April 1994(Original)
Recast June, 1994

2

BANGLADESH
ACTION PLAN FOR FLOOD CONTROL

FAP 3.1

JAMALPUR PRIORITY PROJECT

Project Refinement (including People's Consultation and EIA), Detailed Planning and Design Studies

TECHNICAL ASSISTANCE PROJECT PROFORMA
(TAPP)

FLOOD PLAN COORDINATION ORGANIZATION
MINISTRY OF IRRIGATION WATER DEVELOPMENT
AND FLOOD CONTROL

2

TAPP : JAMALPUR PRIORITY PROJECT
Project Refinement (including People's Consultation and EIA), Detailed Planning and Design Studies

TAPP PART A

PROJECT ID (1)	PROJECT NO.(2)	TAPP DATE June 1994	REVISED (3) NEW
PROJECT TITLE (4)	Jamalpur Priority Project : Project Refinement (including People's consultation and EIA), Detailed Planning and Design Studies (FAP3.1)		
ADM.MINISTRY (5) Ministry of Irrigation, Water Dev. and Flood Control (MIWD&FC)		EXEC.AGENCY (6) Flood Plan Co-ordination Organization (FPCO), MIWD&FC	
SECTOR (7)	Water Resources		
PROJ.MANAGER (8) M.H. Siddiqi Chief Engineer, FPCO 7 Green Road, Dhaka-1215 Phone : 817038		TAPP PREPARED BY Mr. Ashfaqui Azam Superintending Engineer, FPCO 7 Green Road, Dhaka-1215 Phone : 324442	

TAPP PART B PROJECT DATES

PLANNED MM YY (10) START : April 1994	PLANNED MM YY (11) COMPLETION : March 1996

TAPP PART C PROJECT FINANCING

DONOR : EEC, FRANCE (12)		
LOCAL COST SOURCE (13) GOB and DONOR	FOREIGN EXCHANGE (14) DONOR	CURRENCY / RATE (15) 1 US$: 40.00 Tk.

PROJECT COST	TOTAL COST	F/E COST	TK.COST	GOB COST	PROJECT AID	RPA	CDST
	(16)	(17)	(18)	(19)	(20)	(21)	(22)
F/Y 1	335.580 (8.390)	306.697 (7.667)	28.883 (0.722)	28.883 (0.722)	306.697 (7.667)	-	20.000 (0.500)
F/Y 2	919.498 (22.987)	843.966 (21.099)	75.532 (1.888)	75.532 (1.888)	843.966 (21.099)	-	40.000 (1.000)
F/Y 3	551.513 (13.788)	524.864 (13.122)	26.649 (0.666)	26.649 (0.666)	524.864 (13.122)	-	-
Escl.	12.883 (0.322)	-	12.883 (0.322)	12.883 (0.322)	-	-	4.000 (0.100)
TOTAL	1819.475 (45.487)	1675.528 (41.888)	143.947 (3.599)	143.947 (3.599)	1675.528 (41.888)	-	64.000 (1.600)

Note : Cost in Lakh Tk.
Fig. in Parenthesis is in Lakh US$

FINANCIAL ARRANGEMENTS WITH DONOR (23) Discussed

NAME/DESIGNATION OF DONOR CONTACT (24) FRANCE, EEC	
FINANCING AFTER COMPLETION OF THE PROJECT : Dose not arise	FUNDS REQUIRE (25) YEAR

MODE OF FINANCING (26) DONOR Loan Grant GOB ADP-Budget Revenue Budget

SELF-FINANCING 8.591 % (27)

TAPP PART D-1

PROJECT DESCRIPTION (28)

The Jamalpur Priority Project (JPP) was identified in the Flood Action Plan and confirmed in the Reconnaissance Study of the North Central Regional Study. The project has a mainland area of 92242 hectare with a protectable area of 65804 hectare. The feasibility study of the Jamalpur Priority Project (JPP) has been completed in February, 1993 and the TOR was approved by the Technical Committee on June 9, 1993. Comments raised by the members of Review and Technical Committees on the report have to be addressed by full application of the Guidelines on Environmental Impact Assessment and People's Participation. Moreover, during Technical Committee meeting it was agreed to incorporate precisely the issues of Irrigation, Environment and People's Participation in the TOR.

