- i) The major construction works will be carried out by qualified international contractor(s) selected through international competitive tendering in view of quality control and construction period.
- ii) Implementation of the Project is essential for obtaining the Project benefit as early as possible, considering that each construction works are completed within one year.
- iii) The exchange rate as of May 1991 used in the estimate is US\$1.0 = Tk 35 = Yen 138
- iv) The unit rate of the works are divided into foreign currency portion and local currency portion, and mainly refer to Basic Design of Model Rural Development Plan Phase-I for Homna and Daudkandi Upazila(Bangladesh).
- v) Administration cost, 5 % of the direct cost is included in the construction cost. The physical contingency related to the work quantities, 15 % of the direct construction cost , is also included in the construction cost in view of the preliminary nature of the estimate.
- vi) Engineering services is taken as 15 % of direct construction cost.
- vii) Price contingency is considered at annual escalation rate of 10 % for local currency portion and 3 % for foreign currency portion.

7.9.2 Construction and Procurement Costs

The project cost consists of construction cost, procurement cost of low lift pump, administration cost, physical contingency, engineering services and price contingency. The total cost for priority project is estimated to be Taka 3,647 million, consisting of the foreign

currency portion of Taka 2,644 million and local currency portion of Taka 1,003 million as shown in Table 7.4 and summarized below.

Project Works	Work Quantity	Amount (Taka)
I. Direct Construction Cost		
1. Irrigation Development and Drainage Improvement		<u>128.3</u>
1.1 Channel Re-excavation	123 km	94.2
1.2 Low Lift Pumps (LLP)	173 units	27.7
1.3 Workshop for LLPs	3 places	6.4
2. Fractional (FP) Pumps Promotion	200 units	26.0
3. Feeder and Rural Roads Improvement		<u>2,045.4</u>
3.1 Feeder B		
3.1.1 Road Embankment	101.9km	398.2
3.1.2 Bridge and Culvert	95 nos	661.0
3.1.3 Pavement, Tree Planting, Turfing	70.7 km	379.1
3.2. Rural Road		
3.2.1 Road Embankment	25.0 km	235.3
3.2.2. Bridge and Culvert	60 nos	371.9
3.2.3 Pavement, Tree Planting, Turfing	0 km	0.0
4. UCCA Complex Establishment		<u>67.5</u>
4.1 Parboiled Rice Mill	4 units (2 ton/hr/unit)	8.7
4.2 Flour Mill	4 units (0.4 ton/hr/unit)	8.5
4.3 Oil Mill	4 units (0.1 ton/hr/unit)	8.7
4.4 Godown(500 ton)	4 places	41.5
5. Growth Center Improvement	16 places	<u>68.8</u>
5.1 G.C at Upazila Headquarter (Model G.C)	4 places	47.8
5.2 Growth Center	12 places	21.0
Sub-total (1 to 5)*		<u>2,336.0</u>
II. Administration		116.8
III. Physical Contingency		350.4
IV. Engineering Services		350.4
Total (I to IV)		<u>3,153.7</u>
V. Price Contingency		493.6
VI. Grand Total(I to V)		<u>3,647.3</u>
VII. Model Rural Farm Credit		
1. Short Term Credit		<u>33.3</u>
1.1 Crop Credit for LLP Project	Annual cropping for 3,440 ha	29.9
1.2 Fishery Credit for Pond Culture	Annual maintenance of ponds	3.4
2. Long Term Credit		
2.1 Fishery Credit for Pond Culture	Embank. of Ponds (280 ha x 4 upazilas)	<u>14.0</u>

* : This amount is excluding Value Added Tax which has been introduced since 1st July, 1991.

7.10 Organization and Institution

7.10.1 Central Coordination Committee (CCC)

Central Coordination Committee will be formed in Dhaka, where headquarters of BRDB and LGEB are located. The functions of CCC are coordination at central level and monitoring, advising etc. as shown in Table 7.5. The members will be headed by Secretary of MLGRD & Cooperative. The project implementation will be under the responsibilities of BRDB and LGEB. (Figure 7.6)

Project Manager of LGEB will be in charge of all the projects related roads and canals in the Priority Projects. Project Manager of BRDB will be in charge of all the projects related to the rest of the above of the Priority Projects. Each Project Manager will be the head of Task Force, which will be formed in both authorities with some members of relevant officials who have direct connection with the Project. To ensure the technical support, the Project Supporting Unit (PSU) will be organized. (Table 7.6)

7.10.2 Local Administrations

In local level, Upazila Engineering Committee and Upazila Production and Employment Committee will be formed by keeping close linkage with BRDB and LGEB. Their functions and members are shown in Table 7.5.

Upazila Engineering Committee

The main function is project implementation regarding roads and canal improvement under close cooperation with Upazila Parishad and LGEB. Formation of Labour Contracting Society (LCS) for maintenance of road is strongly recommended as in another projects for securing labour force. The existing Road Maintenance Programme (RMP) for women's group is to be continued for keeping roads in good condition. Canal excavation for irrigation and drainage is in charge of Upazila Parishad.

Upazila Production and Employment Committee

The Irrigation Projects, both LLPs and FPs, will be under UCCA and for efficient management of their activities Project Administrator (Irrigation) will be recruited by UCCA. He will be in charge of all the operations, activities and training etc. with the help of officials and experts concerned.

For operation, both LLPs and FPs, Pumping Unit will be formed and they are under the Administrator mentioned above as well. At village level, Water Users Association (WUA) will be formed to the convenience of the activity of both pumps.

UCCA has the vital role for this pumping projects and the coordination with existing IMP through UCCA is one of the most important problems. IMP has very long and brilliant history in irrigation and smooth integration with it will be the first step for the success of the Project.

UCCA Complex has many components and it is suggested to form Village Marketing Group (VMG) under UCCA in the nearby union of UCCA complex. VMG will be composed of supplier groups and consumer groups too.

For efficient running of UCCA complex, manager(s) and operator(s) will be necessary and it is advisable to UCCA to hire these technical staff members for a certain period. It is also strongly suggested to UCCA to enforce the existing staff in number and by intensive training. Powerful assistance from BSCIC is expected and smooth coordination to get technical assistance from outside of UCCA is highly requested.

For Growth Center operation, Growth Center Maintenance Committee, whose chairman is Upazila Chairman and the members are Union Chairmen who have growth centers in their unions, is suggested for useful running.

In Intensive Fishculture Project, Resourceless Fish Farmers Group (RFFG) is suggested to form for successful running. A leader and co-leader in about 30 members of a group is also suggested. It is expected to receive technical assistance from DOF in the form of demonstration farm and training etc. Fortunately DOF is implementing the project "Institutional Strengthening in the Fisheries Sector" with the help of FAO/UNDP and many officials in Districts and Upazilas have been trained.

7.11 Project Evaluation

7.11.1 Basic Concept

MRDP II aims at improving living standards for the low income class in rural area through generating employment opportunities and increasing the income. This kind of rural development is a package project which consists of several components , and synergism

benefits will be generated by the combination of each component. In case of these benefits it is very difficult and insufficient to quantify the impact on Basic Human Needs sufficiency from the economic view point. Therefore, the project evaluation from financial viewpoint such as substantiality of UCCA, WUA and Upazila Parishad should be more emphasized.

7.11.2 Identification of Project Benefits

(1) Beneficiaries

The population of the study area is 1.3 million which compose of 221,000 households. Most of the inhabitants of the study area will have benefits directly or indirectly from the project. The direct beneficiaries from the LLP and FP projects are estimated at 12,250 and 4,000 farm households, respectively. Feeder B and rural roads improvement project will benefit not only farmers but also dealers, retailers, etc.

(2) Quantified and Non-quantifiable Benefit

The quantified benefits consist of incremental crop and fishery production, the value accruing from the UCCA complex project and the value accruing from reduction of transportation and passengers' cost saving through the feeder B and rural roads improvement project.

Most parts of the benefits accruing from the project are considered as indirect benefits but they are not included in the estimation of the financial and economic benefits. The non-quantifiable benefits can not be expressed numerically, which are discussed in the social impact.

7.11.3 Methodology of Analysis

(1) Financial Project Cost

The project cost broadly comprises (1) direct construction cost for project facilities, (2) cost of land acquisition and compensation, (3) administration expenses (4) expenses for engineering services, (5) physical contingencies and (6) price contingencies. These costs will have to be met on a financial basis. All the costs, except the price contingencies, are generally regarded as net capital cost. Financial costs of the project are counted based on market prices, economic costs are valued with economic prices or accounting prices i.e. border prices for trade commodities and conversion factors.

(2) Economic Project Cost

Economic costs should exclude transfer items like import tax, financial interest, water charge and land acquisition, etc. The conversion factor used to obtain economic prices for non-traded commodities is 0.82 and 71% of market price was used as the opportunity cost of unskilled labour.

(3) Project Benefit

The estimation of project benefits were made for each component excluding the growth center improvement project. Benefits from the growth center improvement project are mostly intangible and not taken into calculation. Financial benefits were calculated by market prices, while the economic benefits were computed with the accounting prices derived from border prices and conversion factors.

(4) Financial Analysis

It is important to analyze the proposed project not only from the viewpoint of the economy as a whole, but also from the view point of financial viability on the management of the project. In this section, the financial viability whether the proposed project could be operated and managed by the participator as like UCCA and Upazila Parishad in their income that should be examined.

As mentioned in each chapter concerned with the proposed projects, UCCA manages the low lift pumps project, the fractional pumps project and the UCCA complex project, Upazila Parishad maintains the growth center improvement project and feeder B and rural road improvement project.

Therefore, financial cash flow statement on the stand point of operation and maintenance of the projects should be emphasized on financial analysis.

(5) Economic Analysis

The economic analysis used for the priority project of MRDP-II adopted an incremental approach by contrasting the without and with conditions, over a 30-year project life. The incremental cash flow derived on this basis was then subjected to discounted cash flow techniques in order to estimate the Economic Internal Rate of Return (EIRR) and the Net Present Value (NPV) at the chosen opportunity cost of capital of 15%.

Sensitivity analysis was not carried out in order to test against the changes of economic condition, because it is not so important to analyze the sensitivity of the rural development as like this priority project with low EIRR.

7.11.4 Financial and Economic Evaluation

(1) Financial Evaluation

Financial cashflows was prepared in order to analyze the financial viability of each priority projects under the following conditions.

- (a) The financial cash flow statement will be calculated on the stand point of UCCA, Water Users' Association and Upazila Parishad for the concerned projects.
- (b) Capital investment will be financed by government subsidy or grant aid. Repayment of the capital investment will be made by government responsibility.
- (c) The main canal will be maintained by government subsidy and Upazila Parishad. UCCA should aid Upazila Parishad for canal maintenance from cooperative profit.
- (d) O&M and replacement cost are based on the local price.
- (e) Upazila Parishad will be responsible for the maintenance of growth center and feeder, rural road. Operation and maintenance cost for these facilities will be financed by government subsidy or grant aid.
- (f) UCCA will be responsible for the operation of low lift pumps project, fractional pumps project and UCCA complex project. UCCA should operate and manage these projects from cooperative benefit. Project Manager of LGEB will be in charge of all the projects related roads and canals in the Priority Projects.
- (g) Price escalation and contingency are excluded from calculation.

(2) Financial Cashflow Statement

(a) Low Lift Pump Project

In this project, financial cashflow statements are analyzed on the standpoint of UCCA and WUA. The relationship of two organizations is described in the main report for irrigation development. UCCA leases low lift pump to WUA, and takes the rental charge and management charge from WUA. WUA operate low lift pump for their members consisting of

not only cooperative member but also other farmers. WUA receives water charge from them. WUA should repay the rental charge of LLP and its O&M cost to UCCA and not keep the reserve money. The statements are shown in Table 7.7 and 7.8.

(b) Fractional Pump Project

As for fractional pump project, financial cash flow statement is analyzed on the stand point of UCCA. This statement shown in Table 7.9 is calculated on the condition that the project revenue covers replacement and annual expenditure at minimum. Therefore, the the calculated income from KSSs is minimum, If the the income from KSSs is over the minimum income and the net income will be reserved in UCCA.

(c) Feeder B and Rural Roads Improvement Project

Financial cash flow statements are analyzed on the standpoint of Upazila Parishad. This sheet is simple, and project costs consisting of construction cost and O&M cost are correspondent to project fund consisting of government subsidy and Upazila budget. Especially, operation and maintenance of the road are desirably made by Upazila budget supported by Food for Works and grant etc. It is necessary to compare O&M cost of the project with the capacity of Upazila Parishad budget. The statements are shown in Table 7.10.

(d) UCCA Complex Project

The financial cash flow statement are analyzed on the standpoint of UCCA. Except for initial cost, the project revenue of the UCCA Complex is the sale of products comprising rice mill, flow mill, oil mill and godown storage. The net reserve is accruing from the annual revenue minus the annual cost. The annual reserve was calculated to be 6,300 Tk/year. The statements are shown in Table 7.11.

(e) The Growth Center Improvement Project

The financial condition of the growth center improvement project is similar with the feeder road improvement project. In this project, O&M cost is financed desirably by growth center lease money. Therefore, the lease money will be decided in term of financial viewpoint. The statements are shown in Table 7.12.

(3) Economic Evaluation

The Economic Internal Rate of Return is calculated on the following conditions:

- (a) Project life will be 30 years.
- (b) The phased development of crop benefits i.e. LLP and FP projects are assumed to occur over a four year period: 30% for 1st year, 50% for 2nd year, 80% for 3rd year and 100% for 4th year.
- (c) Construction period will be three (3) years.

The overall Priority Project EIRR is estimated at 5% as presented in Table 7.13. About 50% of the project benefits are attributable to irrigation development consisting the LLP project and the FP project and the remnant accrue from the other project components. As for the Stage I project of the Priority Project, the EIRR is calculated at the 8 % as shown in Table 7.14.

7.11.5 Socio-Economic Impacts

Various secondary and intangible benefits and/or favorable socio-economic impacts are expected from the implementation of the project. Major items of these secondary and intangible benefits are described hereunder.

(1) Increase of Employment Opportunity

Long-term employment opportunity of about 470 thousand man-day/year will be newly created by the selected priority project of MRDP II implementation as presented in Table 7.14.

(2) Other Impacts

- Improvement of insufficient nutrition and elimination of poverty
- Sanitation improvement
- Improved communications and transport resulting from infrastructural development
- Induced capital investment, both public and private, in rapidly developing areas caused by this project
- Increased income in the marketing and processing of farm-products resulting from indirect repercussions of the project
- Increased production and marketing of farm inputs like seeds and fertilizer
- Effect on the balance of payment either through import substitution.
- Development of women's activities
- Transfer of technology

While these secondary benefits have not been formally included in the economic analysis, there is no doubt that they will make a very significant contribution to the social and economic development inside and outside the project area.

CHAPTER 8

CONCLUSION AND RECOMMENDATION

CHAPTER 8 CONCLUSION AND RECOMMENDATION

1. The MRDP II is formulated as integrated rural development plan with the great emphasis on enhancement of rural living standard through creation of employment opportunity for facilitating the participation of rural poors to substantial economic activities in situ.
2. Cooperative activity is of extreme importance for rural poors in terms of stable capital formation and easy participation to income generating activities according to the GOB's Production and Employment Programme (PEP) for the rural poor. The UCCA/primary societies system, i.e. two tier cooperative system, is expected to be developed more through activation of UCCA as an apex of rural societies as well as further formation of primary societies. All the programmes under MRDP II are envisaged to activate cooperative activities or to be realized by reinforced cooperatives themselves.
3. Rural infrastructure development is indispensable for supporting rural economic activities and is mostly under the responsibilities of local government, i.e. Upazila Parishad. MRDP II emphasizes improvement of rural access and marketing facilities among various infrastructure from the viewpoint of their direct contribution to production sectors although the rests are essential for fulfillment of basic human needs.
4. MRDP II consists of eligible 11 programmes indispensable for appropriate rural development. They are integrated into six (6) project sets, namely (i) irrigation development with LLPs and drainage improvement, (ii) FP promotion on pilot basis, (iii) UCCA complex establishment, (iv) feeder B and rural roads improvement, (v) growth center improvement, and (vi) semi-intensive fish culture. The first stage of six (6) project sets is defined as priority projects. The main executing agencies of the projects are to be Upazila Parishad and UCCA.
5. MRDP II will be implemented in the period from 1993 to 2010 split into three (3) phases, i.e. 1st phase of 1993-1995, 2nd phase of 1996-2000 and 3rd phase of 2001-2010 with long term development strategy. The first three (3) years, i.e. by 1995 of end year of FFYP, will be devoted for implementation of the priority projects.
6. The total cost of MRDP II is estimated at Tk 10,831.4 million, while the cost of priority projects amount to Tk 3,647.3 million, respectively. The economic evaluation for the priority projects indicated an economic internal rate of return (EIRR) at 5 % as a whole.

With examination of the financial cashflow for each project, high financial viability is recognized for each of priority projects.

7. It is recommended that the GOB would embark on financial arrangement for implementation of priority project as soon as possible.
8. The GOB should make all the efforts for administrative and institutional arrangement for smooth and stable project implementation for BRDB and LGEB. Likewise, both agencies should keep the close relation with Upazila Parishads and UCCAs concerned.
9. To ensure the technical support to both central and local administrations, the GOB is requested to organize the Project Supporting Unit (PSU), for which involvement of expatriates and other qualified experts will be much effective.
10. It is preferable that Pre-construction Environmental Impact Study (PEIS) would be carried out prior to project implementation. Environment monitoring for MRDP I for Homna and Daudkandi is also essential practice to provide various information for environmental assessment for MRDP II.

TABLES

Table 1.1 Members List

Name	Designation or Position
I. Advisory Committee	
S. Nakagawa	Chairman
A. Kubota	Irrigation and Drainage
M. Itoh	Agro-economy
K. Katoh	Agriculture
T. Iwai	Project Evaluation
II. Study Team	
H. Yamamoto	Team Leader
M. Koyama	Agronomy/Soils/Land Use
M. Masaki	Rural Development
B. Abe	Agro-processing
J. Kawakami	Institution/Support
H. Goto	Institution/Support
A. Ibrahim	Inland Fishery
Y. Fukasaka	Marketing
T. Osawa	Irrigation and Drainage
Y. Takahashi	Facility Plan/Topographic Survey
S. Takagi	Project Evaluation
III. Counterpart Personnel	
(BRDB)	
S. M. Farid	Director General
M. Baksh	Deputy Director (Extension)
M. Miah	Deputy Director (STP)
A. Hossain	Deputy Director (RD-12)
M. Islam	Deputy Director (Co-op.)
N. Amin	Deputy Director (Irrigation)
M. Rahman	Deputy Director (Planning)
J. Chowdhury	Deputy Director (Monitoring)
(LGEB)	
A. Bhuiyan	Superintendent Engineer (Training)
S. K. Sarkar	Executive Engineer-1
A. Samad	Executive Engineer-2
A. Rakib	Executive Engineer (Water Resource)
M. Rahman	Assistant Engineer (Mapping)

Table.2.1 Goals of Fourth Five Year Development Plan (1990-1995)

Aspect	Development Goal
(1) Population Control	: To reduce population growth rate from 2.16% in 1990 to 1.81% in 1995, and therefore to reduce the total fertility rate per woman from 4.5 to 3.3.
(2) Employment generation	: It is expected that the major source for further employment generation will be in the manufacturing sector especially through small and informal manufacturing activities, non-crop agriculture and other service sectors. The total employment shares will change, i.e. the agricultural sector will change from 55.3% in 1990 to 49.6% in 1995 and the manufacturing sector from 10.8% in 1990 to 12.6% in 1995.
(3) Education	: To be done as part of a comprehensive manpower development plan. To plan for education consistent with the pre-identified manpower plan.
(4) Food, nutrition and basic needs	: To increase the production of food grains from 18.5 million tons in 1990 to 22.0 million tons in 1995 so as to ensure self-sufficiency in food grains by 1995.
(5) GDP growth	: A 5.0% annual growth rate is targeted.
(6) Resource mobilization	: External resources TK 347.600 million (51.7%) Domestic resources TK 324,700 million (48.3%)

Table 3.1 Ground Water Development Zones, Characteristic and Potentials

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Zone	Sub-Zone	Percentage of Coarser Material (Study Depth)	Identified Area	Specific Yield Calculated from Bore-log up to 15 m	Maximum Depth to Ground Water Table from Land Surface	Actual Water Table Fluctuation	Maximum Fluctuation Attained/Expected	Ground Water Resource Bank (mm)/Average (mm)	Annual Recharge Potential	Average Recharge Rate/Rainfall	Thickness of Upper Silt and Clay	Depth to Top of Main Aquifer	Thickness of Main Aquifer at Various Depth	Aquifer Characteristic Derived from Aquifer Test			Total Dissolved Solids (TDS) PPM (Depth Range)	Chemical Qualities		DEVELOPMENT POTENTIALS
														Transmissibility of Main Aquifer SQ (m/daily)	Storage Co-efficient	Specific Capacity		Iron (Fe) PPM	Chloride (Cl) PPM	
B	B1	105 m %	285.00	0.046	2.5 - 6.0	2.5 - 4.5	6.0	35.40 (124 mm)	78.80 (276 mm)	47.30 (166 mm)	1.0 - 6.0	15 - 70		400 - 670	0.01 - 0.08	2.2 - 9.6	174 - 213	5.0 - 10.0	8 - 18	Area is suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	B2	50 - 75	325.00	0.034	2.5 - 6.0	1.0 - 3.5	6.0	31.70 (98 mm)	66.30 (204 mm)	38.80 (122 mm)	10 - 28	15 - 45	50 - 80	315 - 470	0.01 - 0.05	4.5 - 9.5	240 - 275	6.5 - 19.2	11 - 12	Most of the area has good water qualities.
	B3		589.00	0.045	3.5 - 6.0	3.5 - 4.5	6.0	104.90 (178 mm)	180.30 (272 mm)	96.20 (163 mm)	1 - 10			315 - 900	0.001 - 0.05	3.1 - 17.0	116 - 240	4.5 - 21.0	8 - 18	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	B4		322.00	0.033	3.5 - 6.0	2.5 - 6.5	7.0	36.40 (113 mm)	65.40 (200 mm)	39.20 (122 mm)	1 - 28			470 - 553	0.01 - 0.13	2.2 - 9.5	174 - 219	5.0 - 21.0	8 - 13	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
C	C1		1.074	0.043	2.5 - 3.5	1.0 - 3.5	4.5	113.80 (196 mm)	205.50 (191 mm)	123.30 (115 mm)		15 - 70	25 - 80	200 - 1000	0.01 - 0.05	4.5 - 9.5	240 - 1100	1.0 - 19.2	12 - 735	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	C2	25 - 50	1.018	0.044	3.5 - 6.0	1.0 - 4.5	5.0	145.50 (142 mm)	223.90 (220 mm)	134.40 (132 mm)	1 - 10	15 - 45		200 - 750		2.8 - 7.0	145 - 1100	1.0 - 7.0	3 - 735	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	C3		630.00			3.5 - 4.5	7.0	92.40 (147 mm)	185.20 (294 mm)	111.10 (176 mm)		15 - 70		325 - 750	0.01 - 0.04	2.8 - 6.7	145 - 339	1.0 - 21.0	3 - 390	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	C4		431.00	0.042	6.0 - 15.0	4.5 - 6.5	9.5	111.30 (258 mm)	172.00 (339 mm)	103.20 (239 mm)	6 - 28	15 - 45	50 - 80	325 - 450	0.04 - 0.05	2.8 - 3.9	174 - 347	8.0 - 10.0	8 - 18	Area is moderately suitable for further development of DTW.
D	D1		365.00	0.046	2.5 - 6.0		5.0	47.00 (128 mm)	70.10 (192 mm)	42.10 (115 mm)			15 - 80	498 - 670	0.01 - 0.13	2.2 - 9.6	174 - 1105	1.2 - 21.0	8 - 60	Area moderately suitable for further development of Shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	D2	0 - 25	1.237	0.047	3.5 - 6.0	1.0 - 4.5	5.0	240.60 (194 mm)	290.70 (235 mm)	174.40 (141 mm)	1 - 6	15 - 70	15 - 25	450 - 670	0.001 - 0.023	3.7 - 6.8	168 - 1235	1.2 - 21.0	10 - 28	Installation of well within the range of 30m to 100m depth is not advisable in the salinity problem area like Kachua, Matlaib, Daudnagar.
	D3		240.00	0.038	2.5 - 3.5	1.0 - 3.5	4.0	24.20 (101 mm)	36.50 (152 mm)	21.90 (91 mm)	10 - 28	45 - 70		550 - 670	0.01 - 0.023	6.0 - 7.0	213 - 339	1.0 - 5.0	13 - 38	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable).
	D4		120.00	0.031	3.5 - 6.0	3.5 - 4.5	5.5	14.80 (123 mm)	20.10 (167 mm)	12.50 (104 mm)	1 - 28	15 - 70	15 - 80	450 - 580	0.01 - 0.13	2.2 - 9.6	174 - 339	1.0 - 5.0	8 - 39	Area is moderately suitable for further development of shallow/deep tube-well (existing of STW/DTW side by side within the same area is not advisable). Most of the area has good water quality than other parts of the district.