It may be mentioned here that these Guidelines were released respectively in October, 1992 and March, 1993 after completion of the feasibility study and discussion on the TOR for further studies in Technical Committee. As such it was felt necessary to revise the approved TOR substantially. It was also proposed by the Development Partners (both CFD and EEC) to modify the TOR in the light of Technical Committee decisions.

The Area is located at the extreme north of the North Central Region and is bounded by :

- The Jamuna left bank in the west on which embankments have partially been built.
- The existing Jamalpur - Bahadurabad railway line following the old Brahmaputra on the North-East.
- The Jamalpur - Jagannathganj left railway line in the South - East.
- The overall population with mainland area is about 9,00,000. The project area is located in 9 thanas.

The internal hydrographic network in the sub-region involves two main water courses flowing south-west:

- In the west the Chatal - a distributory of Jamuna.
- In the center the Dadbhanga-khal which drains into the Jhenai.
- In the east, the Jhenai, a distributory of the Old Brahmaputra. The main channel joins the Chatal and flows to the Jamuna.

Flooding occurs almost every year caused by both high intensity of rainfall and by overbank spillage from the Jamuna and the old Brahmaputra rivers and their distributaries. In the past, a number of embankments have been built by local authorities. Despite lack of continuity they give some protection against flooding in normal years but can not be considered reliable enough to cope with severe floods. Widespread damage occurred to the embankment in 1987 and 1988 floods. The Charland areas as well suffer widespread flooding each year causing extensive but largely unquantified damages.

Reason for Recast :
Original TAPP was considered by SPEC in the meeting held on 5th May 1994 and was recommended for approval subject to certain conditions. As per decision of the said SPEC meeting, the TAPP has been recast.

TAPP PART D-2

PROJECT OBJECTIVES (29)

The main objective of this TA project is to make detailed planning and design studies of the Jamalpur Priority Project (JPP) for which feasibility study has been completed in February, 1993.

The Jamalpur priority project will be one of the first development programme implemented as a consequence of the main findings of the Flood Action Plan. The objective of the Jamalpur Priority Project was to investigate and draw up plans for sustainable development of land and water resources within the main land area. During the course of this work it became apparent that development within the mainland could not be progressed without taking account of the situation within the adjacent Charland and a special additional study was investigated and final report contains the specific findings of the work. According to these findings, this TAPP has been prepared to conduct the detail planning and design studies.

The final feasibility report concludes positively on the viability of a controlled floodings solution, including drainage improvement inside the area protected, and flood proofing measures outside the embankments, mitigation and development measures have to be developed in the fields of fishery production, environmental protection, social impact and finally agricultural production.

CONSEQUENCES IF NOT APPROVED (30)

If this work is not approved, the implementation of the project will not be possible. As Jamalpur Priority Project (JPP) is the first development plan to be implemented under Flood Action Plan, the proposed works should be proceeded with as early as possible.

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LINKAGE TO OTHER PROJECTS/ORGANIZATIONS (31)

This project will be closely related with FAP-3, FAP-3.2(Bhuapur Area Study), FAP-1, FAP-13, FAP-15, FAP-16, FAP-17, FAP-18, FAP-19, FAP-20, FAP-21/22, FAP-23, FAP-25 and FAP-26. Project will be closely connected with BWDB, LGED, WARPO, Ministry of Agriculure, Ministry of Livestock and Fisheries, BADC, SPARRSO etc.

TAPP PART E

PROJECT OUTPUT(IN QUANTITATIVE OR QUALITATIVE TERMS) (32)

The proposed Jamalpur Priority Project will have the following main components.

a) Controlled Flooding :
- Embankment along the Jamuna River (82.04 km)
- Embankment along the old Brahmaputra River (43.17 km)
- Three control structures to admit floods.
- A major outlet structures on Jhenai/Chatal out let
- Minor control structures (flushing)

b) Drainage improvement :
For 32,000 hectare with pilot area developed for 5000 hectare.

c) Preparation of Fisheries Pilot Programme

d) An Environmental Management Plan (EMP) to be defined by the consultant in accordance with FAP-EIA guidelines.

e) Flood Proofing (A Pilot Programme)
A Pilot Programme will be implemented 1st phase of study and costing approximately Tk 14 million.