Notes:

- Composite Aquifer: Comprises of the layer from the bottom of the upper silt and clay up to the top of main aquifer, a finer aquifer exists consisting of very fine sand interbedded and mixed with fine sand and silt and clay. Thickness of such aquifer varies from 13m to 63m (with few exception). Hand tube wells and dug wells are generally tapping water from this aquifer limited supply.
- Main Aquifer: is situated below the composite aquifer which is a layer of medium sand with some fine sand. The thickness of this aquifer varies from 15m to 20m (with few exceptions) STWs/DTWs are generally developed in this zone.
- (a) Zone: Bangladesh has been classified into 4-broad zones based on percent thickness of coarse materials (main aquifer) $V_{\%}$, $A = 75$ to 100%, $B = 50$ to 75%, $C = 25$ to 50% and $D = 0$ to 25%.
- (b) Sub-Zone: is based on maximum depth to water table from land-surface water table fluctuation, thickness of upper silt and clay depth to top of main aquifer.
- The study is based on available hydrogeological data, may be improved with availability of more data.
- The spacing of tube well may be based on actual and/or potential recharge (Col. 9 to 11), aquifer characteristic (Col. 15 to 17) and existing Govt. policies.
- Normally development of ground water by shallow and hand tube well by suction lift pumps is possible approximately up to 6 meter depth from land surface. For existing ground water below this depth up to expected potential recharge (Rp) limit upto approximately 8 to 9 meters, deep tube well with turbine/submersible pump will be necessary.
- Available recharge has been considered as 60% of potential recharge which means 40% of water has been lost before starting of the irrigation season in January as revealed from ground water level hydrographs.
- Potential recharge has been calculated on the basis of maximum fluctuation attained or expected to be attained.
- Chemical Qualities: (MRL: Maximum Recommended Limit) << For drinking water and irrigation water >>>

(a) Iron (Fe)	: 1 PPM Bangladesh Standard. 0.1 PPM WHO Standard.
(b) Chloride (Cl)	: 600 PPM Bangladesh Standard. 200 PPM WHO Standard
(c) TDS	: 1500 PPM Bangladesh Standard 500 PPM WHO Standard

Table.3.2 Present Land Use of the Study Area

Land Use Category	Kachua		Nabinagar		Bancharanpur		Debidwar		Total	
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
1. Agricultural Land										
1.1 Triple Cropping	0		6,850		0		9,930		16,920	
1.2 Triple and Double Cropping	950		9,590		0		6,670		17,480	
1.3 Double Cropping	7,050		270		14,340		2,980		22,770	
1.4 Double and Single Cropping	2,860		0		4,150		0		6,460	
1.5 Single Cropping	8,220		10,680		0		0		19,190	
Total Agricultural Land (1)	19,100	80.9	27,400	81.8	18,500	89.4	19,600	82.0	82,843	81.5
2. Non-Agricultural Land, Homesteads and Roads										
- Irrigated Land	6,800		10,000		7,400		8,200		32,400	
- Irrigation Intensity	36%		36%		40%		42%		39%	
Total Land (1+2)	23,100	97.9	31,730	94.7	20,230	97.7	23,380	97.8	98,420	96.8
3. Surface Water										
3.1 Rivers and Streams	20		1,040		100		40		1,210	
3.2 Beel and Haors	0		0		310		0		310	
3.3 Ponds	480		730		370		470		2,060	
Total Surface Water (3)	500	2.1	1,770	5.3	470	2.3	520	2.2	3,280	3.2
Total	23,600	100.0	33,500	100.0	20,700	100.0	23,900	100.0	101,700	100.0

Table.3.3 Rice and Upland Crop Production in the Study Area (1/2)

Union	B Aus (L)			T Aus (L)			T Aus (Hyv)			B Aman (L)		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua	3,216	2,277	0.71	1,168	872	0.75	2,032	4,498	2.21	6,666	7,550	1.13
Nabinagar	4,100	3,972	0.97	3,610	3,604	1.00	1,632	3,075	1.88	7,530	7,850	1.04
Bancharanpur	3,107	2,936	0.94	2,366	2,541	1.07	3,898	7,996	2.05	8,663	9,103	1.05
Debidwar	3,768	3,346	0.89	5,655	6,675	1.18	988	1,952	1.98	5,923	6,602	1.11
Total	14,191	12,531	0.88	12,799	13,692	1.07	8,550	17,521	2.05	28,782	31,105	1.08

Union	T Aman (L)			T Aman (Hyv)			Boro (L)			Boro (Hyv)		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua	1,758	2,135	1.21	4,558	11,621	2.55	54	105	1.94	4,335	15,077	3.48
Nabinagar	2,200	2,991	1.36	1,456	3,627	2.49	540	1,493	2.76	14,210	45,234	3.18
Bancharanpur	691	991	1.43	1,125	2,736	2.43	306	696	2.27	1,863	6,316	3.39
Debidwar	2,157	2,798	1.30	13,944	38,093	2.73	0	0	#DIV/0!	5,305	18,910	3.56
Total	6,806	8,915	1.31	21,083	56,077	2.66	900	2,294	2.55	25,713	85,537	3.33

Union	Total Rice		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua	23,787	44,135	1.86
Nabinagar	35,278	71,846	2.04
Bancharanpur	22,019	33,315	1.51
Debidwar	37,740	78,376	2.08
Total	118,824	227,672	1.92

Table.3.3 Rice and Upland Crop Production in the Study Area (2/2)

Union	Wheat			Jute			Potato			Mustard		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua	3,280	7,395	2.25	815	1,637	2.01	3,007	55,350	18.41	1,082	1,048	0.97
Nabinagar	4,649	10,757	2.31	2,717	5,608	2.06	695	11,192	16.10	3,661	3,170	0.87
Bancharanpur	4,766	11,322	2.38	1,568	3,312	2.11	1,598	19,626	12.28	1,775	1,621	0.91
Debidwar	4,101	9,831	2.40	775	1,494	1.93	2,711	47,154	17.39	2,090	1,779	0.85
Total	16,796	39,305	2.34	5,875	12,051	2.05	8,011	133,322	16.64	8,608	7,618	0.88

Union	Til			Pulses			Chilli			Vegetable		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua			#DIV/0!	3,112	2,145	0.69	150	170	1.13	600	12,380	20.63
Nabinagar	22	13	0.59	2,230	1,934	0.87	240	290	1.21	400	7,215	18.04
Bancharanpur	404	289	0.72	1,953	1,633	0.84	296	353	1.19	439	9,301	21.19
Debidwar	329	251	0.76	0	0	#DIV/0!	0	0	#DIV/0!	1,209	22,619	18.71
Total	755	553	0.73	7,295	5,712	0.78	686	813	1.19	2,648	51,515	19.45

Union	Others			Total Upland Crop			Rice+Upland Crop		
	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)	Area (ha)	Total Prod. (Ton)	Av. Yield (T/ha)
Kachua				12,046	80,125		35,833	124,260	
Nabinagar	1,189	1,296		14,614	40,179		49,892	112,025	
Bancharanpur				12,799	47,457		34,818	80,772	
Debidwar				11,215	83,128		48,955	161,504	
Total	1,189	1,296		50,674	250,889		169,498	478,561	

Table.3.4 Distribution of Improvement Seed by Crop

Year	Aus		Aman		Boro		Total Paddy	Wheat	Potato	Mustard	Winter Vegetable	Total
	LV	HYV	LV	HYV	LV	HYV						
I. Bangladesh												
1981-82	172	237	90	601	0	836	1,935	11,069	3,484	31	0	16,518
1982-83	108	451	71	1,260	2	1,086	2,978	13,402	2,611	92	3	19,086
1983-84	125	246	4	39	6	834	1,254	14,006	3,384	160	3	18,807
1984-85	130	108	190	1,687	10	1,206	3,331	19,422	3,296	49	4	26,102
1985-86	173	364	349	1,544	2	694	3,126	9,631	4,109	37	5	16,907
1986-87	110	392	35	1,808	9	1,285	3,639	12,514	4,012	58	7	20,229
1987-88	45	285	138	1,935	13	1,361	3,777	17,625	5,775	33	6	27,215
1988-89	82	399	196	2,195	5	1,831	4,708	18,852	7,396	99	7	31,062
Average	118	310	134	1,384	6	1,141	3,093	14,565	4,258	70	4	21,991
II. Greater Comilla												
1981-82	14	15	0	47	0	59	135	1,132	510	3	0	1,780
1982-83	2	32	5	118	0	62	219	913	440	4	0	1,577
1983-84	4	16	1	4	0	68	93	865	240	10	0	1,207
1984-85	5	7	30	210	0	40	292	1,177	498	1	0	1,968
1985-86	6	44	0	123	0	0	0	1,126	522	2	0	1,650
1986-87	15	30	2	204	0	134	386	1,142	358	3	0	1,889
1987-88	4	24	0	198	0	103	329	1,154	1,086	3	0	2,572
1988-89	12	27	13	238	0	90	380	1,787	1,215	8	1	3,391
Average	8	24	6	143	0	69	229	1,162	609	4	0	2,004
(% in nation)	(6.5)	(7.9)	(4.8)	(10.3)	(0.0)	(6.1)	(7.4)	(8.0)	(14.3)	(6.1)	(6.5)	(9.1)

Remarks: LV-Local Variety
HYV-High Yielding Variety

Table 3.5 Costruction Cost and Water Charge of Minor Irrigation Equipment

Items Upazila	Discharge	Average Depth of Well	Average Served Area	Total Construction Cost (Tk)	Cost per Acre (ha) Tk/Acre (ha)	Remarks
DTW	Q = 2 cfs = 57 l/s	90 m	Acre 60 (24 ha)	with steel screen 650,000 with PVC screen 550,000	10,800 (27,000)	
STW	Q = 0.5 ~ 0.75 cfs = 14~21 l/s	40 m	12 Acre (5 ha)	50,000	4,200 (10,000)	
LLP	Q = 1 cfs = 28 l/s	-	20 Acre (8 ha)	60,000	3,000 (7,500)	
	Q = 2 cfs = 57 l/s	-	40 Acre (16 ha)	90,000	2,300 (5,600)	

- Actual construction cost of DTW is Tk. 175,000 for about 70% of Govt. subsidy.

Items Upazila	Upazila	Water Charge (Tk/Acre)			Average Water Charge 1989/90 (TK/ACRE)	Remarks
		1989/90	1988/89	1987/88		
DTW	KACHUA	1,300	1,300	1,300	1,400	
	DEBIDWAR	1,350	1,350	1,350		
	BANCHARMPUR	1,500	1,500	1,500		
	NABINAGAR	1,500	1,500	1,500		
STW	KACHUA	1,300	1,300	1,300	1,500	
	DEBIDWAR	1,800	1,650	1,650		
	BANCHARMPUR	1,500	1,500	1,400		
	NABINAGAR	1,800	1,800	1,700		
LLP	KACHUA	1,200	1,200	1,200	1,200	
	DEBIDWAR	1,200	1,200	1,200		
	BANCHARMPUR	1,200	1,200	1,100		
	NABINAGAR	900	900	850		

Source : Information form Upazila and BADC Officer

Table.3.6 Inundation Condition in the Study Area

Inundation Depth (m)	Bancharampur			Nabinagar			Debidwar			Kachua		
	Area ha	%	Duration month	Area ha	%	Duration month	Area ha	%	Duration month	Area ha	%	Duration month
F ₀ (<0.3)	0	0	-	600	2	0 ~ 1.2	9600	49	0 ~ 1.3	3300	17	0 ~ 2.0
F ₁ (0.3 ~ 0.9)	500	3	1.2 ~ 3.6	1400	5	1.2 ~ 3.8	4800	24	1.3 ~ 2.3	2800	15	2.0 ~ 4.0
F ₂ (0.9 ~ 1.80)	2800	15	3.6 ~ 5.0	3000	11	3.8 ~ 4.8	5200	27	2.3 ~ 3.4	9700	51	4.0 ~ 5.7
F ₃ (1.8 ~ 3.0)	8000	43	5.0 ~ 6.7	9600	35	4.8 ~ 6.8	0	0	-	3300	17	5.7 ~ 7.5
F ₄ (3.0 <)	7200	39	6.7 ~	12800	47	6.8 ~	0	0	-	0	0	-
Total (Net Cultivated Area)	18500 ha	100 %		27400 ha	100 %		19600 ha	100 %		19100 ha	100 %	

Table.3.7 Cooperative Credit Disbursement

Upazila/ Type of Credit	Bancharampur			Nabinagar			Kachua			Debidwar			(TK. '000)		
	Disbur- sment	No. of Borrower	Size of Loan	Disbur- sment	No. of Borrower	Size of Loan	Disbur- sment	No. of Borrower	Size of Loan	Disbur- sment	No. of Borrower	Size of Loan	Disbur- sment	No. of Borrower	Size of Loan
1. Crop Loan	669	136	4.9	1,030	196	5.3	2,934	7,510	0.4	67	286	0.2	4,700	8,128	0.6
2. Irrigation Equipment	1,142	80	14.3	1,702	13	130.9	33	30	1.1	2,251	14	160.8	5,128	137	37.4
3. Pond Fisheries	32	1	32.0	0	0	0	88	10	8.8	49	3	16.3	169	14	12.1
4. Draft Animal	0	0	0	0	0	0	0	0	0	457	17	26.9	457	17	26.9
5. Small Trading	0	0	0	233	56	4.2	1,128	51	22.1	185	17	10.9	1,546	124	12.5
6. Rural Housing	60	1	60.0	0	0	0	195	3	65.0	0	0	0	255	4	63.8
Total	1,903	218	8.7	2,965	265	11.2	4,378	7,604	0.6	3,009	337	8.9	12,255	8,424	1.5

Table 3.8 Cooperative Credit Disbursement and Recovery Rate

Upazila/ Primary Society	Banchampur				Nabinagar				Kachua				Debidwar				Total	
	Disbursement		Rate of		Disbursement		Rate of		Disbursement		Rate of		Disbursement		Rate of		Disbursement	%
	Tk '000	% Recovery	(%)		Tk '000	% Recovery	(%)		Tk '000	% Recovery	(%)		Tk '000	% Recovery	(%)		Tk '000	%
KSS	1987/88	1,703	73.9	64.1	2,164	93.5	71.0	74.7	2,069	95.4	74.7	1,331	76.5	55.8	7,267	85.3		
	1988/89	2,099	78.1	69.9	1,830	93.2	68.6	67.0	1,471	82.6	67.0	1,082	65.6	47.2	6,595	80.5		
	1989/90	1,420	68.8	66.5	1,299	86.2	63.6	64.8	2,649	85.2	64.8	680	52.6	50.0	6,404	76.9		
	Average	1,741	74.0	67.0	1,764	91.5	68.3	68.2	2,063	87.6	68.2	1,031	66.0	51.2	6,755	80.9		
BSS	1987/88	420	18.2	65.0	113	4.9	71.4	78.2	67	3.1	78.2	256	14.7	87.5	856	10.0		
	1988/89	236	8.8	69.0	79	4.0	71.4	73.6	291	16.3	73.6	382	23.1	81.4	988	12.1		
	1989/90	199	9.6	61.3	168	11.1	76.7	74.0	379	12.2	74.0	417	32.2	93.3	1,163	14.0		
	Average	285	12.1	64.9	120	6.2	72.3	74.9	246	10.5	74.9	352	22.6	87.3	1,002	12.0		
MSS/MBSS	1987/88	181	7.9	62.4	37	1.6	92.1	88.8	33	1.5	88.8	152	8.8	92.2	403	4.7		
	1988/89	352	13.1	87.9	55	2.8	77.7	86.6	20	1.1	86.6	187	11.3	88.9	614	7.4		
	1989/90	447	21.6	69.5	41	2.7	85.1	79.3	81	2.6	79.3	196	15.2	91.0	765	4.1		
	Average	327	13.9	72.1	44	2.3	84.4	85.8	45	1.9	85.8	178	11.4	90.6	594	7.1		
Total	1987/88	2,304	100.0	64.2	2,314	100.0	71.7	75.2	2,169	100.0	75.2	1,739	100.0	64.8	8,526	100.0		
	1988/89	2,687	100.0	71.0	1,964	100.0	69.6	67.7	1,782	100.0	67.7	1,651	100.0	58.4	8,193	100.0		
	1989/90	2,066	100.0	66.1	1,508	100.0	66.0	65.3	3,109	100.0	65.3	1,293	100.0	64.4	8,332	100.0		
	Average	2,352	100.0	67.2	1,929	100.0	69.6	68.8	2,353	100.0	68.8	1,561	100.0	62.5	8,350	100.0		

Table.3.9 Present Demand and Supply of Food in the Study Area

Item	Unit	Nabinagar	Bancharanpur	Debidwar	Kachua
Population (1990 estimation)	'000	401.1	259.1	340.8	297.4
I. Rice	135.0 kg/capita*				
(1) Paddy Production	'000 t	71.8	33.3	78.4	44.1
(2) Seed, Waste and others	(1) x 0.1	7.2	3.3	7.8	4.4
(3) Net Paddy Production	(1)-(2)	64.6	30.0	70.6	39.7
(4) Rice Production	(3) x 63%	40.7	18.9	44.5	25.0
(5) Per Capita Availability	(4)/Population	101.5	72.9	130.6	84.1
(6) Potential Demand	135 kg x Population	54.1	35.0	46.0	40.1
(7) Balance	(4)-(6)	-13.4	-16.1	-1.5	-15.1
II. Wheat	30.0 kg/capita*				
(1) Wheat Production	'000 t	10.8	11.3	9.8	7.4
(2) Seed, Waste and others	(1) x 0.1	1.1	1.1	1.0	0.7
(3) Net Wheat Production	(1)-(2)	9.7	10.2	8.8	6.7
(4) Per Capita Availability	(3)/Population	24.2	39.4	25.8	22.5
(5) Potential Demand	30 kg x Population	12.0	7.8	10.2	8.9
(6) Balance	(3)-(5)	-2.3	2	-1.4	-2.2
III. Vegetables /_1	36.5 kg/capita*				
(1) Vegetable Production	'000 t	9.1	10.9	22.6	14.5
(2) Seed, Waste and others	(1) x 0.1	0.9	1.1	2.3	1.5
(3) Net Vegetable Production	(1)-(2)	8.2	9.8	20.3	13.0
(4) Per Capita Availability	(3)/Population	20.4	37.8	59.6	43.7
(5) Potential Demand	36.5 kg x Population	14.6	9.5	12.4	10.9
(6) Balance	(3)-(5)	-6.4	0.3	7.9	2.1
VI. Edible Oil	6.0 kg/capita*				
(1) Oil Seed Production	'000 t	3.2	1.9	2.0	1.0
(2) Seed, Waste and others	(1) x 0.1	0.3	0.2	0.2	0.1
(3) Net Oil Seed Production	(1)-(2)	2.9	1.7	1.8	0.9
(4) Oil Production	(3) x 30%	0.9	0.5	0.5	0.3
(5) Per Capita Availability	(4)/Population	2.2	1.9	1.5	1.0
(6) Potential Demand	6.0 kg x Population	2.4	1.6	2.0	1.8
(7) Balance	(4)-(6)	-1.5	-1.1	-1.5	-1.5
V. Meat	4.5 kg/capita*				
(1) Meat Production	t	372	237	485	414
(2) Waste and others	(1) x 0.1	37	24	49	41
(3) Net Meat Production	(1)-(2)	335	213	436	373
(4) Per Capita Availability	(3)/Population	0.8	0.8	1.3	1.3
(5) Potential Demand	4.5 x Population	1,805	1,166	1,534	1,338
(6) Balance	(3)-(5)	-1,470	-953	-1,098	-965
VI. Fish	14.0 kg/capita*				
(1) Fish Production	'000 t	6.0	1.9	0.7	0.7
(2) Waste and others	(1) x 0.1	0.6	0.2	0.1	0.1
(3) Net Fish Production	(1)-(2)	5.4	1.7	0.6	0.6
(4) Per Capita Availability	(3)/Population	13.5	6.6	1.8	2.0
(5) Potential Demand	14.0 x Population	5.6	3.6	4.8	4.2
(6) Balance	(3)-(5)	-0.2	-1.9	-4.2	-3.6

Note : * : Consumption rate per year recommended by the Bangladesh Nutrition Institute, University of Dhaka /_1;Excluding potato

Table.4.1 Target Crop Production (1/2)

1. Projection of Cropped Area by Crop

Crop	Unit: ha			
	1990	1995	2000	2010
1. Rice				
1.1 B. Aus (LV)	14,191	14,200	14,200	14,200
1.2 T. Aus (LV)	12,799	6,400	0	0
1.3 T. Aus (HYV)	8,550	15,000	21,300	21,300
1.4 B. Aman (LV)	28,782	28,800	28,800	28,800
1.5 T. Aman (LV)	6,806	3,400	0	0
1.6 T. Aman (HYV)	21,083	24,500	27,900	27,900
1.7 Boro (LV)	900	0	0	0
1.8 Boro (HYV)	25,713	30,100	33,100	33,100
Total (1)	118,824	122,300	125,300	125,300
Increased Area	0	3,400	3,100	0
2. Others				
2.1 Wheat	16,796	16,800	16,800	16,800
2.2 Jute	5,875	5,900	5,900	5,900
2.3 Potato	8,011	8,300	8,700	9,000
2.4 Mustard	8,608	9,000	9,300	9,700
2.5 Sesame	755	800	800	800
2.6 Pulses	7,295	7,600	7,900	8,200
2.7 Chilli	686	700	700	700
2.8 Vegetables	2,648	2,600	2,600	2,600
2.9 Others	1,189	1,200	1,200	1,200
Total (2)	51,863	52,900	53,900	55,000
Increased Area	0	1,000	1,000	1,100
Total Crop Production	170,687	175,200	179,200	180,300

2. Target Unit Yield by Crop

Crop	Unit: ton/ha			
	1990	1995	2000	2010
1. Rice				
1.1 B. Aus (LV)	0.9	1.2	1.5	1.5
1.2 T. Aus (LV)	1.1	1.8	2.5	2.5
1.3 T. Aus (HYV)	2.1	2.6	3.0	3.0
1.4 B. Aman (LV)	1.1	1.1	1.1	1.1
1.5 T. Aman (LV)	1.3	2.1	2.8	2.8
1.6 T. Aman (HYV)	2.7	3.4	4.0	4.0
1.7 Boro (LV)	2.5	2.6	2.7	2.7
1.8 Boro (HYV)	3.3	3.9	4.5	4.5
2. Others				
2.1 Wheat	2.3	2.9	3.5	3.5
2.2 Jute	1.8	2.1	2.4	2.4
2.3 Potato	11.0	13.0	15.0	15.0
2.4 Mustard	0.9	1.1	1.3	1.3
2.5 Sesame	0.7	0.9	1.0	1.0
2.6 Pulses	0.8	1.0	1.2	1.2
2.7 Chilli	1.2	1.6	2.0	2.0
2.8 Vegetables	11.8	12.9	14.0	14.0
2.9 Other (Onion)	8.1	11.6	15.0	15.0

Table.4.1 Target Crop Production (2/2)

3. Projection of Crop Production by Crop

Crop	Unlt: 1000 ton			
	1990	1995	2000	2010
1. Rice				
1.1 B. Aus (LV)	12.8	17.0	21.3	21.3
1.2 T. Aus (LV)	14.1	11.5	0.0	0.0
1.3 T. Aus (HYV)	18.0	38.3	63.9	63.9
1.4 B. Aman (LV)	31.7	31.7	31.7	31.7
1.5 T. Aman (LV)	8.8	7.0	0.0	0.0
1.6 T. Aman (HYV)	56.9	82.1	111.6	111.6
1.7 Boro (LV)	2.3	0.0	0.0	0.0
1.8 Boro (HYV)	84.9	117.4	149.0	149.0
Total (1)	229.34	304.93	377.43	377.43
2. Others				
2.1 Wheat	38.6	48.7	58.8	58.8
2.2 Jute	10.6	12.4	14.2	14.2
2.3 Potato	88.1	107.9	130.5	135.0
2.4 Mustard	7.7	9.9	12.1	12.6
2.5 Sesame	0.5	0.7	0.8	0.8
2.6 Pulses	5.8	7.6	9.5	9.8
2.7 Chilli	0.8	1.1	1.4	1.4
2.8 Vegetables	31.2	33.5	36.4	36.4
2.9 Others	9.6	13.9	18.0	18.0

Table.4.2 Agricultural Value Added in the Study Area

I. CROP SUB-SECTOR

Crop	1990			1995			2000			Annual Growth Rate	
	Cropped Area (ha)	Value Added per ha (Tk/ha)	Total VA (Tk mil)	Cropped Area (ha)	Value Added per ha (Tk/ha)	Total VA (Tk mil)	Cropped Area (ha)	Value Added per ha (Tk/ha)	Total VA (Tk mil)	1990-1995 (% pa)	1995-2000 (% pa)
1. Rice											
1.1 B. Aus (LV)	14,191	5,054	72	14,200	5,864	83	14,200	6,674	95		
1.2 T. Aus (LV)	12,799	6,582	84	6,400	9,620	62					
1.3 T. Aus (HYV)	8,550	13,154	112	14,800	13,684	204	21,300	14,213	303		
1.4 B. Aman (LV)	28,782	7,404	213	28,800	8,342	240	28,800	9,280	267		
1.5 T. Aman (LV)	6,806	8,497	58	3,400	10,965	37					
1.6 T. Aman (HYV)	21,083	14,504	306	24,500	16,187	397	27,900	17,869	499		
1.7 Boro (LV)	900	12,640	11	0	0	0					
1.8 Boro (HYV)	25,713	14,962	385	30,100	16,743	504	33,100	18,523	613		
Total (1)	118,824		1,241	122,300		1,527	125,300		1,776	4.2	3.1
2. Others											
2.1 Wheat	16,796	6,422	108	16,800	9,778	164	16,800	13,134	221		
2.2 Jute	5,875	11,617	68	5,900	13,381	79	5,900	15,144	89		
2.3 Potato	8,011	8,077	65	8,300	9,201	76	8,700	10,325	90		
2.4 Mustard	8,608	6,859	59	9,000	7,208	65	9,300	7,557	70		
2.5 Sesame	755	6,580	5	800	7,498	6	800	8,416	7		
2.6 Pulses	7,295	4,643	34	7,600	5,003	38	7,900	5,363	42		
2.7 Chilli	686	16,769	12	700	23,035	16	700	29,300	21		
2.8 Vegetables	2,648	54,131	143	2,600	57,277	149	3,800	60,422	230		
2.9 Others	1,189	42,755	51	1,200	51,589	62					
Total (2)	51,863		544	52,900		655	53,900		769	3.8	3.3
Total Crop Production			1,786			2,182			2,546	4.1	3.1

II. LIVESTOCK SUB-SECTOR

Animal	1990			1995			2000			Annual Growth Rate	
	Production (ton)	Value Added per head (Tk/ton)	Total VA (Tk Mil)	Production (ton)	Value Added per head (Tk/ton)	Total VA (Tk Mil)	Production (ton)	Value Added per head (Tk/ton)	Total VA (Tk Mil)	1990-1995 (% pa)	1995-2000 (% pa)
1. Meat											
1.1 Beef	489	50,000	24	612	50,000	31	735	50,000	37		
1.2 Sheep & Goat	135	50,000	7	187	50,000	9	238	50,000	12		
1.3 Poultry	884	35,000	31	939	35,000	33	993	35,000	35		
Total (1)	1,508		62	1,737		73	1,966		83	3.2	2.8
2. Milk											
2.1 Cow	6,392	10,000	64	7,571	10,000	76	8,750	10,000	88		
2.2 Sheep & Goat	337	10,000	3	624	10,000	6	910	10,000	9		
Total (2)	6,729		67	8,195		82	9,660		97	4.0	3.3
3. Eggs (1000 nos.)											
3.1 Duck	9,872	2,000	20	13,051	2,000	26	16,230	2,000	32		
3.2 Chicken	8,193	2,000	16	10,847	2,000	22	13,500	2,000	27		
	18,065		36	23,898		48	29,730		59	5.8	4.5
Total Livestock Production			166			203			239	4.1	3.4

III. FISH SUB-SECTOR

Fishery	1990			1995			2000			Annual Growth Rate	
	Production (ton)	Value Added per ton (Tk/ton)	Total VA (Tk mil)	Production (ton)	Value Added per ton (Tk/ton)	Total VA (Tk mil)	Production (ton)	Value Added per ton (Tk/ton)	Total VA (Tk mil)	1990-1995 (% pa)	1995-2000 (% pa)
1. Open Water Fishery	6,687	40,000	267	6,882	40,000	275	10,486	40,000	419	0.6	8.8
2. Close Water Fishery	2,567	38,900	100	4,794	37,500	180	6,713	37,500	252	12.5	7.0
Total Fish Production			367			455			671	4.4	8.1

IV. AGRICULTURE SECTOR TOTAL

Sub-Sector	Unit	1990	1995	2000	90-95	95-00
I. Crop Production	Tk Million	1,786	2,182	2,546	4.1	3.1
II. Livestock	Tk Million	166	203	239	4.1	3.4
III. Fishery	Tk Million	367	455	671	4.4	8.1
Sector Total	Tk Million	2,319	2,840	3,456	4.1	4.0
Total Population	1000 person	1,300	1,447	1,611	2.2	2.2
Per Capita Value Added of Tk/person		1,783	1,963	2,145	1.9	1.8
Agricultural Sector						

Table.4.3 Employment Projection from Agricultural Sector

I. CROP SUB-SECTOR

Crop	1990			1995			2000			Annual Growth Rate	
	Cropped Area (ha)	Labour Require. (MD/ha)	Total MD (1000MD)	Cropped Area (ha)	Labour Require. (MD/ha)	Total MD (1000MD)	Cropped Area (ha)	Labour Require. (MD/ha)	Total MD (1000MD)	1990-1995 (% pa)	1995-2000 (% pa)
1. Rice											
1.1 B. Aus (LV)	14,191	120	1,703	14,200	100	1,704	14,200		0		
1.2 T. Aus (LV)	12,799	170	2,176	6,400	150	1,152		100	0		
1.3 T. Aus (HYV)	8,550	145	1,240	14,900	150	2,582	21,300	150	4,154		
1.4 B. Aman (LV)	28,782	100	2,878	28,800	100	3,456	28,800	150	5,616		
1.5 T. Aman (LV)	6,806	100	681	3,400	150	612		100	0		
1.6 T. Aman (HYV)	21,083	155	3,268	24,500	150	4,410	27,900	150	5,441		
1.7 Boro (LV)	900	94	85	0	150	0		150	0		
1.8 Boro (HYV)	25,713	94	2,417	30,100	150	5,418	33,100	150	6,455		
Total (1)	118,824		14,447	122,300		19,434	125,300	150	21,665	6.1	2.2
2. Others											
2.1 Wheat	16,796	120	2,016	16,800	100	2,016	16,800	100	2,184		
2.2 Jute	5,875	185	1,087	5,900	160	1,133	5,900	160	1,227		
2.3 Potato	8,011	210	1,682	8,300	140	1,394	8,700	140	1,583		
2.4 Mustard	8,608	61	525	9,000	100	1,080	9,300	100	1,209		
2.5 Sesame	755	47	35	800	100	96	800	100	104		
2.6 Pulses	7,295	50	365	7,600	100	912	7,900	100	1,027		
2.7 Chilli	686	162	111	700	200	168	700	200	182		
2.8 Vegetables	2,648	220	583	2,600	300	936	3,800	300	1,482		
2.9 Others	1,189	210	250	1,200	300	432		300	0		
Total (2)	51,863		6,653	52,900		8,167	53,900		8,999	4.2	2.0
Total Crop Production			21,100			27,601			30,663	5.5	2.1

Remarks: * and **: Including miscellaneous of 20% and 30% of net requirement for additional labour requirement due to increased yield.

II. LIVESTOCK SUB-SECTOR

Animal	1990			1995			2000			Annual Growth Rate	
	Population (heads)	Labour Require. (MD/head)	Total MD (1000MD)	Production (ton)	Labour Require. (MD/ha)	Total MD (1000MD)	Production (ton)	Labour Require. (MD/ha)	Total MD (1000MD)	1990-1995 (% pa)	1995-2000 (% pa)
1. Cattle	319,611	88	27,998	334,800	88	29,328	350,000	88	30,880		
2. Sheep	7,636	16	134	7300	18	128	7,000	18	123		
3. Goat	168,529	9	1,476	175,200	9	1,535	182,000	9	1,594		
4. Ducks	493,606	9	4,324	517,300	9	4,592	541,000	9	4,739		
5. Chickens	819,282	9	7,177	859,600	9	7,530	900,000	9	7,884	1.0	0.9
Total Livestock Production			41,109			43,053			45,000	0.9	0.9

Remarks:

Labour Requirement: Cattle: 2 hrs/head/day
 Sheep and Goat: 2 hrs/5 heads/day
 Poultry: 2 hrs/10 heads/day
 Working day: 365 days/year
 Daily working hours: 10 hrs/day

III. FISH SUB-SECTOR

Fishery	1990		1995		2000		Annual Growth Rate	
	Total MD (1000MD)		Total MD (1000MD)		Total MD (1000MD)		1990-1995 (% pa)	1995-2000 (% pa)
1. Open Water Fishery	5,808		6,569		7,330		2.5	2.2
2. Close Water Fishery	764		966		1,167		4.8	3.9
Total Fish Production	6,572		7,535		8,497		2.8	2.4

IV. AGRICULTURE SECTOR TOTAL

Sub-Sector	Unit	1990	1995	2000	90-95	95-00
I. Crop Production	MD million	21.1	27.6	30.7	5.5	2.1
II. Livestock	MD million	41.1	43.1	45.0	0.9	0.9
III. Fishery	MD million	6.6	7.5	8.5	2.8	2.4
Sector Total	MD million	68.8	78.2	84.2	2.6	1.6
Population Total (1000)		1,300	1,447	1,791	2.2	4.4
Labour Force (1000 persons)		416	492	581	3.4	3.4
Labour Force (Million MD)		104	123	145	3.4	3.4
(Workable day: 250 days/year)						
Labour-force Aborption Ratio		66%	64%	58%		

Table.5.1 Extension of the Irrigation Area

[illegible]

Note: 1) Canal Ranking for Upazila Proposal.

- 2) Command area excluding the existing irrigated area by LLPs using.

- 2) Confined area excavating and existing irrigation of area is being.
- 3) NA = Not available for the gravity water use depending on the current low water level of the Dhanagoda and Dakatia rivers

Table 5.2 Model Plan for Semi-Intensive Pond Culture

	Year 1	Year 2	Year 3	Year 4	Year 5
New Group	5	5	5	7	7
Total No. of Group	5	10	15	22	29
Total Members	150	300	450	660	870
GROW OUT (6-7 months)					
Total Area (ha)	20	40	60	88	116
Fingerling Stocking					
Required (million)	0.12	0.24	0.36	0.53	0.70
Harvest Size (g)	500	500	500	500	500
Total Production (Ton)	42	84	126	185	244
NURSING					
Spawn Required					
Nos. (Million)	0.4	0.8	1.2	1.8	2.3
Weight (Kg)	0.8	1.6	2.4	3.6	4.6
	Year 6	Year 7	Year 8	Year 9	Year 10
New Group	8	8	8	9	8
Total No. of Group	37	45	53	62	70
Total Members	1110	1350	1590	1860	2100
GROW OUT (6-7 months)					
Total Area (ha)	148	180	212	248	280
Fingerling Stocking					
Required (million)	0.89	1.08	1.27	1.49	1.68
Harvest Size (g)	500	500	500	500	500
Total Production (Ton)	311	378	445	521	588
NURSING					
Spawn Required					
Nos. (Million)	3.0	3.6	4.3	5.0	5.6
Weight (Kg)	6.0	7.2	8.6	10.0	11.2

Remarks: 1) Stocking rate for one hectare pond is 6000 of mixed fingerlings weighing approximately 5 g each (5-6 cm).
 2) Survival rate up to harvest size is 70 percent.
 3) Spawn required for nursery operation by the groups where fingerlings are not available, is estimated at 30 percent survival from spawn to 5 g size fingerling. One kilogram of spawn consists of about 500,000 fry. (Spawn is sold by weight and not by number in Bangladesh.)

Table 5.3 Model Plan for Homestead Integrated Fish Culture

Pond Size	1000 m ²
Culture Period	5-6 months (Approx. 165 days)
Fingerlings Required (Nos.)	600
Layer Chicken (Nos.)	90
Chicken	
Survival rate	98%
Harvest size	1.5 kg/chicken
Total production	132 kg (88 chicken)
Eggs (Nos.)	10,164 (70% egg laying rate)
Fish	
Survival rate	70%
Harvest size	500 g
Total production	210 kg
Remarks: 1) Stocking rate of fingerlings weighing is 6000/ha at approximately 5 g each (5-6 cm).	
2) Layer chicken of less than 4 months old (less than one kilogram) and ready for egg laying.	

Table.5.4 Balance Sheet for Operation and Maintenance of Village and Local Market Godown

				Village Godown (100t)			Local Market Godown (500t)		
Price Increase (%)				60	40	20	60	40	20
		Formula	Unit						
I. Income									
A. With Godown									
1. Price for Sale			Tk/kg	6.9	6.0	5.2	6.9	6.0	5.2
2. Sales Income	x Tk	(1)	'000Tk	690	600	520	3,450	3,000	2,600
B. Without Godown									
3. Sales Income	x Tk	4.3	/kg '000Tk	430	430	430	2,150	2,150	2,150
C. Gross Incremental Income		(2) - (3)	'000Tk	260	170	90	1,300	850	450
II. Cost for Godown Operation				'000Tk					
4. Handling	x Tk	40	/t	4	4	4	20	20	20
5. Storage	x Tk	240	/t	24	24	24	120	120	120
6. Pesticide and Fumigation	x Tk	20	/t	2	2	2	10	10	10
7. Materials	x Tk	30	/t	3	3	3	15	15	15
8. Repair /_1				10	10	10	60	60	60
9. Sub-total		(4+5+6+7+8)		43	43	43	225	225	225
10. Interest of Credit /_2		(3) x 0.9 x 0.08		31	31	31	155	155	155
11. Depreciation Cost /_3				17	17	17	100	100	100
III. Net Income									
D. Case 1									
12. Total		(C) - (9)	'000Tk	217	127	47	1,075	625	225
13. Per Producers /_4		(12)/100 : (12)/500	Tk	2,170	1,270	470	2,150	1,250	450
E. Case 2									
14. Total		(C) - (9+10)	'000Tk	186	96	16	920	470	70
15. Per producers		(14)/100 : (14)/500	Tk	1,860	960	160	1,840	940	140
F. Case 3									
14. Total		(C) - (9+10+11)	'000Tk	169	79	-1	820	370	-30
15. Per producers		(16)/100 : (16)/500	Tk	1,690	790	-10	1,640	740	-60

Note: /_1 ; Annual repair cost is estimated at 2% of the construction cost of Tk 500 x 10³ for 100 tons and Tk 3,000 x 10³ for 500 tons.

/_2 ; The half year interest of 8% is applied to the credit amount which covers 90% of (3) sales income without godown.

/_3 ; The useful life of 30 years is applied

/_4 ; One ton of food grains is procured from each member equally.

Table 5.5 Existing Condition and Model Plan for Road (Kachua Upazila 1/2)

NAME OF ROAD	EXISTING CONDITION			MODEL PLAN		REMARKS
	LENGTH (in Kilometer)	TYPE	No. of Structures Required	LENGTH (in Kilometer)	TYPE No. Structures To be Const./ Rehabili.	
FB - A Kachua- Kalipara Road	13.29	BC	14		*	Under
FB - B Kachua- Upazila Parishad Road	1.70	BC	2	1.70	BC	2 rehabilitation
FB - B Kachua- Sachar G.C.C Road	15.51	E	26	15.51	BC	26
RR - 1 Kachua- Kashimpur Road	14.50	E	13	14.50	E	13
RR - 2 Kachua- Ragunthpur Road	6.50	E	15	6.50	E	15
RR - 3 Kachua- Nowabpur Road	8.00	E	10	8.00	E	10
RR - 4 Sachar- Amirabad Road	5.50	E	9	5.50	BC	9
RR - 5 Kachua- Teguria Road	12.00	E	14	12.00	E	14
RR - 6 Pipulkora-Rahimanagar Road	20.00	E	18	20.00	E	18
RR - 7 Baratolagoan-Monoharpur Road	11.50	E	14	11.50	E	14
RR - 8 Palakhal- Aliara Road	6.50	E	12	6.50	E	12
RR - 9 Kachua- Patharish Road	11.00	E	15	11.00	E	15
RR - 10 Palgiri- Darbeshgonj Road	8.00	E	14	8.00	E	14
RR - 11 Uzani- Boxgonj Road	9.00	E	14	9.00	E	14
RR - 12 Layamehaer- Aliara Road	11.00	E	15	11.00	E	15
RR - 13 Sachar- Modhupur Road	5.50	E	8	5.50	E	8
RR - 14 Sachar-Ragdoil-Bayek Road	8.00	E	12	8.00	E	12
RR - 15 Palakhal- Kadla Road	6.50	E	12		**	Dropped in
RR - 16 Bachaya- Prashannakap Road	6.50	E	11	6.50	E	11 first screening
RR - 17 Baraiara- Modhupur Road	5.50	E	14	5.50	E	14 step
RR - 18 D.C. Road- Jagotpur Road	8.00	E	5	8.00	E	5

Table 5.5 Existing Condition and Model Plan for Road (Kachua Upazila 2/2)

NAME OF ROAD	EXISTING CONDITION			MODEL PLAN			REMARKS
	LENGTH (in Kilometer)	TYPE	No. of Structures Required	LENGTH (in Kilometer)	TYPE	No. Structures To be Const.	
RR - 19 Amojan- Poyalgacha Road	10.00	E	8	10.00	E	8	
RR - 20 Batapokari- Nindpur Road	8.00	E	20	8.00	E	20	
RR - 21 Hasinpur-Darbesgonj Road	8.00	E	15	8.00	E	15	
RR - 22 Uzani- Singdda Road	8.00	E	15	8.00	E	15	
RR - 23 Ragunathpur- Modhupur Road	8.50	E	10	8.50	E	10	
RR - 24 Kachua-College-Belpur Road	5.00	E	8				**
RR - 25 Ragdoil- Gograbari Road	4.00	E	8	4.00	E	8	
RR - 26 Akania- Dumoria Road	8.00	E	10	8.00	E	10	
RR - 27 Pathair- Aliara Road	6.50	E	8	6.50	E	8	
RR - 28 Palakhal- Charabanga Road	6.50	E	12	6.50	E	12	
RR - 29 Teua- Borochoh Road	3.50	E	12				**
RR - 30 Rahimanagar-Paranpur Road	5.00	E	8	5.00	E	8	
RR - 31 Monohorpur- Lowkora Road	6.50	E	12	6.50	E	12	
RR - 32 Koa- Domoria Road	3.50	E	5	3.50	E	5	
RR - 33 Koraish- Khidda Road	3.50	E	6	3.50	E	6	
RR - 34 Monkhola- Kailine Road	2.50	E	9	2.50	E	9	
RR - 35 Hossainpur-Changini Road	13.25	E	10				**
RR - 36 Rahima Nagor Subidpur via Meair Bazar	13.00	E	9	13.00	E	9	
TOTAL	317.25		452	275.71		396	

Table 5.5 Existing Condition and Model Plan for Road (Nabinagar Upazila 1/2)