Before implementing the project its detailed planning and design studies are to be done, for which this TAPP has been prepared.

PREPARATORY ASSISTANCE

An Appraisal Mission consisting of members of CAISSE FRANCAISE DE DEVELOPPEMENT (CFD) and European Economic Community (EEC) appraised the project from 9-18th of February, 1993. Request for implementation of the plan has been made to Donor by Ministry of Irrigation, Water Development and Flood Control. A protocol has

been signed between Governemnt of Bangladesh and Government of France on 14th March, 1993 for funding the detailed Planning and Design Studies of the JPP.

TECHNOLOGY TRANSFER

This activities will provide substantial technology transfer in the field of planning, design and preparation of flood protection schemes. GOB and Local Consultants will be benefited from this study to a great extent as they will work in close association with each other.

TRAINING

There will be provision of training both in and outside the country. Training will be provided for the project personnel (SMU and FPCO) in the field of Geo-technical Engineering, Water Management, Environmental Impact Assesment, Environmental Management Plan, Construction Management, Socio-economic, Agro-economic and fisheries. Details of training is given in Appendix 7.

MANAGEMENT IMPROVEMENT

This study will help to improve the management quality of the GOB and local specialist in the planning and design of flood protection scheme, water resources, agricultural and fisheries management field.

INSTITUTIONAL SUPPORT

Project co-ordination, overall supervision and evaluation and public liaison will be under the control of FPCO.

A Study Monitoring Unit (SMU) staffed with permanent representatives of BWDB, Department of Environment, Directorate of Fisheries, and supported by the representatives of the Dept. of Agricultural Extension (DAE) and Local Government Engineering Department (LGED) will be established under FPCO for monitoring the work of consultants and initiating People's consultation process from the beginning of the study. Progress will be informed time to time to the Ministry of Irrigation, Water Development and Flood Control (MIWD&FC)

ACTION EXPECTED AFTER COMPLETION OF THE PROJECT (33)

After completion of the 1st and 2nd phase of detailed planning and engineering studies, it is expected that Implementation will start which is likely to continue about seven years.

TAPP PART F-1

PROJECT INPUT PERSONNEL			
EXPATRIATE CONSULTANTS (34) Appendix A/1	MANMONTH 125	NO.OF CONSULTANTS 16	COST/MANMONTH Tk.7.083 Lakh
TASK AND QUALIFICATION REQUIRED (35) As in annexure A/I			

LOCAL CONSULTANTS (36) Appendix A/2	MANMONTH 270	NO.OF CONSULTANTS 20	COST/MANMONTH Tk.0.793 Lakh
..ASKS AND QUALIFICATION REQUIRED (37) As in annexure A/I			

PROJECT PERSONNEL GOB (38) Appendix A/3	MANMONTH 720	NO.OF PERSONNEL 30	COST/MANMONTH Tk.0.053 Lakh

NO.OF STAFF AVAILABLE(39) FULL-TIME : 21	NO.OF STAFF AVAILABLE PART-TIME : -	NO.OF STAFF TO BE(41 RECRUITED/DEPUTED:9
TASKS AND QUALIFICATIONS REQUIRED (42) As per Govt. Bangladesh		

PROJECT PERSONNEL (43) OTHERS: Appendix A/4	MANMONTHS 456	NO. OF PERSONNEL 19	COST/MANMONTH Tk. 0.062 Lakh
TASKS AND QUALIFICATIONS REQUIRED Annexure A/I			