NAME OF ROAD		EXISTING CONDITION		MODEL PLAN		REMARKS
		LENGTH (in Kilometer)	TYPE No. of Structures Required Existing	LENGTH (in Kilometer)	TYPE No. Structures To be Const./Rehabili.	
FB - 1	Nabinagar - B.Barua	4.73	E 7	4.73	BC 2	
FB - 2	Nabinagar - Bancharampur	12.87	E 36	12.87	BC 4	
RR - 1	Kaitala College - Mohesh Road	9.00	E 8	9.00	E 8	
RR - 2	Jenudpur - Jamuala River	7.00	E 6	7.00	E 6	
RR - 3	Karabari - Rashullabad	6.50	E 4	6.50	E 4	
RR - 4	Majara Girl's School - Bitibishara	7.00	E 10	7.00	E 10	
RR - 5	Baishnuja Bazar - Gajirkandi via Birgoan	4.00	E 8	4.00	E 8	
RR - 6	Jenudpur - Bhanuriad	13.00	E 17	13.00	E 15	
RR - 7	Barikandi Launch Ghat - Jallird	8.00	E 13	8.00	E 7	
RR - 8	Jafarpur - Jamuna River	5.00	E 7	5.00	E 4	
RR - 9	Norshingpur - Chitti	3.50	E 3	3.50	E 3	
RR - 10	Link Road (R&H - Mohesh Road)	7.00	E 14	7.00	BC 12	
RR - 11	Lourfatapur - Kaligonj Bazar	5.00	E 7			** Dropped in first
RR - 12	Dhari - Shreerapur - Lahari	3.50	E 3	3.50	E 3	screening step
RR - 13	Aliabad - Gopalpur	4.00	E 10	4.00	E 7	
RR - 14	Shamagram - Solingonj	7.33	E 16	7.33	BC 3	
RR - 15	Mohesh Road - Goali - Rasulpur	19.50	E 34	19.50	BC 17	
RR - 16	Dashmouja - Jenudpur	4.50	E 7	4.50	E 7	
RR - 17	R&H Road - Kazimabad via Bolachang Bazar	4.00	E 4	4.00	E 4	
RR - 18	Raullahbad - Ratanpur via Mullah	6.00	E 6	6.00	E 6	
RR - 19	Nurjahanpur - Muktarapur	5.00	E 4	5.00	E 4	
RR - 20	Maniknagar Launch Ghat - Khagatoa Bazar	7.50	E 10	7.50	E 7	

Table 5.5 Existing Condition and Model Plan for Road (Nabinagar Upazila 2/2)

NAME OF ROAD	EXISTING CONDITION		MODEL PLAN		REMARKS
	LENGTH (in Kilometer)	TYPE No. of Structures Required Existing	LENGTH (in Kilometer)	TYPE No. Structures To be Const./Rehabili.	
RR - 21 Dhapunia - Shibpur High School	5.00	E 4			** Dropped in first
RR - 22 Monipur - Natchar Bazar	12.00	E 13	12.00	E 13	screening step
RR - 23 Kaligoanj - Dobacchail	13.50	E 30	13.50	E 29	
RR - 24 Rajapur - Goparpur South Para	4.50	E 6			**
RR - 25 Krishnagar - Baluahat	2.00	E 2	2.00	E 2	
RR - 26 Nabinagar - Karimshah Bazar	5.50	E 4	5.50	E 4	
RR - 27 Alamnagaar - Charilapang - Islampur	9.00	E 10	9.00	E 8	
RR - 28 Bikgoan - Kadarkhala	3.50	E 4	3.50	E 4	
RR - 29 Shahapur Veterinary Hospital - Kaligonj Dhobachal	3.00	E 5			**
RR - 30 Bolachang Bazar - Nabinagar/Bancharampur Road via Belanagar	3.00	E 4			
RR - 31 Nabinagar - Aalamnagar	2.50	E 4	2.50	E 4	
RR - 32 Imambaril - Shardar via Narui	5.00	E 6	5.00	E 6	
RR - 33 Barail - Nilokhi	5.00	E 4			**
RR - 34 Moheshpur Launch Ghat - Gori Goan via Bitgar	6.00	E 5	6.00	E 3	
RR - 35 Dhara Bannga - Solimgonj	2.50	E 4			**
RR - 36 Konaghat - Maniknagar	7.50	E 10	7.50	E 7	
RR - 37 Durgarampur Launch Ghat - Keshorepur	6.00	E 5			**
RR - 38 Lourfatepur - Hazipur	4.50	E 6			
RR - 39 Sshatmua - Rasullabad via Gaganathpur	7.50	E 7	7.50	E 7	
RR - 40 Kanikara - Merukuta Bazar via Bagaura	8.00	E 7	8.00	E 7	
RR - 41 Pandabnagar - Merkuta via Malal	4.50	E 6	4.50	E 6	
RR - 42 Kurichar - Boruhit	6.50	E 8	6.50	E 7	
RR - 43 Karaibari - Barikhala	4.00	E 4			**
TOTAL		392	241.93	248	

Table 5.5 Existing Condition and Model Plan for Road (Bancharampur Upazila 1/2)

NAME OF ROAD	EXISTING CONDITION		MODEL PLAN		REMARKS
	LENGTH (in Kilometer)	TYPE No. of Structures Required	LENGTH (in Kilometer)	TYPE No. Structures To be Const.	
FB - B Homna - Marichakandi	22.40	E 12	22.40	BC 12	
FB - B Salimgonj - Kariakandi	13.70	E 20	13.70	BC 20	
FB - B Bancharampur - Nabinagar	19.20	E 9	19.20	BC 9	
RR - 1 Bancharampur - Dariachar	11.20	E 8	11.20	E 8	
RR - 2 Ujunchar - Dariachar - Bahorechar	11.20	E 11	11.20	E 11	
RR - 3 Bashgari - Durgapur	6.40	E 3	6.40	E 3	
RR - 4 Bahadurpur - Gokulnagar	8.00	E 5	8.00	E 5	
RR - 5 Bancharampur - Kalainagar Launch Ghat	8.00	E 2	8.00	E 2	
RR - 6 Jobonganj Bazar - Bishnarampur	8.00	E 4	8.00	E 4	
RR - 7 Bishnarampur - Jaikalipur	12.80	E 5	12.80	E 5	
RR - 8 Ulukandi - Pahariakandi	8.00	E 5	8.00	E 5	
RR - 9 Shalimabad - Junarchar	19.20	E 16	19.20	E 16	
RR - 10 Charlahani - Purbahaty via Guaratoli	9.60	E 11	9.60	E 11	
RR - 11 Fardabad - Junarchar	6.40	E 6	6.40	E 6	
RR - 12 Kalainagar Launch Ghat - Rupashdi	6.40	E 2	6.40	E 2	
RR - 13 Rupashdi - Burberia	8.00	E 3	8.00	E 3	
RR - 14 Rupashdi - Ashrafabad	9.60	E 11	9.60	E 11	
RR - 15 Sarifpur - Paratuli	9.60	E 7			** Dropped in first screening step
RR - 16 Sunarampur - Shantipur	9.60	E 13			
RR - 17 Barakandi - Jaikalipur Launch Ghat	6.40	E 6			
RR - 18 Dariakandi - Gukolnagar via Imamnagar	6.40	E 4			

Table 5.5 Existing Condition and Model Plan for Road (Bancharampur Upazila 2/2)

NAME OF ROAD	EXISTING CONDITION		MODEL PLAN		REMARKS
	LENGTH (in Kilometer)	TYPE No. of Structures Required	LENGTH (in Kilometer)	TYPE No. Structures To be Const	
RR - 19 Bahorchar South Para - Bahorchar	3.20	E 2	3.20	E 2	
RR - 20 Rupashdi - Kaurpur	3.20	E 4	3.20	E 4	
RR - 21 Hossainpur Road	4.80	E 4			**
TOTAL	231.30	173	194.50		139

Table 5.5 Existing Condition and Model Plan for Road (Debidwar Upazila)

NAME OF ROAD	EXISTING CONDITION			MODEL PLAN			REMARKS
	LENGTH (in Kilometer)	TYPE	No. of Structures Required Existing	LENGT. (in Kilometer)	TYPE	No. Structures To be Const./Rehabili.	
FB - 1 Madhya - Companygonj	18.20	E	22	6	18.20	BC	4
FB - 2 Kalikapur - Istagram	12.00	E	19	4	12.00	BC	15
FB - 3 Barai- Gobindpur	8.20	E	14	5	8.20	BC	9
RR - 1 Debidwar - Istagram	16.80	E	15	5	16.80	E	10
RR - 2 Fultali - Chowmuhani	20.30	E	24	11	20.30	E	13
FB - 6 Sepera - Sultanpur	6.00	E	8	6	6.00	BC	2
FB - 7 Yusufpur - Prigonj	2.50	E	6	4	2.50	BC	2
FB - 8 Charbakar - Nabiabad G.C.C.R.	10.10	E	14	3	10.10	BC	11
RR - 3 Monghata - Modonogor	12.10	E	10	1	12.10	E	9
FB - 10 Jaafargonj - Bborokamta	11.40	E	16	11	11.40	BC	5
RR - 4 Debidwar - Atapur	12.40	E	19	2	12.40	E	17
RR - 5 Fultali - Khirakandi	14.90	E	18	1	14.90	E	17
RR - 6 Virallah - Modhumura	9.90	E	14	5	9.90	E	9
RR - 7 Boroalompur - Dhamni	9.10	E	14	4	9.10	E	10
RR - 8 Lokhipur - Barashaighor	20.30	E	26	0	20.30	E	26
RR - 9 Tebaria - Chotma	5.20	E	4	1	5.20	E	3
RR - 10 Jafargonj - Rajanaher	17.40	E	19	4			
RR - 11 Hossainpur - Bakosar	11.20	E	18	8			
RR - 12 Barur - Biranmondol	12.00	E	19	4			
RR - 13 Sibunogor - Sultanpur	7.80	E	8	1			
TOTAL				307	86	189.40	174 35
							209

Table 5.6 Selection of Priority Road (Kachua Upazila 1/2)

	STEP 1 : Preliminary Screening							STEP : 2 Socioeconomic Ranking						STEP : 3 Economic Justification			
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental impact	Preliminary Screening	Economic Activities							Socioeconomic Ranking		
								Economic Activities								Total Score	
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services				Request by Upazila
																	Internal Rate of Return (IRR)
FB - A Kachua- Kalipara Road	1	Y	Y	N	N	1	N	10	0	3	150	20	150	150	78.0	2	10%
FB - B Kachua- Upazila Parishad Road	1	Y	N	N	3	N	N	8	2	0	150	20	10	150	70.1	3	7%
FB - B Kachua- Sachar G.C.C Road	1	Y	Y	N	2	N	N	9	2	10	150	20	13	150	84.1	1	8%
RR - 1 Kachua- Kashimpur Road	2	Y	Y	Y	4	N	N	10	2	2	113	6	64	135	51.2	5	7%
RR - 2 Kachua- Ragunthpur Road	3	Y	Y	N	6	N	N	12	2	2	75	8	61	135	51.1	6	7%
RR - 3 Kachua- Nowabpur Road	2	Y	Y	N	5	N	N	7	2	3	113	6	42	135	47.0	7	3%
RR - 4 Sachar- Amirabad Road	2	Y	Y	N	11	N	N	12	2	3	113	12	42	105	55.0	4	8%
RR - 5 Kachua- Teguria Road	3	Y	Y	Y	22	N	N	9	2	2	75	8	42	45	37.2	12	6%
RR - 6 Pipulhora- Rahimanagar Road	2	Y	N	N	7	N	N	8	2	2	75	4	23	120	37.8	11	3%
RR - 7 Barotagoan- Monoharpur Road	3	Y	N	Y	12	N	N	4	2	3	00	4	42	105	27.7	20	3%
RR - 8 Palkhal- Aliara Road	3	Y	Y	Y	13	N	N	11	2	0	38	6	61	90	37.9	10	2%
RR - 9 Kachua- Patharish Road	3	N	N	Y	19	N	N	6	2	3	00	4	00	60	21.0	30	0%
RR - 10 Palgiri- Darbeshgonj Road	3	Y	Y	Y	25	N	N	8	3	0	38	8	23	30	28.1	19	7%
RR - 11 Uzan- Boxgonj Road	3	Y	Y	N	17	N	N	11	3	3	38	6	42	75	38.5	9	3%
RR - 12 Layamehaer- Aliara Road	3	Y	Y	Y	23	N	N	12	2	0	38	12	23	45	36.6	13	12%
RR - 13 Sachar- Modhupur Road	3	Y	Y	Y	24	N	N	12	2	0	38	12	23	45	36.6	14	9%
RR - 14 Sachar- Ragdol- Bayek Road	3	Y	Y	Y	14	N	N	10	3	0	38	8	19	90	35.7	15	5%
RR - 15 Palakhal- Kadla Road	3	N	N	N	30	N	Drop										
RR - 16 Bachaya- Prashanapur Road	3	N	Y	N	31	N	N	11	2	2	00	10	00	00	25.0	22	8%
RR - 17 Baraara- Modhupur Road	3	N	Y	Y	32	N	N	10	2	0	00	10	23	00	24.3	25	2%
RR - 18 D.C. Road- Jagotpur Road	3	Y	N	N	18	N	N	8	1	0	00	4	19	75	22.4	28	2%

Table 5.6 Selection of Priority Road (Kachua Upazila 2/2)

	STEP 1 : Preliminary Screening							STEP : 2 Socioeconomic Ranking							STEP : 3 Economic Justification		
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental Impact	Preliminary Screening	Economic Activities								Socioeconomic Ranking	
								Quality of Life									Total Score
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services	Request by Upazila			
RR - 19 Arnojar- Poyalgacha Road	3	N	N	Y	20	N		6	1	3	0.0	2	0.0	6.0	18.0	33	-1 %
RR - 20 Barapokari- Nindpur Road	3	Y	Y	N	15	N		6	3	0	0.0	6	0.0	9.0	24.0	26	0 %
RR - 21 Hasimpur-Darbhongoi Road	3	N	Y	N	21	N		8	2	0	0.0	6	0.0	6.0	22.0	29	0 %
RR - 22 Uzun- Singda Road	3	N	N	Y	26	N		12	3	0	0.0	2	0.0	3.0	20.0	32	-4 %
RR - 23 Raguathpur- Modhupur Road	3	Y	Y	N	33	N		9	3	0	3.8	6	1.9	0.0	23.7	27	5 %
RR - 24 Kachua-College-Betpur Road	3	N	N	Y	34	N	Drop										
RR - 25 Ragdoi- Gograbari Road	4	N	Y	Y	35	N		10	1	0	0.0	10	0.0	0.0	21.0	31	4 %
RR - 26 Akaria- Dumoria Road	3	N	N	N	27	N		8	3	0	0.0	4	0.0	3.0	18.0	34	1 %
RR - 27 Pathar- Aliara Road	4	Y	Y	N	36	N		8	3	2	3.8	8	0.0	0.0	24.8	23	4 %
RR - 28 Palakhal- Charabanga Road	3	N	Y	Y	37	N		9	1	0	0.0	6	1.9	0.0	17.9	35	3 %
RR - 29 Tenua- Borochow Road	4	N	N	Y	38	N	Drop										
RR - 30 Rahimanagar-Parampur Road	3	N	Y	Y	9	N		8	3	3	0.0	8	0.0	12.0	34.0	16	4 %
RR - 31 Monohorpur- Lowkora Road	3	Y	Y	N	28	N		8	3	0	7.5	10	2.3	1.5	32.3	17	6 %
RR - 32 Koa- Domoria Road	3	N	Y	N	10	N		6	2	0	0.0	6	2.3	10.5	26.8	21	-1 %
RR - 33 Koraiash- Khidda Road	4	N	Y	Y	39	N		11	3	0	0.0	18	0.0	0.0	32.0	18	8 %
RR - 34 Monkhola- Kalline Road	3	N	Y	Y	16	N		6	2	3	0.0	6	0.0	7.5	24.5	24	-2 %
RR - 35 Hossainpur-Changini Road	3	N	N	N	29	N	Drop										
RR - 36 Rahima Nagor Subidpur via Meair Bazar	2	N	N	N	8	N		6	2	0	11.3	4	4.2	12.0	39.5	8	4 %

Table 5.6 Selection of Priority Road (Nabinagar Upazila 1/3)

	STEP 1 : Preliminary Screening							STEP : 2 Socioeconomic Ranking							STEP : 3 Economic Justification		
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental impact	Preliminary Screening	Economic Activities									
								Quality of Life								Total Score	Socioeconomic Ranking
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services	Request by Upazila			
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services	Request by Upazila	Total Score	Socioeconomic Ranking	Internal Rate of Return (IRR)
FB - 1 Nabinagar - B Baria	1	Y	Y	N	2	N	N	18	1	0	15.0	20	10.1	13.5	77.6	1	13 %
FB - 2 Nabinagar - Bancharampur	1	Y	Y	N	3	N	N	11	1	0	15.0	20	11.3	12.0	70.3	3	15 %
RR - 1 Kaitala College - Mohesh Road	3	Y	Y	N		N	N	12	3	0	7.5	8	6.4	0.0	36.9	15	6 %
RR - 2 Jenuddpur - Jamuna River	3	Y	Y	N	6	N	N	11	3	3	15.0	6	1.9	7.5	47.4	8	4 %
RR - 3 Karabari - Rashidabad	3	N	Y	N		N	N	12	3	0	0.0	8	0.0	0.0	23.0	32	6 %
RR - 4 Majara Girl's School - Biubishara	3	N	Y	N	6	N	N	16	3	0	0.0	16	4.5	7.5	47.0	10	14 %
RR - 5 Baishnuja Bazar - Gajikandi via Birgoan	3	Y	Y	N		N	N	17	3	0	7.5	18	2.3	0.0	47.8	7	11 %
RR - 6 Jenuddpur - Bhauriand	3	Y	Y	Y	7	N	N	9	3	3	15.0	8	6.1	6.0	50.1	6	5 %
RR - 7 Barikandi Launch Ghat - Jallird	3	N	Y	N		N	N	10	3	0	0.0	12	0.0	0.0	25.0	27	10 %
RR - 8 Jafarpur - Jamuna River	3	Y	Y	N	8	N	N	14	3	3	15.0	12	1.9	4.5	53.4	5	15 %
RR - 9 Narsingpur - Chitri	3	Y	Y	N		N	N	12	3	0	0.0	14	1.9	0.0	30.9	20	11 %
RR - 10 Link Road (R&H - Mohesh Road)	3	N	Y	N	1	N	N	6	3	0	0.0	6	2.3	15.0	32.3	18	3 %
RR - 11 Louratapur - Kaligonj Bazar	3	N	N	N		N	N	Drop									
RR - 12 Dhari - Shireatapur - Lahari	3	N	Y	N		N	N	12	3	0	0.0	12	0.0	0.0	27.0	26	10 %
RR - 13 Aliabad - Gopalpur	3	N	Y	N		N	N	12	3	0	0.0	12	2.3	0.0	29.3	22	7 %
RR - 14 Shamagram - Solingonj	3	Y	Y	Y	3	N	N	9	3	7	11.3	18	6.4	9.0	63.7	4	16 %
RR - 15 Mohesh Road - Goali - Rasulpur	2	Y	Y	N	1	N	N	16	3	0	11.3	20	11.3	15.0	76.6	2	12 %
RR - 16 Dashmouja - Jenuddpur	3	N	N	N	6	N	N	12	3	0	0.0	16	0.0	7.5	38.5	12	2 %
RR - 17 R&H Road - Kazimabad via Bolachang Bazar	3	Y	Y	N		N	N	10	3	4	15.0	6	0.0	0.0	38.0	13	6 %
RR - 18 Raikhanbad - Katanpur via Mullah	3	Y	Y	N	4	N	N	10	3	0	7.5	10	6.4	10.5	47.4	9	9 %
RR - 19 Nurjatanpur - Muktarapur	3	N	Y	N		N	N	10	3	0	0.0	12	0.0	0.0	25.0	28	12 %
RR - 20 Manikdagar Launch Ghat - Khagafola Bazar	3	Y	Y	N		N	N	8	3	0	7.5	10	2.3	0.0	30.8	21	11 %

Table 5.6 Selection of Priority Road (Nabinagar Upazila 2/3)

	STEP 1 : Preliminary Screening						STEP : 2 Socioeconomic Ranking							STEP : 3 Economic Justification			
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental impact	Preliminary Screening	Economic Activities						Total Score	Socioeconomic Ranking		
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services			Request by Upazila	
RR - 21 Dhapunia - Shibpur High School	4	N	N	N	N	N	Drop	14	3	3	0	6	2.3	0	28.3	25	5%
RR - 22 Monipur - Natchar Bazar	3	N	Y	N	N	N		7	3	0	0	10	0.0	0	20.0	34	-2%
RR - 23 Kaligoanj - Dobachail	2	N	Y	N	N	N											
RR - 24 Rajapur - Goparpur South Para	3	N	N	N	N	N	Drop										
RR - 25 Krishnagar - Baluahat	3	N	Y	N	N	N		14	3	0	0	8	0.0	0	25.0	29	9%
RR - 26 Nabinagar - Karimshah Bazar	3	N	Y	N	N	N		8	3	3	0	8	0.0	9	31.0	19	0%
RR - 27 Alamnagar - Charlapang - Islampur	3	N	Y	N	N	N		10	3	0	0	10	2.3	12	37.3	14	5%
RR - 28 Bikgoan - Kadarthalra	4	Y	Y	N	N	N		14	3	3	0	12	4.2	0	36.2	16	18%
RR - 29 Shahapur Veterinary Hospital - Kaligonj Dobachail	3	N	N	N	N	N	Drop										
RR - 30 Bolachang Bazar - Nabinagar/Bancharampur Road via Belanagar	3	N	N	Y		N	Drop										
RR - 31 Nabinagar - Aalamnagar	3	N	Y	N		N		6	3	0	0	6	0.0	9	24.0	31	-5%
RR - 32 Inambari - Sharda via Narui	3	N	Y	N		N		14	3	0	0	12	0.0	0	29.0	24	8%
RR - 33 Barail - Nilokhi	3	N	N	N	N	N	Drop										
RR - 34 Moheshpur Launch Ghat - Gori Goan via Biga	3	Y	Y	N	N	N		10	3	0	3.8	12	4.2	0	33.0	17	8%
RR - 35 Dhara Baunga - Solimgonj	3	N	N	N	N	N	Drop										
RR - 36 Konaghat - Maniknagar	3	N	Y	N	N	N		8	3	0	0	12	0.0	0	17.0	35	6%
RR - 37 Durgarampur Launch Ghat - Keshorepur	4	N	N	N		N	Drop										

Table 5.6 Selection of Priority Road (Bancharampur Upazila 1/2)

	STEP 1 : Preliminary Screening							STEP : 2 Socioeconomic Ranking							STEP : 3 Economic Justification		
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental Impact	Preliminary Screening	Economic Activities							Total Score	Socioeconomic Ranking	Internal Rate of Return (IRR)
								Quality of Life									
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services	Request by Upazila			
FB - B. Honma - Marichakandi	1	Y	Y	Y	1	N		12	3	10	15.0	14	15.0	15.0	84.0	1	17%
FB - B. Salimgonj - Kariakandi	2	Y	Y	N	2	N		12	3	3	11.3	10	6.1	13.5	60.4	2	7%
FB - B. Bancharampur - Nabinagar	2	Y	Y	N	3	N		10	3	7	11.3	8	8.3	15.0	61.1	3	11%
RR - 1 Bancharampur - Dariachar	3	Y	Y	Y	4	N		11	3	3	7.5	12	6.4	13.5	56.4	4	13%
RR - 2 Ujrechar - Dariachar - Bahorechar	3	Y	N	N	5	N		8	3	0	7.5	4	0.0	12.0	34.5	6	2%
RR - 3 Basugari - Durgapur	3	N	N	N	6	N		8	3	0	0.0	4	0.0	12.0	27.0	11	5%
RR - 4 Bahadurpur - Gokulpur	3	N	N	Y	7	N		8	3	0	0.0	2	0.0	10.5	23.5	15	2%
RR - 5 Bancharampur - Kalainagar Launch Ghat	3	N	Y	N	8	N		6	3	0	0.0	6	0.0	10.5	25.5	13	10%
RR - 6 Jobongani Bazar - Bishnarapur	3	Y	Y	N	9	N		8	3	0	3.8	8	1.9	9.0	33.7	7	8%
RR - 7 Bishnarapur - Jaikalipur	3	Y	Y	N	10	N		6	3	0	7.5	4	1.9	9.0	33.4	8	9%
RR - 8 Ilukandi - Pabariakandi	3	N	N	Y	11	N		9	3	0	0.0	8	2.3	7.5	25.8	12	4%
RR - 9 Shalimabad - Junarchar	3	N	Y	Y	12	N		8	3	3	0.0	8	2.3	7.5	31.8	10	9%
RR - 10 Charahani - Purbahaty via Guaratoli	3	Y	Y	N	13	N		8	3	3	0.0	8	4.2	6.0	32.2	9	6%
RR - 11 Fardabad - Junarchar	3	N	Y	N	14	N		10	3	0	0.0	8	0.0	4.5	25.5	14	7%
RR - 12 Kalainagar Launch Ghat - Rupashdi	3	Y	Y	N	15	N		12	3	0	7.5	14	3.8	3.0	43.3	5	14%
RR - 13 Rupashdi - Burberia	3	Y	N	N	16	N		6	3	0	0.0	2	1.9	1.5	14.4	19	3%
RR - 14 Rupashdi - Ashrafabad	3	N	N	N	17	N		8	3	0	0.0	4	2.3	0.0	17.3	17	8%
RR - 15 Saripur - Paratuli	3	N	N	N	18	N	Drop										
RR - 16 Sunarapur - Shantipur	4	N	N	N	19	N	Drop										
RR - 17 Barakandi - Jaikalipur Launch Ghat	4	N	N	N	20	N	Drop										
RR - 18 Darikandi - Gukolnagar via Imamnagar	3	N	N	Y	21	N	Drop										

Table 5.6 Selection of Priority Road (Debidwar Upazila)

	STEP 1 : Preliminary Screening							STEP : 2 Socioeconomic Ranking						STEP : 3 Economic Justification			
	Road Classification	Linkage to market and/or administration center	Population Served (More than 600 persons/Km)	Availability of Alternative Transportation Means	Priority Ranking Prepared by Upazila	Environmental Impact	Preliminary Screening	Economic Activities						Socioeconomic Ranking	Total Score		
								Agricultural Potential	Degree of Access Improvement	Existence of Parallel Development Activities	Linkage to Local and Regional Market	Population Served	Access to Social Services			Request by Upazila	
FB - 1 Madiya - Companvgoni	1	Y	Y	N	1	N		11	3	0	15.0	16	8.3	15.0	68.3	1	6%
FB - 2 Kalikapur - Istagram	1	Y	Y	N	2	N		14	1	0	15.0	16	6.1	15.0	67.1	2	14%
FB - 3 Barai - Gobindpur	1	Y	Y	N	3	N		11	1	0	15.0	10	0.0	13.5	50.5	5	5%
RR - 1 Debidwar - Istagram	1	Y	Y	N	4	N		10	1	0	15.0	8	4.2	13.5	51.7	3	10%
RR - 2 Fultali - Chowmuhani	3	Y	N	N	5	N		9	1	0	7.5	4	4.5	12.0	38.0	10	5%
FB - 4 Sagera - Sultanpur	3	Y	Y	N	6	N		10	1	0	7.5	10	4.2	12.0	44.7	7	11%
FB - 5 Yusufpur - Pirgoni	3	Y	N	N	7	N		6	1	4	15.0	10	4.2	10.5	50.7	4	4%
FB - 6 Charbakar - Nabilabad G.C.C.R.	3	Y	Y	N	8	N		10	3	4	11.3	6	4.2	10.5	49.0	6	3%
RR - 3 Monghata - Modonogor	3	Y	Y	N	9	N		12	3	0	0.0	10	6.4	9.0	40.4	9	12%
FB - 7 Jafargoni - Borokania	1	Y	Y	N	10	N		12	1	0	0.0	8	6.3	9.0	36.1	11	7%
RR - 4 Debidwar - Atapur	2	Y	Y	N	11	N		12	3	0	0.0	10	8.3	7.5	40.8	8	9%
RR - 5 Fultali - Khirakandi	3	N	Y	N	12	N		13	3	0	0.0	6	2.3	7.5	31.8	14	6%
RR - 6 Virallah - Modmunura	3	Y	Y	N	13	N		10	3	0	7.5	6	2.3	6.0	34.8	13	7%
RR - 7 Boroalompur - Dhamti	3	Y	Y	Y	14	N		8	1	0	3.8	6	0.0	4.5	23.3	16	5%
RR - 8 Lokhipur - Barasnaighor	3	Y	Y	N	15	N		10	3	0	3.8	10	1.9	3.0	31.7	15	9%
RR - 9 Tebaria - Chona	3	N	Y	N	16	N		16	3	0	0.0	12	2.3	1.5	34.8	12	19%
RR - 10 Jafargoni - Rajamaher	3	N	N	Y	17	N	Drop										
RR - 11 Hossainpur - Bakosar	3	N	N	Y	18	N	Drop										
RR - 12 Barur - Biranmondol	3	N	N	Y	19	N	Drop										
RR - 13 Sibunogor - Sultanpur	3	N	N	Y	20	N	Drop										

Table 5.7 Facility Plan of Growth Center Improvement for MRDP-II

Kachua Upazila

	Item	Unit	Kachua	Sachar	Palakhal	Rahimanagar	Total
1	Bridge (12m L x 3.66m W)	no	1	0	0	0	1
2	Shed (New)	m2	192	270	270	405	1,137
3	Shed (Rehabilitation)	m2	768	0	0	0	768
4	Open Sale Platform	m2	540	675	810	810	2,835
5	Drain Ditch	m	1,233	420	466	473	2,592
6	Garbage Pit	no	12	7	8	9	36
7	Laterine	no	3	3	1	3	10
8	Water Supply System	no	3	2	1	5	11
9	Concrete Pavement (t=150)	m2	8,930	1,305	1,420	1,385	13,040
10	Expansion Area	m2	4,160	1,600	1,600	1,600	8,960

Nabinagar Upazila

	Item	Unit	Nabinagar	Bholachong	Sreeghar	Markuti	Total
1	Shed (New)	m2	540	270	270	270	1,350
2	Shed (Rehabilitation)	m2	0	0	0	0	0
3	Open Sale Platform	m2	270	810	810	810	2,700
4	Drain Ditch	m	1,206	538	559	552	2,855
5	Garbage Pit	no	8	8	8	6	30
6	Laterine	no	1	1	1	1	4
7	Water Supply System	no	2	2	2	1	7
8	Concrete Pavement (t=150)	m2	3,394	1,780	1,960	1,645	8,779
9	Expansion Area	m2	0	1,600	1,600	1,600	4,800

Bancharampur Upazila

	Item	Unit	Mouilagonj	Marichakandi	Jibonganj	Ujanchar	Total
1	Shed (New)	m2	1,080	135	270	270	1,755
2	Shed (Rehabilitation)	m2	0	0	0	0	0
3	Open Sale Platform	m2	540	675	810	675	2,700
4	Drain Ditch	m	2,225	368	466	525	3,584
5	Garbage Pit	no	13	6	8	7	34
6	Laterine	no	3	1	2	2	8
7	Water Supply System	no	1	0	0	0	1
8	Concrete Pavement (t=150)	m2	8,549	1,240	1,420	1,829	13,038
9	Expansion Area	m2	0	1,600	1,600	1,600	4,800

Debidwar Upazila

	Item	Unit	Debidwar	Pirganji	Mohanpur	Jafargonj	Total
1	Shed (New)	m2	270	270	270	135	945
2	Shed (Rehabilitation)	m2	270	0	0	0	270
3	Open Sale Platform	m2	540	675	675	675	2,565
4	Drain Ditch	m	544	406	406	358	1,714
5	Garbage Pit	no	9	7	7	6	29
6	Laterine	no	1	1	1	1	4
7	Water Supply System	no	1	1	1	1	4
8	Concrete Pavement (t=150)	m2	3,568	1,255	1,255	1,290	7,368
9	Expansion Area	m2	2,080	1,600	1,600	1,600	6,880

Table.5.8 Comparison Matrix of MRDP-II Programmes

MRDP II PROGRAMME	GENERAL FEATURES		ASPECTS FOR COMPARATIVE STUDY						
	Scope of Programme	Existing Institutional Set-up	Suitability for UCCA's Activities	Contribution to Income Generation	Employment Generation	Expected Beneficiaries	Fund Requirement for Upazila Parishad	Supplemental and Multiplier Effects	Existing Programme and Project
I. CROP PRODUCTION SECTOR									
1.1 LLP Irrigation Development and Drainage Improvement Programme	Extension of irrigated rice by low lift pumps by 6,500 ha	BRDB in cooperation with BADC, LOEB and DAE	Highly Suitable. To be implemented along the established BRDB's Irrigation Management Programme (IMP). Coordination will be required with LOEB and Upazilas for OM of re-excavated canals. Suitable. UCCA can establish OM system with BSS/KSS on pilot basis under external supporting team.	Direct and high for KSS/MSS. Net production value of Boro rice is Tk 15,000/ha.	Limited	Medium	Not directly concerned except for cost for UIT.	High with Programme (1.4), (1.5), (4.1), (6.1), and (6.5)	DTW-II of IMP Gumati II, FAP 5
1.2 Fractional Pump Promotion Programme	Supplemental irrigation to winter crops by FP. Programme would be promoted with other Programmes (1.3) and (3.1)	No particular government agency	Less suitable. Technical support of DAE and BADC is indispensable. Farm input supply can be UCCA's business. Agricultural extension by DAE (BSS) is important. Suitable. UCCAs have experience of fertilizer marketing. Supports by BRRI and BADC are essential.	Direct and high for BSS to act as FP operators.	Very high 3 persons/pump	Medium	Not directly concerned except for cost for UIT.	High with (1.3) and (1.4)	
1.3 Crop Intensification and Diversification Programme	Expansion of potatoes, mustard, sesame and pulses for supplying tubers, oils and protein diet	(Under study by Ministry of Agriculture)	Less suitable. Technical support of DAE and BADC is indispensable. Farm input supply can be UCCA's business. Agricultural extension by DAE (BSS) is important. Suitable. UCCAs have experience of fertilizer marketing. Supports by BRRI and BADC are essential.	High for KSS/MSS. Net values per ha are Tk. 8,000 for potatoes, Tk 6,900 for mustard and Tk 4,600 for pulses.		Medium	Not directly concerned except for cost for DAE and BSS.	High with (1.2) and (1.4)	
1.4 Farm Input Supply Programme	Stable supply of improved paddy seeds and fertilizers	BADC	Suitable for fruit tree, but road trees planting is for Unions. Technical support of Forestry Dept. and BADC is required. Possible for formation of primary societies for tree planting.	Not direct. BSS will get wage.	Limited	Limited	Not directly concerned.	None - support programme for (1.1). Possible with (3.1)	BADC's programme but not cover the area
1.5 Tree Nursery Development Programme	Provision of seedlings of fruit trees for homestead planting and tree planting along road	Upazila/Union	Less suitable. Lack of extension worker is crucial issue. DAE is in the best position.	Low, but important income source for rural women.		Medium	Not directly concerned.	High with (1.6)	
1.6 Intensified Homestead Crop Production Extension Programme	Promotion of women in rural development and improvement of nutritional status	No particular government agency, promoted by NGOs	Highly suitable. Marginal and small farmers is free from higher rate of private money lenders. Crop and fish production is encouraged and farmers' livelihood is secured.	Direct and high		Medium	Not directly concerned.	Medium with (4.3) and (3.2)	
1.7 Model Farm Credit Programme	Provision of farm input credit (Boro paddy, fish pond culture) through UCCA, BRDB	No particular government agency, promoted by NGOs						Medium with (1.1) and (3.1)	
II. LIVESTOCK SECTOR									
2.1 Feed and Fodder Production Programme	Expansion of productive grasses and fodder crops under intensification of land use	Directorate of Livestock	Less suitable.	Not direct but high in terms of animal husbandry		Limited	Not directly concerned.	High with (2.3) and crop production sector	
2.2 Semi-Intensive Poultry Production Programme	Semi-intensive broiler chicken production	Directorate of Livestock	Suitable as far as strong support by DOL is ensured.	Direct only for labour	High	Limited	Not directly concerned.	Medium with (3.1)	
2.3 Veterinary Service Expansion Programme	Promotion of vaccination and artificial insemination (AI)	Directorate of Livestock	Less suitable.	Not direct but high in terms of animal husbandry		Medium	Not directly concerned.	High with (2.1)	
III. INLAND FISHERY SECTOR									
3.1 Semi-Intensive Fish Pond Culture Development Programme	Reactivation of fish pond under organized fishermen group	Department of Fishery NGOs	Highly suitable. UCCA will be responsible for formation of BSS, training, input supply and marketing.	Direct and high. Net production value of fish is Tk 40,000/ton or Tk 80,000/ha	Very high 6 persons/ha of pond	Medium	Not directly concerned.	High in demonstration effect	
3.2 Homestead Integrated Fish Culture Programme	Fish-chicken integrated production in homestead by participation of women	No particular government agency	Less suitable. Lack of extension worker is crucial issue. DOL is in the best position.	Low, but important income source for rural women.		Limited	Not directly concerned.	Medium with (1.6) and (4.3)	
3.3 Open Water Capture Fishery Development Programme	Supply of fishing boat, nets and gears to fishermen group. Participatio of women in net making.	No particular government agency (DOF and MOL for leasing fishing right)	Suitable. UCCA will be responsible for formation of BSS, supply of boat&nets and marketing. Net making will be new business for MSS/MBSS.	Direct and high.	High	Medium	Not directly concerned.	Less	
IV. AGRO-INDUSTRY SECTOR									
4.1 Post-Harvest Processing Plants Expansion Programme	Expansion of rice mills, flour mills and oil mills	Private sector	Highly suitable. UCCA will avail loan for establishment of plants and manage with BSS. Joint-marketing will also be required for stable procurement of raw materials under UCCA.	Direct and high wage for BSS/MBSS	Limited	Limited	Not directly concerned.	High with (1.5) and (5.2)	
4.2 Cold Storage Installation Programme	Expansion of storage capacity for potatoes, vegetables and fish	Private sector	Highly suitable. UCCA will avail loan for establishment of plants and manage with BSS.	Direct and high wage for BSS/MBSS	Limited	Limited	Not directly concerned.	High with (1.2), (3.1) and (6.2)	
4.3 Homestead Food Processing Extension Programme	Promotion of women in rural development and improvement of nutritional status	NGOs	Less suitable. Lack of extension worker is crucial issue. BSCIC is in the best position.	Low, but important income source for rural women.		Medium	Not directly concerned.	Medium with (1.6) and (3.2)	
V. MARKETING SECTOR									
5.1 Upazila Food Grains Marketing Programme	Management of godowns at villages (100 t) and local markets (500 t)	Upazila parishad	Highly suitable. Joint-marketing of food grains by Village Marketing Groups (VMG) organized under UCCA	Direct and high for KSS/MSS by increased farm income. Stabilization of livelihood for BSS and poor by secured food supply.	Medium. BSS can get job for workforce.	Indirect. Grains supply will be stabilized.	Not directly concerned.	Very high with (4.1) and (6.2)	
5.2 Joint Marketing Promotion Programme	KSS/MSS members' joint (group) marketing of cash crops, fish and poultry	UCCAs in Comilla	Highly suitable. Joint-marketing of food grains by Village Marketing Groups (VMG) organized under UCCA	High for KSS/MSS, fishermen Stabilization of livelihood for BSS and poor by secured food supply.	Medium. BSS can get job for workforce.	Indirect	Not directly concerned.	Very high with (4.1) and (6.2)	Comilla Industrial Cooperative Society
VI. RURAL INFRASTRUCTURE SECTOR									
6.1 Feeder and Rural Roads Improvement Programme	Improvement of feeder road B type and rural roads	Upazila parishad	Not suitable. UCCA can act only as man-power sources by organizing BSS/MBSS in construction and OM.	Direct and high wage for BSS/MBSS	High	Large, direct and indirect	Significantly large.	Very high with all of the production sectors.	
6.2 Growth Center Improvement Programme	Improvement of existing facilities of growth centers at 16 locations	Upazila parishad	Not suitable. UCCA will be only one of lease holders to deploy their marketing business in growth centers.	Indirectly high by obtaining marketing opportunities.	Limited	Large, direct and indirect	Adaptable. Lease money to be collected properly for OM.	Very high with all of the production sectors.	
6.3 Drinking Water Supply Development Programme	Expansion of hand tube well (HTW) at village level	UNICEF and PHED	Not suitable.	Not direct. Basic Human needs.		Large, direct and indirect	Not directly concerned.	Less	UNICEF/DPHE's Rural Drinking Water Supply Programme
6.4 Sanitation Improvement Programme	Expansion of latrines and improvement of drains	UNICEF and PHED	Not suitable.	Not direct. Basic Human needs.		Large, direct and indirect	Not directly concerned.	Less	UNICEF/DPHE's Sanitation Programme
6.5 Rural Electrification Extension Programme	Rural power supply	BPDB, Rural Electrification Board (REB) and PBS	Not suitable.	Not direct.		Large, direct and indirect	Not directly concerned.	Very high with (1.1) and (4.1)	Covered by nationwide programme
6.6 Communication Improvement Programme	Expansion of tele-communication and postal services	Bangladesh Telegraph and Telephone Board (BTB) Ministry of Communication	Not suitable.	Not direct.		Large, direct and indirect	Not directly concerned.	Less	Covered by nationwide programme
6.7 Cluster Formation of Rural Housing Programme	Provision of houses to homeless and landless peropole.	unknown	Not suitable.	Not direct.		Limited	Not directly concerned.	Less	
6.8 Schools Improvement Programme	Rehabilitation of primary and secondary school buildings	Upazila parishad	Not suitable.	Not direct.		Limited	Large	Less	
6.9 Training Facilities Development Programme	Improvement of Upazila Training Centers (UTCs)	UCCA	Highly suitable (essential aspects). Cooperative activities will be ensured through training at upazila level.	Indirect, but important as vocational center for BSS/MBSS.		Large, direct	Not directly concerned.	Less	

Table.5.9 Assessment of Comparative Study of the MRDP-II Programmes (1/2)

MRDPP II PROGRAMME	ASSESSMENT	Result
I. CROP PRODUCTION SECTOR		
1.1 LLP Irrigation Development and Drainage Improvement Programme	Urgently required and highly promising. To be implemented along the BRDB'S Irrigation Management Programme (IMP). Re-excavation of existing canals is essential work for the Programme. Coordination will be required with LGEB and Upazilas especially for OM of canals.	Taken up
1.2 Fractional Pump Promotion Programme	Urgently required for both KSS and BSS. Under the full management of UCCA, OM system with BSS/KSS will be established. Due to lack of hydrological data on scattering water bodies, the Programme will be implemented as pilot basis.	Taken up
1.3 Crop Intensification and Diversification Programme	Crop diversification is emphasized by the Govern't. Under the current extension system of DAE and farm input supply support of BADC, the Programme will face the technical problems. The Programme can be promoted with Programme (1.2).	
1.4 Farm Input Supply Programme	Urgently required for increased Boro rice production. UCCAs have experience of fertilizer marketing. Technical supports by BRRI for seed multiplication and BADC for procurement of fertilizers and chemicals are essential for the Programme.	Taken up
1.5 Tree Nursery Development Programme	Less urgent but should be introduced in the long term schedule. Seedlings of fruit trees are extended for homestead production and ones of road trees planting for Unions. Technical support of Forestry Dept. is required.	
1.6 Intensified Homestead Crop Production Extension Programme	Less suitable for local government and UCCA. NGO's grass-root extension activities has contributed to improvement of women in rural development. Lack of female extension worker is crucial issue. By obtaining NGO's experiences, DAE should carry out the Programme.	
1.7 Model Farm Credit Programme	Highly required for UCCA/primary societies. UCCA will arrange the fund sources. Small farmers will be free from higher interest rates of private money lenders. By package crop/fish loan (short term), the activities will be encouraged and farmers' livelihood will be secured.	Taken up
II. LIVESTOCK SECTOR		
2.1 Feed and Fodder Production Programme	Urgently required. The technical support of Directorate of Livestock (DOL) is indispensable. To make up shortage of animal protein sources, the target of Programme should be examined considering inland fishery sector.	
2.2 Semi-Intensive Poultry Production Programme	Less suitable for local government and UCCA. NGO's grass-root extension activities has contributed to improvement of women in rural development. Lack of female extension worker is crucial issue. By obtaining NGO's experiences, DOL should carry out the Programme.	
2.3 Veterinary Service Expansion Programme	Urgent but less suitable programme for local governments and UCCA. The nationwide programme is required for human development (veterinary doctors and livestock expert training) and facilities development (dispensary and AI centers)	
III. INLAND FISHERY SECTOR		
3.1 Semi-Intensive Fish Pond Culture Development Programme	Highly suitable for UCCA/primary societies. UCCA will be responsible for formation of BSS, training, input supply and marketing. Taking into account the existing ponds and capacity of hatchery, the Programme should be optimized.	Taken up
3.2 Homestead Integrated Fish Culture Programme	Less suitable for local government and UCCA. NGO's grass-root extension activities has contributed to improvement of women in rural development. Lack of female extension worker is crucial issue. By obtaining NGO's experiences, DOF should carry out the Programme.	
3.3 Open Water Capture Fishery Development Programme	Suitable. UCCA will be responsible for formation of BSS, supply of boat & nets and marketing. Net making will be new business for rural women. The government policy for leasing fishing right of open water should be re-arranged.	

Table.5.9 Assessment of Comparative Study of the MRDP-II Programmes (2/2)

MRDPP II PROGRAMME	ASSESSMENT	
IV. AGRO-INDUSTRY SECTOR		
4.1 Post-Harvest Processing Plants Expansion Programme	Highly suitable and profitable for UCCA. UCCA will establish plants and manage with BSS. Joint-marketing will also be required for stable procurement of raw materials under UCCA. The Programme should be combined with godown installation and growth center improvement.	Taken up
4.2 Cold Storage Installation Programme	Suitable for encouragement of private sector, and excluded from UCCA's business. Investors will avail loan for establishment of plants. The main technical problem is the current conditions of electricity supply conditions.	
4.3 Homestead Food Processing Extension Programme	Less suitable for local government and UCCA. NGO's grass-root extension activities has contributed to improvement of women in rural development. Lack of female extension worker is crucial issue.	
V. MARKETING SECTOR		
5.1 Upazila Food Grains Marketing Programme	Highly suitable and urgent. Joint-marketing of food grains should be by Village Marketing Groups (VMG) organized under UCCA. Godown and post-harvest plants, which are supplement each other, will be under the management of UCCA.	Taken up
5.2 Joint Marketing Promotion Programme	Highly suitable and urgent. Joint-marketing of food grains should be by Village Marketing Groups (VMG) organized under UCCA. The function of growth centers and hats should be considered to ensure the Programme.	Taken up
VI. RURAL INFRASTRUCTURE SECTOR		
6.1 Feeder and Rural Roads Improvement Programme	Upazila parishads are fully responsible for Feeder Road B type and Rural Roads. OM of roads should be examined in-depth. Considerable employment opportunity will be generated.	Taken up
6.2 Growth Center Improvement Programme	Upazila parishads are fully responsible for management and maintenance of Growth Centers and hats. UCCA will be only one of lease holders to deploy their marketing and post-harvesting processing business in growth centers.	Taken up
6.3 Drinking Water Supply Development Programme	UNICEF and Department of Public Health Engineering (DPHE) has been promoting hand tube well (HTW) in the rural areas nationwide. To fulfill basic human needs is important task of rural development. Support of local government is essential for the said national project.	
6.4 Sanitation Improvement Programme	UNICEF and Department of Public Health Engineering (DPHE) has been promoting hand tube well (HTW) in the rural areas nationwide. To fulfill basic human needs is important task of rural development. Support of local government is essential for the said national project.	
6.5 Rural Electrification Extension Programme	BPDB, Rural Electrification Board (REB) and PEB has been promoting rural electrification nationwide. The Programme will encourage of irrigation and agro-industry. Support of local government is essential for the said national project.	
6.6 Communication Improvement Programme	Bangladesh Telegraph and Telephone Board (BTB) under Ministry of Communication has been promoting tele-communication and postal services nationwide. Support of local government is essential for the said national project.	
6.7 Cluster Formation of Rural Housing Programme	Not feasible in the study area due to lack of government land.	
6.8 School Building Improvement Programme	Important but difficult to implement within the framework of rural development.	
6.9 Training Facilities Development Programme	Highly essential for skill training. But the Programme will utilize the existing buildings as much as possible. The equipment supply will be made for ensuring the skills training. On-the-job field training will be more important than indoor training.	

Table 6.1 Annual Disbursement Schedule of MRDP-II

(Unit : million Taka)

	PHASE-I			PHASE-II					PHASE-III							Total			
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		2008	2009	2010
I. Direct Construction Cost																			
1. Irrigation Development and Drainage Improvement	11.2	9.5	9.5	4.8	5.4	5.2	4.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.7
1.1 Canal Re-excavation	5.2	5.9	5.9	3.0	3.4	3.3	3.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5
1.2 Low Lift Pump (LLP)	3.3	3.6	3.6	1.8	2.0	1.9	1.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5
1.3 Workshop for LLPs	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8
2. Fractional Pumps (FP) Promotion	9.0	0.0	0.0	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	27.0
3. Feeder and Rural Roads Improvement	391.4	334.1	319.7	126.0	126.0	126.0	126.0	105.9	135.0	128.0	108.0	108.0	108.0	108.0	106.0	106.0	106.0	85.2	2771.3
3.1 Feeder B																			
3.1.1 Road Body	107.6	103.0	92.4	12.0	12.0	12.0	12.0	8.5	14.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	383.5
3.1.2 Bridge & Culvert	126.8	117.1	112.3	30.0	30.0	30.0	30.0	26.7	25.0	22.0	12.0	12.0	12.0	12.0	10.0	10.0	10.0	8.3	654.3
3.2 Rural Road																			
3.2.1 Road Body	53.4	40.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.1
3.2.2 Bridge & Culvert	103.7	74.0	75.2	102.0	102.0	102.0	102.0	87.8	108.0	108.0	108.0	108.0	108.0	108.0	106.0	106.0	106.0	85.2	1600.5
4. UCCA Complex Establishment																			
4.1 Perboiled Rice Mill	68.4	48.6	44.6	68.3	49.3	46.1	42.7	58.5	9.9	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	440.8
4.2 Flour Mill	7.8	7.8	6.7	6.7	6.7	5.6	3.4	3.4	4.5	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.9
4.3 Oil Mill	5.4	2.1	1.1	4.3	4.3	4.3	4.3	2.1	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
4.4 Godown (100 ton)	6.7	4.5	4.5	4.5	3.4	2.2	1.1	1.1	2.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5
4.5 Godown (500 ton)	34.2	34.2	32.3	31.3	31.3	30.4	30.4	30.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.9
	14.3	0.0	0.0	21.5	3.6	3.6	3.6	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.9
5. Growth Center Improvement	25.5	12.6	9.1	2.2	13.2	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.9
Sub-total *	505.5	404.8	382.8	203.1	195.7	186.4	175.3	170.5	145.9	133.4	108.9	108.9	108.9	108.9	106.9	106.9	106.9	86.1	3345.7
II. Administration	25.3	20.2	19.1	10.2	9.8	9.3	8.8	8.5	7.3	6.7	5.4	5.4	5.4	5.4	5.3	5.3	5.3	4.3	167.3
III. Physical Contingency	75.8	60.7	57.4	30.5	29.4	28.0	26.3	25.6	21.9	20.0	16.3	16.3	16.3	16.3	16.0	16.0	16.0	12.9	501.9
IV. Engineering Services	75.8	60.7	57.4	30.5	29.4	28.0	26.3	25.6	21.9	20.0	16.3	16.3	16.3	16.3	16.0	16.0	16.0	12.9	501.9
Total	682.4	546.5	516.8	274.1	264.2	251.6	236.6	230.2	196.9	180.1	147.0	147.0	147.0	147.0	144.3	144.3	144.3	116.3	4516.7
V. Price Contingency	143.3	180.9	239.8	167.4	203.8	238.7	270.6	312.6	313.8	333.8	314.4	360.5	411.3	467.1	518.8	565.1	658.1	594.8	6314.7
VI. Grand Total	825.8	727.4	756.6	441.5	468.0	490.3	507.2	542.8	510.7	513.9	461.4	507.5	558.3	614.1	663.1	729.4	802.4	711.0	10831.4

Note : * This amount is excluding Value Added Tax which has been introduced from 1st July, 1991.

Table 7.1 Irrigation and Drainage Development for the Priority Project

Bancharampur				Nabinagar				Kachua			
Rank	Canal (Khal) Name	Command Area ha	Canal Length km	Rank	Canal (Khal) Name	Command Area ha	Canal Length km	Rank	Canal (Khal) Name	Command Area ha	Canal Length km
1	Kathakahali	70	9	1	Majikata	400	10	1	Sachar-Hajiganj	250	16
2	Dulbanaga	600	13	2	Laur Fathepur	200	8	2	Karaya-Ragunathpur	100	6
3	Murader	300	7	3	Adulmanil Chart	100	7	3	Uzani-Tatulia	50	4
4	Nandalia	80	5	4	Birugan	380	5	4	Udara	100	7.5
5	Pahariakandi	30	3	5	Begduhar	300	5	5	Kajkamta-Kamorkasha	50	4.5
6	Kalakandisona	70	3	6	Rasullabad	360	10				
Total		ha 1150	km 40	Total		ha 1740	km 45	Total		ha 550	km 38

Table 7.2 Facility Plan of Growth Center Improvement for Priority Project

Kachua Upazila

	Item	Unit	Kachua	Sachar	Palakhal	Rahimanagar	Total
1	Bridge (12m L x 3.66m W)	no	1	0	0	0	1
2	Shed (New)	m2	192	270	270	405	1,137
3	Shed (Rehabilitation)	m2	768	0	0	0	768
4	Open Sale Platform	m2	540	135	270	270	1,215
5	Drain Ditch	m	1,233	168	214	221	1,836
6	Garbage Pit	no	12	3	4	5	24
7	Laterine	no	3	3	1	3	10
8	Water Supply System	no	3	2	1	5	11
9	Concrete Pavement (t=150)	m2	8,930	245	360	325	9,860
10	Expansion Area	m2	4,160	0	0	0	4,160

Nabinagar Upazila

	Item	Unit	Nabinagar	Bholachong	Sreeghar	Markuti	Total
1	Shed (New)	m2	540	270	270	270	1,350
2	Shed (Rehabilitation)	m2	0	0	0	0	0
3	Open Sale Platform	m2	270	270	270	270	1,080
4	Drain Ditch	m	1,206	286	307	300	2,099
5	Garbage Pit	no	8	4	4	4	20
6	Laterine	no	1	1	1	1	4
7	Water Supply System	no	2	1	2	1	6
8	Concrete Pavement (t=150)	m2	3,394	720	900	585	5,599
9	Expansion Area	m2	0	0	0	0	0

Bancharampur Upazila

	Item	Unit	Mouilagonj	Marichakandi	Jibonganj	Ujanchar	Total
1	Shed (New)	m2	1,080	135	270	270	1,755
2	Shed (Rehabilitation)	m2	0	0	0	0	0
3	Open Sale Platform	m2	540	135	270	135	1,080
4	Drain Ditch	m	2,225	116	214	273	2,828
5	Garbage Pit	no	13	2	4	3	22
6	Laterine	no	3	1	2	2	8
7	Water Supply System	no	1	0	0	1	2
8	Concrete Pavement (t=150)	m2	8,549	180	360	769	9,858
9	Expansion Area	m2	0	0	0	0	0

Debidwar Upazila

	Item	Unit	Debidwar	Pirganji	Mohanpur	Jafargonj	Total
1	Shed (New)	m2	270	270	270	135	945
2	Shed (Rehabilitation)	m2	270	0	0	0	270
3	Open Sale Platform	m2	540	135	135	135	945
4	Drain Ditch	m	544	154	154	106	958
5	Garbage Pit	no	9	3	3	2	17
6	Laterine	no	1	1	1	1	4
7	Water Supply System	no	1	1	1	1	4
8	Concrete Pavement (t=150)	m2	3,568	195	195	230	4,188
9	Expansion Area	m2	2,080	0	0	0	2,080

Table 7.3 Project Works for the Priority Project

Items	Unit	Phase I															Total				
		Stage-I (1993)					Stage-II (1994)					Stage-III (1995)									
		K	N	B	D	Total	K	N	B	D	Total	K	N	B	D	Total	K	N	B	D	Total
1. Irrigation Development and Drainage Improvement																					
1.1 Canal Re-excavation	km	16	5	13		34	13.5	20	14		47.5	8.5	20	13		41.5	38	45	40	0	123
1.2 Low Lift Pump (LLP)	nos	28	87	58		173					0					0	28	87	58	0	173
1.3 Workshop	place	1	1	1		3					0					0	1	1	1	0	3
2. Fractional Pumps (FP) Promotion	nos	50	50	50	50	200					0					0	50	50	50	50	200
3. Feeder and Rural Roads Improvement																					
3.1 Feeder B																					
3.1.1 Road Embankment	km			5	9.1	14.1	17.2	12.9	17.4	21.1	68.6			19.2		19.2	17.2	12.9	41.6	30.2	101.9
3.1.2 Bridge & Culvert	nos	14	4	12	10	40	14		15	26	55					0	28	4	27	36	95
3.1.3 Pavement, Tree Planting,etc	km					0		12.9			12.9	17.2		22.4	18.2	57.8	17.2	12.9	22.4	18.2	70.7
3.2 Rural Road																					
3.2.1 Road Embankment	km					0					0	5.5	19.5			25	5.5	19.5	0	0	25
3.2.2 Bridge & Culvert	nos		6			6		23			23	9		8	14	31	9	29	8	14	60
3.2.3 Pavement, Tree Planting,etc	km					0					0					0	0	0	0	0	0
4. UCCA Complex Establishment																					
4.1 Parboiled Rice Mill	place	1	1	1	1	4					0					0	1	1	1	1	4
4.2 Flour Mill	place	1	1	1	1	4					0					0	1	1	1	1	4
4.3 Oil Mill	place	1	1	1	1	4					0					0	1	1	1	1	4
4.4 Godown	place	1	1	1	1	4					0					0	1	1	1	1	4
4.4.1 Godown (500 ton)	place	1	1	1	1	4					0					0	1	1	1	1	4
5. Growth Center Improvement																					
5.1 G.C at U.HQ (Model G.C)	place	1	1	1	1	4											1	1	1	1	4
5.2 Growth Center	place						2	2	2	2	8	1	1	1	1	4	3	3	3	3	12

Note: K=Kachua, N=Nabinagar, B=Bancharampur, D=Debidwar, U.HQ= Upazila Headquarter

Table 7.4 Project Cost for Priority Project (1/4)
(Summary)

Items	Stage-I (1993)			Stage-II (1994)			Stage-III (1995)			(Unit: million Taka)		
	L/C	F/C	Total	L/C	F/C	Total	L/C	F/C	Total	L/C	F/C	Total
I. Direct Construction Cost												
1. Irrigation Development and Drainage Improvement												
1.1 Canal Re-excavation	8.1	50.3	58.4	6.2	30.6	36.7	5.6	27.6	33.1	19.9	108.4	128.3
1.2 Low Lift Pump (LLP)	4.1	20.2	24.3	6.2	30.6	36.7	5.6	27.6	33.1	15.8	78.4	94.2
1.3 Workshop for LLPs	2.8	24.9	27.7	0.0	0.0	0.0	0.0	0.0	0.0	2.8	24.9	27.7
	1.3	5.1	6.4	0.0	0.0	0.0	0.0	0.0	0.0	1.3	5.1	6.4
2. Fractional Pumps (FP) Promotion	3.0	19.0	22.0	1.0	1.0	2.0	1.0	1.0	2.0	5.0	21.0	26.0
3. Feeder and Rural Roads Improvement												
3.1 Feeder B	91.2	279.4	370.6	201.2	627.2	828.4	176.6	669.8	846.4	468.9	1576.5	2045.4
3.1.1 Road Embankment	11.7	59.2	70.9	34.0	172.5	206.6	19.9	100.9	120.8	65.6	332.6	398.2
3.1.2 Bridge & Culvert	68.8	188.2	257.1	114.7	289.3	403.9	0.0	0.0	0.0	183.5	477.5	661.0
3.1.3 Pavement, Tree Planting, Turfing	0.0	0.0	0.0	15.3	53.9	69.2	68.6	241.3	309.9	83.9	295.2	379.1
3.2 Rural Road												
3.2.1 Road Embankment	0.0	0.0	0.0	0.0	0.0	0.0	38.8	196.5	235.3	38.8	196.5	235.3
3.2.2 Bridge & Culvert	10.7	32.0	42.6	37.2	111.6	148.8	49.3	131.1	180.5	97.2	274.7	371.9
3.2.3 Pavement, Tree Planting, Turfing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. UCCA Complex Establishment												
4.1 Parboiled Rice Mill	17.3	50.1	67.5	0.0	0.0	0.0	0.0	0.0	0.0	17.3	50.1	67.5
4.2 Flour Mill	1.7	7.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.7	7.0	8.7
4.3 Oil Mill	1.7	6.9	8.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	6.9	8.5
4.4 Godown (500 ton)	1.7	7.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.7	7.0	8.7
	12.3	29.2	41.5	0.0	0.0	0.0	0.0	0.0	0.0	12.3	29.2	41.5
5. Growth Center Improvement												
5.1 G.C at Headquarter (Model G.C)	26.3	21.5	47.8	7.6	2.9	10.5	7.6	2.9	10.5	41.5	27.3	68.8
5.2 Growth Center	26.3	21.5	47.8	0.0	0.0	0.0	0.0	0.0	0.0	26.3	21.5	47.8
	0.0	0.0	0.0	7.6	2.9	10.5	7.6	2.9	10.5	15.2	5.8	21.0
Sub-total *	146.0	420.3	566.3	216.0	661.7	877.7	190.7	701.3	892.1	552.7	1783.4	2336.0
II. Administration	7.3	21.0	28.3	10.8	33.1	43.9	9.5	35.1	44.6	27.6	89.2	116.8
III. Physical Contingency	21.9	63.1	84.9	32.4	99.3	131.7	28.6	105.2	133.8	82.9	267.5	350.4
IV. Engineering Services	21.9	63.1	84.9	32.4	99.3	131.7	28.6	105.2	133.8	82.9	267.5	350.4
Total	197.0	567.5	764.5	291.5	893.3	1184.9	257.5	946.8	1204.3	746.1	2407.6	3153.7
V. Price Contingency	41.4	34.6	75.9	96.5	82.8	179.3	119.5	118.8	238.3	257.4	236.2	493.6
VI. Grand Total	238.4	602.0	840.5	388.0	976.2	1364.2	377.0	1065.6	1442.6	1003.5	2643.8	3647.3

Note : * This amount is excluding Value Added Tax which has been introduced from 1st July, 1991.

Table 7.4 Project Cost for Priority Project (2/4)
(Stage I)

Items	Work Quantity	(Unit : million Taka)		
		Amount		Total
		L/C	F/C	
I. Direct Construction Cost				
1 Irrigation Development and Drainage Improvement		8.1	50.3	<u>58.4</u>
1.1 Canal Re-excavation	34 km	4.1	20.2	24.3
1.2 Low Lift Pump (LLP)	173 nos	2.8	24.9	27.7
1.3 Workshop for LLPs	3 place	1.3	5.1	6.4
2 Fractional Pumps (FP) Promotion	200 nos	3.0	19.0	<u>22.0</u>
3 Feeder and Rural Roads Improvement		91.2	279.4	<u>370.6</u>
3.1 Feeder B				
3.1.1 Road Embankment	14.1 km	11.7	59.2	70.9
3.1.2 Bridge & Culvert	40 nos	68.8	188.2	257.1
3.1.3 Pavement, Tree Planting , Turffing	0 km	0.0	0.0	0.0
3.2 Rural Road				
3.2.1 Road Embankment	0 km	0.0	0.0	0.0
3.2.2 Bridge & Culvert	6 nos	10.7	32.0	42.6
3.2.3 Pavement, Tree Planting , Turffing	0 km	0.0	0.0	0.0
4 UCCA Complex Establishment		17.3	50.1	<u>67.5</u>
4.1 Parboiled Rice Mill	4 place	1.7	7.0	8.7
4.2 Flour Mill	4 place	1.7	6.9	8.5
4.3 Oil Mill	4 place	1.7	7.0	8.7
4.4 Godown (500 ton)	4 place	12.3	29.2	41.5
5 Growth Center Improvement		26.3	21.5	<u>47.8</u>
5.1 G.C at Headquarter (Model G.C)	4 place	26.3	21.5	47.8
5.2 Growth Center	0 place	0.0	0.0	0.0
Sub- total		146.0	420.3	<u>566.3</u>
II. Administration		7.3	21.0	<u>28.3</u>
III. Physical Contingency		21.9	63.1	<u>84.9</u>
IV. Engineering Services		21.9	63.1	<u>84.9</u>
Total		197.0	567.5	<u>764.5</u>
V. Price Contingency		41.4	34.6	<u>75.9</u>
VI. Grand Total		238.4	602.0	<u>840.5</u>

Table 7.4 Project Cost for Priority Project (3/4)
(Stage II)

Items	Work Quantity	(Unit : million Taka) Amount		
		L/C	F/C	Total
I. Direct Construction Cost				
1 Irrigation Development and Drainage Improvement		6.2	30.6	<u>36.7</u>
1.1 Canal Re-excavation	47.5 km	6.2	30.6	36.7
1.2 Low Lift Pump (LLP)	0 nos	0.0	0.0	0.0
1.3 Workshop for LLPs	0 place	0.0	0.0	0.0
2 Fractional Pumps (FP) Promotion	0 nos	1.0	1.0	<u>2.0</u>
3 Feeder and Rural Roads Improvement		201.2	627.2	<u>828.4</u>
3.1 Feeder B				
3.1.1 Road Embankment	68.6 km	34.0	172.5	206.6
3.1.2 Bridge & Culvert	55 nos	114.7	289.3	403.9
3.1.3 Pavement, Tree Planting , Turffing	12.9 km	15.3	53.9	69.2
3.2 Rural Road				
3.2.1 Road Embankment	0 km	0.0	0.0	0.0
3.2.2 Bridge & Culvert	23 nos	37.2	111.6	148.8
3.2.3 Pavement, Tree Planting , Turffing	0 km	0.0	0.0	0.0
4 UCCA Complex Establishment		0.0	0.0	<u>0.0</u>
4.1 Parboiled Rice Mill	0 place	0.0	0.0	0.0
4.2 Flour Mill	0 place	0.0	0.0	0.0
4.3 Oil Mill	0 place	0.0	0.0	0.0
4.4 Godown (500 ton)	0 place	0.0	0.0	0.0
5 Growth Center Improvement		7.6	2.9	<u>10.5</u>
5.1 G.C at Headquarter (Model G.C)	0 place	0.0	0.0	0.0
5.2 Growth Center	8 place	7.6	2.9	10.5
Sub- total		216.0	661.7	<u>877.7</u>
II. Administration		10.8	33.1	<u>43.9</u>
III. Physical Contingency		32.4	99.3	<u>131.7</u>
IV. Engineering Services		32.4	99.3	<u>131.7</u>
Total		291.5	893.3	<u>1184.9</u>
V. Price Contingency		96.5	82.8	<u>179.3</u>
VI. Grand Total		388.0	976.2	<u>1364.2</u>

**Table 7.4 Project Cost for Priority Project (4/4)
(Stage III)**

Items	Work Quantity	(Unit : million Taka)		
		Amount		Total
		L/C	F/C	
I. Direct Construction Cost				
1 Irrigation Development and Drainage Improvement		5.6	27.6	<u>33.1</u>
1.1 Canal Re-excavation	41.5 km	5.6	27.6	33.1
1.2 Low Lift Pump (LLP)	0 nos	0.0	0.0	0.0
1.3 Workshop for LLPs	0 place	0.0	0.0	0.0
2 Fractional Pumps (FP) Promotion	0 nos	1.0	1.0	<u>2.0</u>
3 Feeder and Rural Roads Improvement		176.6	669.8	<u>846.4</u>
3.1 Feeder B				
3.1.1 Road Embankment	19.2 km	19.9	100.9	120.8
3.1.2 Bridge & Culvert	0 nos	0.0	0.0	0.0
3.1.3 Pavement, Tree Planting , Turffing	57.8 km	68.6	241.3	309.9
3.2 Rural Road				
3.2.1 Road Embankment	25 km	38.8	196.5	235.3
3.2.2 Bridge & Culvert	31 nos	49.3	131.1	180.5
3.2.3 Pavement, Tree Planting , Turffing	0 km	0.0	0.0	0.0
4 UCCA Complex Establishment		0.0	0.0	0.0
4.1 Parboiled Rice Mill	0 place	0.0	0.0	0.0
4.2 Flour Mill	0 place	0.0	0.0	0.0
4.3 Oil Mill	0 place	0.0	0.0	0.0
4.4 Godown (500 ton)	0 place	0.0	0.0	0.0
5 Growth Center Improvement		7.6	2.9	<u>10.5</u>
5.1 G.C at Headquarter (Model G.C)	0 place	0.0	0.0	0.0
5.2 Growth Center	4 place	7.6	2.9	10.5
Sub- total		190.7	701.3	<u>892.1</u>
II. Administration		9.5	35.1	<u>44.6</u>
III. Physical Contingency		28.6	105.2	<u>133.8</u>
IV. Engineering Services		28.6	105.2	<u>133.8</u>
Total		257.5	946.8	<u>1204.3</u>
V. Price Contingency		119.5	118.8	<u>238.3</u>
VI. Grand Total		377.0	1065.6	<u>1442.6</u>

Table 7.5 Organization for MRDP-II Priority Projects (1/2)

Name of Committee	Function	Member
Central Coordination Committee	1) Coordination at central level	1) Secretary, LGD ¹⁾
	2) Monitoring	2) Representative of M/O Finance
	3) Advising to the Project	3) Representative of Planning Commission
	4) Other necessary activities	4) DG, BRDB
		5) Engineering Advisor, LGEB
		6) Project Advisor, Project Supporting Unit
		7) Representatives of other related authorities

Note: 1) Chairman
2) Secretary will be nominated accordingly

Table 7.5 Organization for MRDP-II Priority Projects (2/2)

Name of Committee	Function	Member
Upazila Engineering Committee	1) Project implementation	1) Upazila Chairman ¹⁾
	2) Coordination for implementation	2) UNO
	3) Inspection	3) UCC Chairman
	4) Monitoring	4) Leader, PSU (Upazila)
	5) Reporting results	5) URDO
	6) Other necessary activities	6) Assistant Commissioner (Land)
		7) Related Experts, PSU
		8) Upazila Engineer ²⁾
		9) Others
Upazila Production and Employment Committee	1)	1) Upazila Chairman ¹⁾
	Same as above	2)
	6)	Same as above
	7) Encouraging cooperative activities	4)
		5) U. Engineer
		6) U. Livestock Officer
		7) U. fishermen Officer
		8) U. Agriculture Officer
		9) Assistant Engineer, BADC
		10) Representative, BSCIC
		11) Project Administrator (Irrigation)
		12) Related Experts, PSU
		13) URDO ²⁾
		14) Others

Note: 1) Chairman
2) Member Secretary

Table 7.6 Project Supporting Unit in MRDP-II Priority Projects

Expert on	No.	Covering Area
1. Project Advisor	1	Management of all PSUs Coordination in central and local level
2. Team leader	4	Management and coordination of PSU in each Upazila
3. Civil Engineer	2	Road, canal
4. Mechanic	8	LLPs/FPs, activities, maintenance, training, etc.
5. Business Management	2	Growth center, UCCA complex
6. Agronomy	4	Crop cultivation with irrigation
7. Extension	4	Extension activities
8. Fisheries	1	Fish culture
Total	26	

- Note: 1) Team leader is preferably to be cooperative expert to cover all fields.
- 2) Two civil engineer experts, two business management experts and one expert of fisheries will cover all four upazilas.

Table 7.7 UCCA's Financial Cash Flow Statement for the LLPs Project (1/3)
Kachua Upazila

Unit: Tk 1000

Year	Project Revenue		Initial Cost		LLP		Payment to		Expenditure					Total	
	Gov't Subsidy	Income from 28 WUAs	Total	Procure. of 28 LLPs	Workshop Installation	Total	Replace-ment	Upazila P. (Canal OM)	Workshop OM	Spare parts	Staff Salary	Miscellaneous	Sub-total	Cost	Balance
	(1)	(2)	(3)	(4)	(5)	(6)=(4)+(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)=(6)+(7)+(8)+(13)	(15)=(3)-(14)
1993	6,242	420	6,662	4,480	1,762	6,242	0	0	59	97	74	23	253	6,495	167
1994	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
1995	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
1996	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
1997	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
1998	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
1999	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2000	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2001	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2002	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2003	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2004	0	420	420	0	0	0	1,932	40	59	97	74	23	253	2,225	-1,805
2005	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2006	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2007	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2008	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2009	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
2010	0	420	420	0	0	0	0	40	59	97	74	23	253	293	127
Total	6,242	7,560	13,802	4,480	1,762	6,242	1,932	688	1,066	1,739	1,332	414	4,551	13,413	389

Remarks (12): includes all the expenditures for staff training of operators and mechanics.
Cost of canal re-excavation is not incured on this calculation sheet but that cost will be financed by government subsidy.
LLPs will be installed 87 in 1993.

Replacement cost of LLP is based on local market price.

The value added tax is included in replacement and spare parts cost.(15%)

Price escalation and contingency are excluded from all cost.

Table 7.7 UCCA's Financial Cash Flow Statement for the LLPs Project (2/3)

Nabinagar Upazila

Unit: Tk 1000

Year	Project Revenue		Initial Cost		LLP		Payment to		Expenditure				Total	
	Gov't Subsidy	Income from 87 WUAs	Total	Procure. of 87 LLPs	Workshop Installation	Total	Replace- ment	Upazila P. (Canal OM)	Workshop OM	Spare parts	Staff Salary	Miscellaneous	Sub-total	Cost Balance
	(1)	(2)	(3)	(4)	(5)	(6)=(4)+(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)=(6)+(7)+(8)+(13)
1993	19,395	1,044	20,439	13,920	5,475	19,395	0	0	160	261	230	65	716	20,111
1994	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
1995	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
1996	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
1997	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
1998	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
1999	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2000	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2001	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2002	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2003	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2004	0	1,218	1,218	0	0	0	5,220	126	160	261	230	65	716	6,062
2005	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	-4,844
2006	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2007	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2008	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2009	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
2010	0	1,218	1,218	0	0	0	0	126	160	261	230	65	716	842
Total	19,395	21,750	41,145	0	13,920	5,475	19,395	5,220	2,137	2,880	4,698	1,172	12,890	39,642

Remarks (12): includes all the expenditures for staff training of operators and mechanics.

Cost of canal re-excavation is not incured on this calculation sheet but that cost will be financed by government subsidy.

LLPs will be installed 87 in 1993.

Replacement cost of LLP is based on local market price.

The value added tax is included in replacement and spare parts cost.(1.5%)

Price escalation and contingency are excluded from all cost.

Table 7.7 UCCA's Financial Cash Flow Statement for the LLPs Project (3/3)
Bancharampur Upazila

Unit: Tk 1000																
Year	Project Revenue			Procure. of 58 LLPs	Initial Cost		LLP Replacement	Payment to		Expenditure				Total		
	Gov't Subsidy	Income from 58 WUAs	Total		Workshop Installation	Total		Upazila P. (Canal OM)	Workshop OM	Spare parts	Staff Salary	Miscellaneous	Sub-total	Cost	Balance	
																(1)
1993	12,930	696	13,626	9,280	3,650	12,930	0	0	0	107	174	153	43	477	13,407	219
1994	0	812	812	0	0	0	0	84	84	107	174	153	43	477	561	251
1995	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
1996	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
1997	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
1998	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
1999	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2000	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2001	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2002	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2003	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2004	0	812	812	0	0	0	3,480	84	84	107	174	153	43	477	4,041	-3,229
2005	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2006	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2007	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2008	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2009	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
2010	0	812	812	0	0	0	0	0	84	107	174	153	43	477	561	251
Total	12,930	14,500	27,430	9,280	3,650	12,930	3,480	1,425	1,920	3,132	2,760	781	8,593	26,428	1,002	

Remarks: (12): includes all the expenditures for staff training of operators and mechanics.

Cost of canal re-excavation is not incured on this calculation sheet but that cost will be financed by government subsidy.

LLPs will be installed 58 in 1993.

Replacement cost of LLP is based on local market price.

The value added tax is included in replacement and spare parts cost.(15%)

Price escalation and contingency are excluded from all cost.

Table 7.8 Water Users Association's Financial Cash Flow Statement for the LLPs Project

Unit: 1000Tk

Year	Revenue		Expenditure		Payment to UCCA					Total		
	Watercharge (70 farmers)	Fuel	Salary of WUA staff	Sub-total	LLP Rental	Canal OM	Workshop OM	Spare parts	Miscella- neous	Sub-total	Recurrent Cost	Balance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)=(4)+(10)	(12)=(1)-(11)	
1993	49	24	10	34	8	1	2	3	1	15	49	0
1994	49	24	10	34	8	1	2	3	1	15	49	0
1995	49	24	10	34	8	1	2	3	1	15	49	0
1996	49	24	10	34	8	1	2	3	1	15	49	0
1997	49	24	10	34	8	1	2	3	1	15	49	0
1998	49	24	10	34	8	1	2	3	1	15	49	0
1999	49	24	10	34	8	1	2	3	1	15	49	0
2000	49	24	10	34	8	1	2	3	1	15	49	0
2001	49	24	10	34	8	1	2	3	1	15	49	0
2002	49	24	10	34	8	1	2	3	1	15	49	0
2003	49	24	10	34	8	1	2	3	1	15	49	0
2004	49	24	10	34	8	1	2	3	1	15	49	0
2005	49	24	10	34	8	1	2	3	1	15	49	0
2006	49	24	10	34	8	1	2	3	1	15	49	0
2007	49	24	10	34	8	1	2	3	1	15	49	0
2008	49	24	10	34	8	1	2	3	1	15	49	0
2009	49	24	10	34	8	1	2	3	1	15	49	0
2010	49	24	10	34	8	1	2	3	1	15	49	0
Total	884	428	185	614	0	144	26	33	54	26	270	884

- Remarks:
- (1) Command area of an average LLP scheme is to be 20 ha to be managed by 70 farm families.
 - (2) Fuel consumption of LLP is estimated to be 1,700 liters/year which would cost Tk24,000.
 - (3) Salary consists of WUA manager and two pump operators.

Table 7.9 UCCA's Financial Cash Flow Statement for the FPs Project

Unit: Tk 1000

Year	Project Revenue		Procure. of		Replace- ment of 50 FPs	Expenditure				Sub-total	Total Cost	Balance
	Gov't Subsidy	Income from KSSs	Total	50 FPs		Spare parts	Staff Salary	Wage for BSS	Miscella- neous			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)=(7) to (10)	(12)=(5)+(6) +(11)	(13)=(3)-(12)
1993	6,000	1,200	7,200	6,000	0	129	80	600	81	890	6,890	310
1994	0	1,200	1,200	0	0	129	80	600	81	890	890	310
1995	0	1,200	1,200	0	0	129	80	600	81	890	890	310
1996	0	1,200	1,200	0	0	129	80	600	81	890	890	310
1997	0	1,200	1,200	0	0	129	80	600	81	890	890	310
1998	0	1,200	1,200	0	0	129	80	600	81	890	890	310
1999	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2000	0	1,200	1,200	0	2,588	129	80	600	81	890	3,478	-2,278
2001	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2002	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2003	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2004	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2005	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2006	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2007	0	1,200	1,200	0	2,588	129	80	600	81	890	3,478	-2,278
2008	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2009	0	1,200	1,200	0	0	129	80	600	81	890	890	310
2010	0	1,200	1,200	0	0	129	80	600	81	890	890	310
Total	6,000	21,600	27,600	6,000	5,175	2,329	1,440	10,800	1,457	16,026	27,201	399

Remarks: (5): Each UCCA will manage 50 units of FPs by employing 50 BSS groups.

(6): FPs will be replaced every 7 years under the responsibilities of UCCA.

(9): FPs will be operated by 50 BSS groups.

(10): includes all the expenditures for staff training of BSS operators and mechanics.

The value added tax is included in replacement and spare parts.

Price escalation and contingency are excluded from all cost.

Table 7.10 Upazila's Financial Cash Flow for Feeder B and Rural Roads Project (1/4)
Kachua Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't Subsidy	Upazila Budget	Total	Const. Cost	OM Cost	Total	
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	244,200	310	244,510	244,200	310	244,510	0
1994	99,400	344	99,744	99,400	344	99,744	0
1995	92,200	454	92,654	92,200	454	92,654	0
1996	0	454	454	0	454	454	0
1997	0	454	454	0	454	454	0
1998	0	454	454	0	454	454	0
1999	0	454	454	0	454	454	0
2000	0	454	454	0	454	454	0
2001	0	454	454	0	454	454	0
2002	0	454	454	0	454	454	0
2003	0	454	454	0	454	454	0
2004	0	454	454	0	454	454	0
2005	0	454	454	0	454	454	0
2006	0	454	454	0	454	454	0
2007	0	454	454	0	454	454	0
2008	0	454	454	0	454	454	0
2009	0	454	454	0	454	454	0
2010	0	454	454	0	454	454	0
Total	435,800	7,918	443,718	0	435,800	7,918	443,718

Note; Construction cost is used the direct cost .O&M cost includes the value added tax 15%.

Source; Computed from Annex J

Table 7.10 Upazila's Financial Cash Flow for Feeder B and Rural Roads Project (2/4)
Nabinagar Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't	Upazila	Total	Const.	OM	Total	
	Subsidy	Budget		Cost	Cost		
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	104,100	390	104,490	104,100	390	104,490	0
1994	106,200	648	106,848	106,200	648	106,848	0
1995	103,900	748	104,648	103,900	748	104,648	0
1996	0	748	748	0	748	748	0
1997	0	748	748	0	748	748	0
1998	0	748	748	0	748	748	0
1999	0	748	748	0	748	748	0
2000	0	748	748	0	748	748	0
2001	0	748	748	0	748	748	0
2002	0	748	748	0	748	748	0
2003	0	748	748	0	748	748	0
2004	0	748	748	0	748	748	0
2005	0	748	748	0	748	748	0
2006	0	748	748	0	748	748	0
2007	0	748	748	0	748	748	0
2008	0	748	748	0	748	748	0
2009	0	748	748	0	748	748	0
2010	0	748	748	0	748	748	0
Total	314,200	13,006	327,206	0	314,200	13,006	327,206

Note; Construction cost is used the direct cost .O&M cost includes the value added tax 15%.

Source; Computed from Annex J

Table 7.10 Upazila's Financial Cash Flow for Feeder B and Rural Roads Project (3/4)
Bancharampur Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't Subsidy	Upazila Budget	Total	Const. Cost	OM Cost	Total	
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	206,800	448	207,248	206,800	448	207,248	0
1994	189,600	832	190,432	189,600	832	190,432	0
1995	166,800	910	167,710	166,800	910	167,710	0
1996	0	910	910	0	910	910	0
1997	0	910	910	0	910	910	0
1998	0	910	910	0	910	910	0
1999	0	910	910	0	910	910	0
2000	0	910	910	0	910	910	0
2001	0	910	910	0	910	910	0
2002	0	910	910	0	910	910	0
2003	0	910	910	0	910	910	0
2004	0	910	910	0	910	910	0
2005	0	910	910	0	910	910	0
2006	0	910	910	0	910	910	0
2007	0	910	910	0	910	910	0
2008	0	910	910	0	910	910	0
2009	0	910	910	0	910	910	0
2010	0	910	910	0	910	910	0
Total	563,200	15,840	579,040	0	563,200	15,840	579,040

Note; Construction cost is used the direct cost .O&M cost includes the value added tax 15%.

Source; Computed from Annex J

Table 7.10 Upazila's Financial Cash Flow for Feeder B and Rural Roads Project (4/4)
Debidwar Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't	Upazila	Total	Const.	OM	Total	
	Subsidy	Budget		Cost	Cost		
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	216,100	328	216,428	216,100	328	216,428	0
1994	148,400	568	148,968	148,400	568	148,968	0
1995	173,600	904	174,504	173,600	904	174,504	0
1996	0	904	904	0	904	904	0
1997	0	904	904	0	904	904	0
1998	0	904	904	0	904	904	0
1999	0	904	904	0	904	904	0
2000	0	904	904	0	904	904	0
2001	0	904	904	0	904	904	0
2002	0	904	904	0	904	904	0
2003	0	904	904	0	904	904	0
2004	0	904	904	0	904	904	0
2005	0	904	904	0	904	904	0
2006	0	904	904	0	904	904	0
2007	0	904	904	0	904	904	0
2008	0	904	904	0	904	904	0
2009	0	904	904	0	904	904	0
2010	0	904	904	0	904	904	0
Total	538,100	15,360	553,460	0	538,100	15,360	553,460

Note; Construction cost is used the direct cost .O&M cost includes the value added tax 15%.

Source; Computed from Annex J

Table 7.11 UCCA's Financial Cash Flow Statement for the UCCA Complex Project

Unit: Tk 1000																		
Year	Project Revenue			Initial Cost			Replace. Payment to		Expenditure							Total		
	Gov't Subsidy	Sale of Products	Total	Installation of Mills	Installation of Storage	Total	Mills	Upazila P. (GC Lease)	Purchasing of Raw Material	Electricity	Spare parts	Staff Salary	Labour Wage	Miscellaneous	Sub-total	Cost	Balance	
(1)	(2)	(3)	(4)	(5)	(6)=(4)+(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)=(6)+(7)+(8)+(15)+ (9)+(15)	(17)=(3)-(16)		
1993	18,400	0	18,400	6,500	11,900	18,400	0	0	0	0	0	288	0	14	302	18,702	-302	
1994	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
1995	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
1996	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
1997	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
1998	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
1999	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2000	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2001	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2002	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2003	0	38,620	38,620	0	0	0	7,475	50	27,850	960	442	288	360	1,495	31,395	38,920	-300	
2004	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2005	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2006	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2007	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2008	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2009	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
2010	0	38,620	38,620	0	0	0	0	50	27,850	960	442	288	360	1,495	31,395	31,445	7,175	
Total	18,400	656,540	674,940	6,500	11,900	18,400	7,475	850	473,450	16,320	7,517	5,184	6,120	25,430	534,021	560,746	114,194	

Remarks (13): includes all the expenditures for staff training of operators and mechanics.

Financial cash flow sheets are same for each four UUCAs according to plan and operation.

The value added tax is included in replacement and spare parts.

Construction cost is used the direct cost.

Table 7.12 Upazila's Financial Cash Flow for Growth Center Project (1/4)
Kachua Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't Subsidy	GC Lease Money	Total	Const. Cost	OM Cost	Total	
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	22,900	156	23,056	22,900	156	23,056	0
1994	3,100	174	3,274	3,100	174	3,274	0
1995	3,100	191	3,291	3,100	191	3,291	0
1996	0	191	191	0	191	191	0
1997	0	191	191	0	191	191	0
1998	0	191	191	0	191	191	0
1999	0	191	191	0	191	191	0
2000	0	191	191	0	191	191	0
2001	0	191	191	0	191	191	0
2002	0	191	191	0	191	191	0
2003	0	191	191	0	191	191	0
2004	0	191	191	0	191	191	0
2005	0	191	191	0	191	191	0
2006	0	191	191	0	191	191	0
2007	0	191	191	0	191	191	0
2008	0	191	191	0	191	191	0
2009	0	191	191	0	191	191	0
2010	0	191	191	0	191	191	0
Total	29,100	3,393	32,493	29,100	3,393	32,493	0

Remarks; Growth centers will be constructed as following, Kachua GC in 1993, Sachar and Paris khal in 1994 and Rahimnagar in 1995.
The added tax is included in O & M cost.
Construction cost is used the direct cost.

Table 7.12 Upazila's Financial Cash Flow for Growth Center Project (2/4)
Nabinagar Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't	GC Lease	Total	Const.	OM	Total	
	Subsidy	Money		Cost	Cost		
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	5,200	54	5,254	5,200	54	5,254	0
1994	3,100	70	3,170	3,100	70	3,170	0
1995	3,100	87	3,187	3,100	87	3,187	0
1996	0	87	87	0	87	87	0
1997	0	87	87	0	87	87	0
1998	0	87	87	0	87	87	0
1999	0	87	87	0	87	87	0
2000	0	87	87	0	87	87	0
2001	0	87	87	0	87	87	0
2002	0	87	87	0	87	87	0
2003	0	87	87	0	87	87	0
2004	0	87	87	0	87	87	0
2005	0	87	87	0	87	87	0
2006	0	87	87	0	87	87	0
2007	0	87	87	0	87	87	0
2008	0	87	87	0	87	87	0
2009	0	87	87	0	87	87	0
2010	0	87	87	0	87	87	0
Total	11,400	1,522	12,922	0	11,400	1,522	12,922

Remarks; Growth centers will be constructed as following, Nabinagar GC in 1993, Bholachang and Sreeghar in 1994 and Makuti in 1995.

The added tax is included in O & M cost.

Construction cost is used the direct cost.

Table 7.12 Upazila's Financial Cash Flow for Growth Center Project (3/4)
Bancharampur Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't Subsidy	GC Lease Money	Total	Const. Cost	OM Cost	Total	
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	11,300	89	11,389	11,300	89	11,389	0
1994	2,400	103	2,503	2,400	103	2,503	0
1995	2,400	117	2,517	2,400	117	2,517	0
1996	0	117	117	0	117	117	0
1997	0	117	117	0	117	117	0
1998	0	117	117	0	117	117	0
1999	0	117	117	0	117	117	0
2000	0	117	117	0	117	117	0
2001	0	117	117	0	117	117	0
2002	0	117	117	0	117	117	0
2003	0	117	117	0	117	117	0
2004	0	117	117	0	117	117	0
2005	0	117	117	0	117	117	0
2006	0	117	117	0	117	117	0
2007	0	117	117	0	117	117	0
2008	0	117	117	0	117	117	0
2009	0	117	117	0	117	117	0
2010	0	117	117	0	117	117	0
Total	16,100	2,060	18,160	0	16,100	2,060	18,160

Remarks; Growth centers will be constructed as following, Bancharampur GC in 1993,

Marichandi and Jibongonj in 1994 and Ujanchar in 1995.

The added tax is included in O & M cost.

Construction cost is used the direct cost.

Table 7.12 Upazila's Financial Cash Flow for Growth Center Project (4/4)
Debidwar Upazila

Unit: Tk 1000

Year	Project Fund			Project Cost			Balance
	Gov't Subsidy	GC Lease Money	Total	Const. Cost	OM Cost	Total	
	(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)=(4)+(5)	(7)=(3)-(6)
1993	8,300	72	8,372	8,300	72	8,372	0
1994	1,900	83	1,983	1,900	83	1,983	0
1995	1,900	94	1,994	1,900	94	1,994	0
1996	0	94	94	0	94	94	0
1997	0	94	94	0	94	94	0
1998	0	94	94	0	94	94	0
1999	0	94	94	0	94	94	0
2000	0	94	94	0	94	94	0
2001	0	94	94	0	94	94	0
2002	0	94	94	0	94	94	0
2003	0	94	94	0	94	94	0
2004	0	94	94	0	94	94	0
2005	0	94	94	0	94	94	0
2006	0	94	94	0	94	94	0
2007	0	94	94	0	94	94	0
2008	0	94	94	0	94	94	0
2009	0	94	94	0	94	94	0
2010	0	94	94	0	94	94	0
Total	12,100	1,654	13,754	12,100	1,654	13,754	0

Remarks; Growth centers will be constructed as following, Debidwar GC in 1993, Pirgangj and Mohanpur in 1994 and Jafagonji in 1995.

The added tax is included in O & M cost.

Construction cost is used the direct cost.

Table 7.13 Economic Cash Flow for the Whole Project

No	Year	Cost				Benefit	
		Initial	O&M	Replacement	Total	Gross	Net
1	1993	1,070,358	2,138	0	1,072,496	28,214	-1,044,282
2	1994	656,119	9,267	0	665,386	97,354	-568,032
3	1995	644,385	11,428	0	655,813	133,849	-521,964
4	1996	0	13,589	0	13,589	162,737	149,148
5	1997	0	13,589	0	13,589	166,165	152,576
6	1998	0	13,589	0	13,589	171,553	157,964
7	1999	0	13,589	0	13,589	174,001	160,412
8	2000	0	13,589	18,040	31,629	177,920	146,291
9	2001	0	13,589	0	13,589	182,328	168,739
10	2002	0	13,589	0	13,589	186,246	172,657
11	2003	0	13,589	44,034	57,623	186,246	128,623
12	2004	0	13,589	0	13,589	186,246	172,657
13	2005	0	13,589	0	13,589	186,246	172,657
14	2006	0	13,589	0	13,589	186,246	172,657
15	2007	0	13,589	18,040	31,629	186,246	154,617
16	2008	0	13,589	0	13,589	186,246	172,657
17	2009	0	13,589	0	13,589	186,246	172,657
18	2010	0	13,589	0	13,589	186,246	172,657
19	2011	0	13,589	0	13,589	186,246	172,657
20	2012	0	13,589	0	13,589	186,246	172,657
21	2013	0	13,589	44,034	57,623	186,246	128,623
22	2014	0	13,589	18,040	31,629	186,246	154,617
23	2015	0	13,589	0	13,589	186,246	172,657
24	2016	0	13,589	0	13,589	186,246	172,657
25	2017	0	13,589	0	13,589	186,246	172,657
26	2018	0	13,589	0	13,589	186,246	172,657
27	2019	0	13,589	0	13,589	186,246	172,657
28	2020	0	13,589	0	13,589	186,246	172,657
29	2021	0	13,589	18,040	31,629	186,246	154,617
30	2022	0	13,589	0	13,589	186,246	172,657
Total		2,370,862	389,737	160,228	2,920,826	5,205,287	2,284,461
NVP			10%	-698,825	15%	-970,617	
B/C Ratio			10%	0.7	15%	0.5	
EIRR		=	5%				

Table 7.14 Economic Cash Flow for the Stage I Project

Year	Cost			Total	Benefit	
	Initial	O&M	Replacement		Gross	Net
1993	626,894	2,138	0	629,032	11,468	-617,564
1994	0	9,267	0	9,267	44,197	34,930
1995	0	9,267	0	9,267	55,666	46,399
1996	0	9,267	0	9,267	64,029	54,762
1997	0	9,267	0	9,267	65,401	56,134
1998	0	9,267	0	9,267	67,556	58,289
1999	0	9,267	0	9,267	68,535	59,268
2000	0	9,267	18,040	27,307	70,103	42,796
2001	0	9,267	0	9,267	71,866	62,599
2002	0	9,267	0	9,267	73,433	64,166
2003	0	9,267	44,034	53,301	73,433	20,132
2004	0	9,267	0	9,267	73,433	64,166
2005	0	9,267	0	9,267	73,433	64,166
2006	0	9,267	0	9,267	73,433	64,166
2007	0	9,267	18,040	27,307	73,433	46,126
2008	0	9,267	0	9,267	73,433	64,166
2009	0	9,267	0	9,267	73,433	64,166
2010	0	9,267	0	9,267	73,433	64,166
2011	0	9,267	0	9,267	73,433	64,166
2012	0	9,267	0	9,267	73,433	64,166
2013	0	9,267	44,034	53,301	73,433	20,132
2014	0	9,267	18,040	27,307	73,433	46,126
2015	0	9,267	0	9,267	73,433	64,166
2016	0	9,267	0	9,267	73,433	64,166
2017	0	9,267	0	9,267	73,433	64,166
2018	0	9,267	0	9,267	73,433	64,166
2019	0	9,267	0	9,267	73,433	64,166
2020	0	9,267	0	9,267	73,433	64,166
2021	0	9,267	18,040	27,307	73,433	46,126
2022	0	9,267	0	9,267	73,433	64,166
al	626,894	270,876	160,228	1,057,998	2,060,914	1,002,916
NVP		15%	-241,635	20%	-300,537	
B/C Ratio		15%	0.6	20%	0.5	
EIRR	=	8%				

Table.7.15 Increase of Employment Opportunity

(a) LLP Project

1)	Permanent staff	8 persons x 25 day x 12 month	=	2,400 man-day
		2,400 man-day x 3 Upazila	=	7,200 man-day
2)	Labour	6 persons x 25 day x 4 month	=	600 man-day
		600 man-day x 173 WUAs	=	103,800
3)	Crop Labour			196,000 man-day
	Sub-total			307,000 man-day/year

(b) FP Project

1)	Permanent staff	8 persons x 25 day x 12 month	=	2,400 man-day
		2,400 man-day x 4 Upazila	=	9,600 man-day
2)	Labour	3 persons x 25 day x 4 month	=	300 man-day
		300 man-day x 200 FPS	=	60,000
3)	Crop labour			19,000 man-day
	Sub-total			88,600 man-day/year

(c) UCCA Complex Project

1)	Permanent staff	12 persons x 25 day x 12 month	=	3,600 man-day
2)	Labour	26 persons x 25 day x 12 month	=	7,800 man-day
		11,400 man-day x 4 Upazilas	=	45,600 man-day/year
	Sub-total			45,600 man-day/year

(d) Growth Center Improvement Project

1)	Labour	4 persons x 8 day x 12 month	=	384 man-day
		384 man-day x 4 Upazilas	=	1,536 man-day
	Sub-total approx.			1,500 man-day/year

(e) Feeder B and Rural Road Improvement Project

1)	Technical staff	8 persons x 8 day x 12 month	=	768 man-day
2)	Labour	1p./km x 88 km x 25day x 12 m	=	26,400 man-day
	Sub-total approx			27,000 man-day/year

FIGURES

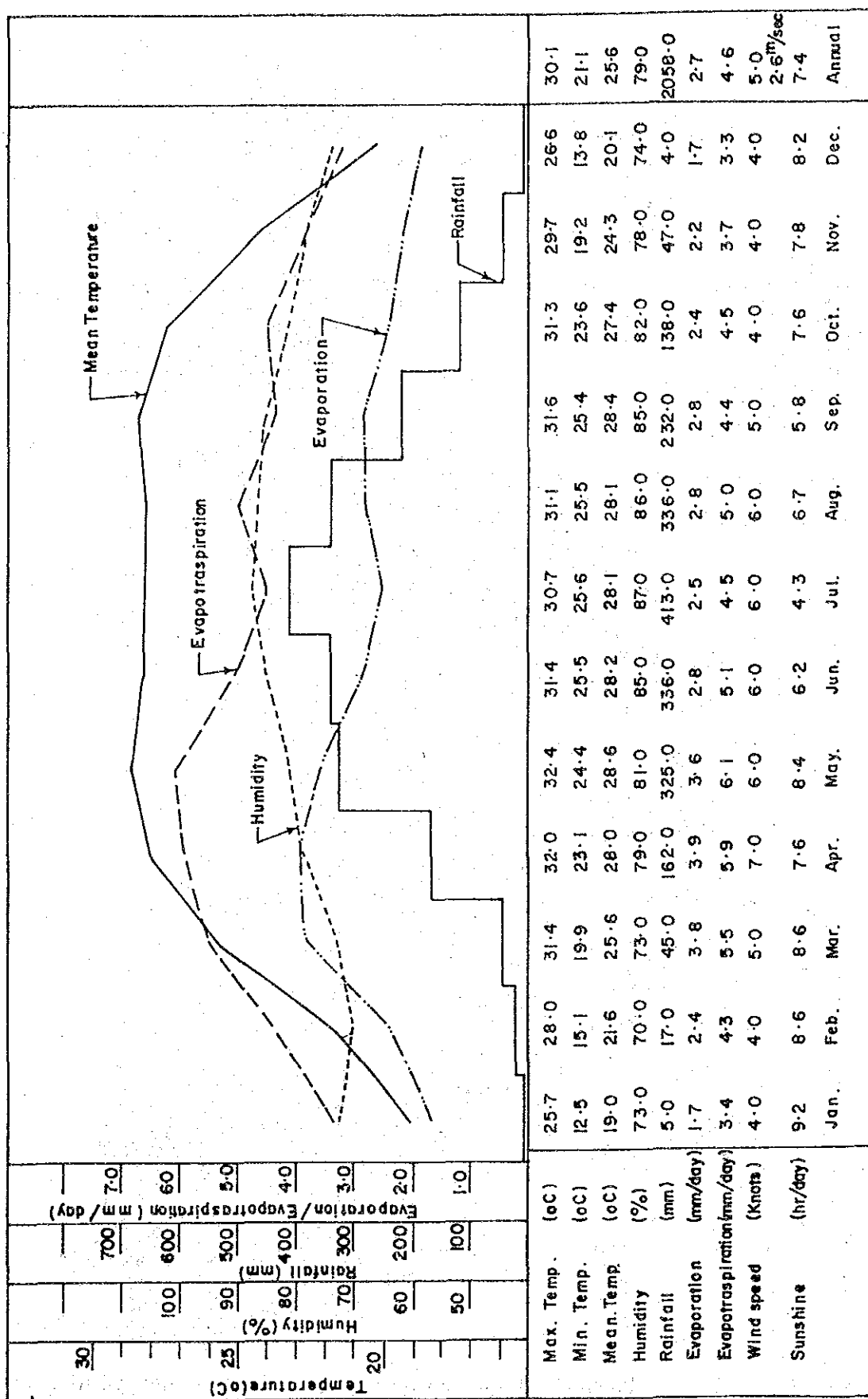
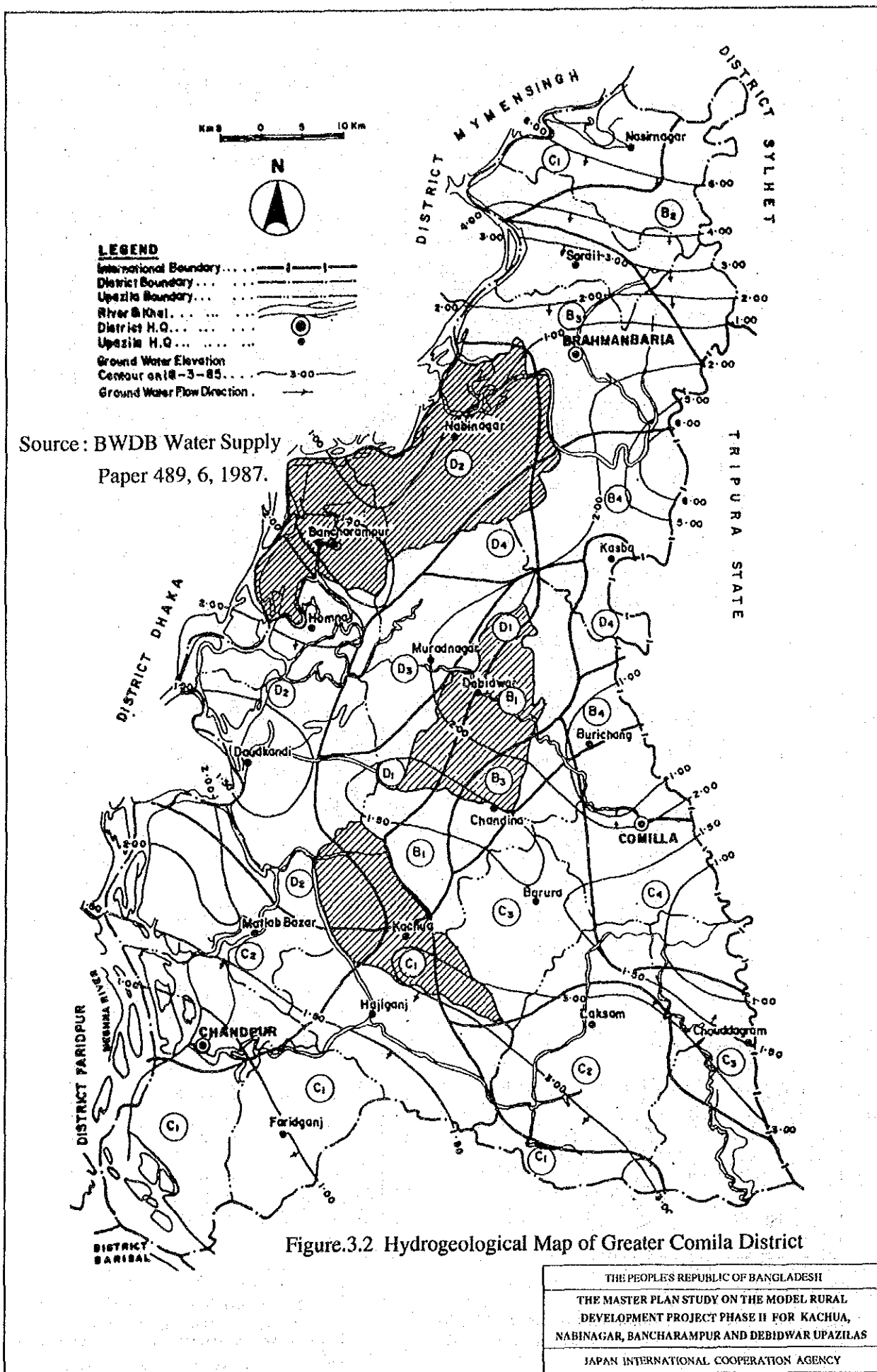


Figure.3.1 Climate Condition of Comila



Landtype	Area in		J	F	M	A	M	J	J	A	S	O	N	D
	ha	%												
Medium High Land 5,864 ha (F1)	700	11.94	Wheat			T. Aus (L)				T. Aman (L)				Wheat
	368	6.28	Potato			T. Aus (L)				T. Aman (L)				Potato
	632	10.78	Pulse			T. Aus (HYV)				T. Aman (HYV)				Pulse
	460	7.84	Mustard			T. Aus (HYV)				T. Aman (HYV)				Mustard
	338	5.76	Pulse			T. Aus (HYV)				T. Aman (HYV)				Pulse
	690	11.77	Boro (HYV)							T. Aman (L)				Boro (HYV)
	319	5.44	Potato			B. Aus (L)				T. Aman (HYV)				Potato
	685	11.68	Potato							T. Aman (HYV)				Potato
	900	15.35	Wheat			B. Aus (L)				T. Aman (HYV)				Wheat
	622	10.61	Mustard			B. Aus (L)				T. Aman (HYV)				Mustard
	150	2.56	Chilli			B. Aus (L)								Chilli
Medium Low Land 6,358 ha (F2)	602	9.47	Mustard			T. Aus (HYV)				T. Aman (HYV)				Mustard
	845	13.29	Boro (HYV)							B. Aman (L)				Boro (HYV)
	1596	25.1	Pulse							B. Aman (L)				Pulse
	1680	26.42	Wheat							B. Aman (L)				Wheat
	820	12.90	Potato							B. Aman (L)				Potato
	815	12.82	Potato				Jute							Potato
Low Land 5,025 ha (F3)	54	1.08	Boro (L)											Boro (L)
	1861	37.04	Boro (HYV)											Boro (HYV)
	841	16.74	Boro (HYV)							B. Aman (L)				Boro (HYV)
	600	11.94	Vegetable											Vege.
	844	17.59	Pulse							B. Aman (L)				Pulse
	100	1.99	Boro (HYV)							T. Aus (L)				Boro (HYV)
	685	13.63				B. Aus (L)								

Figure.3.3 Cropping Patterns (1/4) (Kachua)

Landtype	Area in		J	F	M	A	M	J	J	A	S	O	N	D
	ha	%												
Medium High Land 10720 ha (F1)	298	2.78	Pulse			T. Aus (HYV)				T Aman (L)				Pulse
	209	1.95	Mustard			T. Aus (HYV)				T Aman (L)				Mustard
	1296	12.09	Wheat			T. Aus (L)				T. Aman (HYV)				Wheat
	1693	15.79	Mustard			T. Aus (L)				T Aman (L)				Mustard
	180	1.68	Chilli			Jute				T. Aman (HYV)				Chilli
	2118	19.76	Boro (HYV)			Jute								Boro (HYV)
	419	3.91	Potato			Jute				T. Aman (L)				Potato
	1622	15.13	Boro (HYV)							B. Aman (L)				Boro (HYV)
	2885	26.91	Boro (HYV)											Boro (HYV)
Medium Low Land 9843 ha (F2)	960	9.75	Boro (HYV)							B. Aman (L)				Boro (HYV)
	22	0.22	Sesame							B. Aman (L)				Sesame
	641	6.51	Boro (HYV)			T. Aus (L)								Boro (HYV)
	276	2.8	Potato			T. Aus (HYV)								Potato
	849	8.63	Mustard			T. Aus (HYV)								Mustard
	697	7.08	Boro (HYV)							B. Aus (L)				Boro (HYV)
	60	0.61	Chilli							B. Aman (L)				Chilli
	629	6.39	Wheat							B. Aman (L)				Wheat
	865	8.79	Pulse							B. Aman (L)				Pulse
	417	4.24	Mustard							B. Aman (L)				Mustard
	855	8.69	Wheat							B. Aman (L)				Wheat
	3,173	32.24	Boro (HYV)											Boro (HYV)
	400	4.06	Vegetable											Veg.
Low Land 4100 ha (F3)	548	13.37	Pulse							B. Aman (L)				Pulse
	493	12.02	Mustard							B. Aman (L)				Mustard
	519	12.66	Pulse							Mixed B. Aus and B. Aman				Pulse
	540	13.17	Boro (L)							B. Aman (L)				Boro (L)
	2000	48.78	Boro (HYV)											Boro (HYV)

Figure.3.3 Cropping Patterns (2/4) (Nabinagar)

Landtype	Area in		J	F	M	A	M	J	J	A	S	O	N	D
	ha	%												
Medium High Land 2965 ha (F1)	168	5.66	Veg.		T Aus (HYV)				T Aman (HYV)				Veg.	
	271	9.13	Veg.		Sesame				T Aman (HYV)				Veg.	
	296	9.98	Chilli		T Aus (L)				T Aman (L)				Chilli	
	986	33.25	Mustard		T Aus (L)								Mustard	
	133	4.48	Boro		Sesame				T Aman (L)				Boro (L)	
	467	15.75	Boro (HYV)						T Aman (HYV)					
	497	16.76	Wheat		Mixed B. Aman and B Aman								Wheat	
	147	4.95	Wheat		T Aus (L)				T Aman (L)				Wheat	
Medium Low Land 6828 ha (F2)	2678	39.22	Wheat		T Aus (HYV)								Wheat	
	115	1.68	Wheat						T Aman (L)				Wheat	
	937	13.72	Boro (HYV)		T Aus (L)								Boro (H)	
	326	4.77	Boro (HYV)		Jute								Boro (H)	
	219	3.21	Potato		Jute				T Aman (HYV)				Potato	
	265	3.88	Potato		Jute								Potato	
	321	4.70	Mustard		Jute								Mustard	
	437	6.4	Wheat		Jute								Wheat	
	468	6.85	Mustard		T Aus (HYV)								Mustard	
	892	13.06	Wheat		B. Aman								Wheat	
	170	2.49	Potato		B. Aman								Potato	
Low Land 7603 ha (F3)	2610	34.33			Mixed B. Aman and B Aman									
	306	4.02	Boro											
	1790	23.54			B. Aman									
	1836	24.15	Pulses		B. Aman								Pulses	
	117	1.54	Pulses		T Aus (HYV)								Pulses	
	467	6.14	Potato		T Aus (HYV)								Potato	
	477	6.27	Potato		B. Aman								Potato	

Figure.3.3 Cropping Patterns (3/4) (Bacharampur)

Landtype	Area in		J	F	M	A	M	J	J	A	S	O	N	D
	ha	%												
High Land 480 ha (F1)	193	40.21	Wheat			T. Aus (L)				T. Aman (HYV)				Wheat
	135	28.13	Wheat			T. Aus (HYV)				T. Aman (HYV)				Wheat
	66	13.75	Mustard			T. Aus (L)				T. Aman (HYV)				Mustard
	86	17.92	Vege.			B. Aus (L)				T. Aman (HYV)				Vege.
Medium High Land 10500 ha (F2)	1103	10.51	Boro (HYV)							B. Aman (L)				Boro (HYV)
	1523	14.51	Boro (HYV)							T. Aman (HYV)				Boro (HYV)
	775	7.38	Pulse				Jute			T. Aman (HYV)				
	1871	17.82	Potato			T. Aus (L)				T. Aman (HYV)				Potato
	732	7.16	Wheat			T. Aus (L)				T. Aman (L)				Wheat
	853	8.12	Wheat			T. Aus (HYV)				T. Aman (HYV)				Wheat
	1093	10.41	Wheat			T. Aus (L)				T. Aman (HYV)				Wheat
	297	2.83	Pulse			T. Aus (L)				T. Aman (HYV)				Pulse
	784	7.47	Mustard			B. Aus (L)				T. Aman (HYV)				Mustard
	553	5.27	Boro (HYV)			T. Aus (L)								Boro (HYV)
	400	3.81	Potato			B. Aus (L)				T. Aman (HYV)				Potato
	496	4.72	Mustard			T. Aus (L)				T. Aman (HYV)				Mustard
Medium Low Land 8125 ha (F3)	1928	23.73	Wheat							B. Aman (L)				Wheat
	3365	41.42								T. Aman (HYV)				
	661	8.41	Vegetable			B. Aus (L)				T. Aman (L)				Vege.
	987	12.15				T. Aus (L)				T. Aman (HYV)				
	744	9.16	Mustard			B. Aus (L)				T. Aman (L)				Mustard
Low Land 3912 ha (F4)	440	5.42	Potato			T. Aus (L)								Potato
	2398	61.30								B. Aman (L)				
	522	13.34								T. Aman (HYV)				
	32	0.82	Pulse							B. Aman (L)				Pulse
	498	12.73	Boro (HYV)							T. Aman (HYV)				Boro (HYV)
	462	11.81	Vegetable							B. Aman (L)				Vege.

Figure.3.3 Cropping Patterns (4/4) (Debidwar)