ESTIMATED (44) PERSONNEL COST	EXPATRIATE CONSULTANTS	LOCAL CONSULTANTS	PROJECT PERSONNEL GOB	PROJT.PERSONNEL OTHERS
F/Y 1	113.331	25.370	4.758	3.540
F/Y 2	495.824	114.957	20.935	14.160
F/Y 3	276.245	73.731	17.129	10.620
GRAND TOTAL	885.400	214.057	42.822	28.320

TAPP PART F-2

PROJECT INPUT EQUIPMENT		
SPECIFICATION OF ITEMS (45) Appendix A/5	QUANTITY 42	COST : Tk. 77.900 Lakh (FEC) Tk. 64.00 Lakh (GOB)

ANNUAL PHASING OF ESTIMATED COSTS (46)								
F/Y1	F/Y2	F/Y3	F/Y4	F/Y5	F/Y6	F/Y7	F/Y8	TOTAL
77.90 20.00	- 44.00							77.900 64.000

TAPP PART F-3

PROJECT INPUT TRAINING			
SPECIFICATION(47)	INSTITUTION (48)	NO. OF (49) PARTICIPANT	COST (50)
Appendix A/7	Foreign Local	12 20	Tk.31.800 Lakh

ANNUAL PHASING OF ESTIMATED COSTS (51)								
F/Y1	F/Y2	F/Y3	F/Y4	F/Y5	F/Y6	F/Y7	F/Y8	TOTAL
31.800	-							31.800

TAPP PART F-4

PROJECT INPUT OTHERS (MISC. EXPENDITURE)		
SPECIFICATION (52)	Appendix A/6	COSTS : Tk. 438.051 Lakh (FEC) Tk. 37.125 Lakh (GOB)

ANNUAL PHASING OF ESTIMATED COSTS (53)							
F/Y1	F/Y2	F/Y3	F/Y4	F/Y5	F/Y6	F/Y7	TOTAL
54.756 4.125	219.025 18.150	164.269 14.850					438.051 37.125

PROVISION IN FIVE YEAR PLAN (54) Proposed for inclusion in FFYP	PROVISION IN ADP/ATAP (55) Proposed for inclusion in ADP
NO OF ENCLOSURES	Appendix A/0 to A/10 and annexure A/I and A/II

SIGNATURE OF RECOMMENDING AUTHORITY (56)

(Md. Emdadul Huq)
Joint Chief
Ministry of Irrigation, Water Development
and Flood Control

JAMALPUR PRIORITY PROJECT
Project Refinement (including People's Consultation and EIA),
Detailed Planning and Design Studies

Appendix A/0

Summary of Cost Estimates

Sl.No.	Description of item	FEC	GOB	TK. COST	PROJECT AID	COST	TOTAL	REMARKS
		1	2	3	4	5	6	7
1	Expatriate Consultants	885.400 (22.135)			885.400 (22.135)		885.400 (22.135)	Appendix A/1
2	Local Consultants	214.057 (5.351)			214.057 (5.351)		214.057 (5.351)	Appendix A/2
3	Project personnel others (Supporting staff)	28.320 (0.708)			28.320 (0.708)		28.320 (0.708)	Appendix A/4
4	Project personnel G.O.B		38.064 (0.952)	38.064 (0.952)			38.064 (0.952)	Appendix A/3
5	Project input equipment	77.900 (1.948)	60.000 (1.500)	60.000 (1.500)	77.900 (1.948)	60.000 (1.500)	137.900 (3.448)	Appendix A/5
6	Project input others	438.051 (10.951)	33.0000 (0.825)	33.000 (0.825)	438.051 (10.951)		471.051 (11.776)	Appendix A/6
7	Training	31.800 (0.795)			31.800 (0.795)		31.800 (0.795)	Appendix A/7
8	Cost Escalation		12.883 (0.322)	12.883 (0.322)			12.883 (0.322)	
	Sub-Total of 1 to 8	1675.528 (41.888)	143.947 (3.599)	143.947 (3.599)	1675.528 (41.888)	60.000 (1.500)	1819.475 (45.487)	

Appendix A/0 (cont.)

Technical Assistance(Year wise breakup)

Year wise breakup	FEC	GOB	TK. COST	PROJECT AID	COST	TOTAL
F/Y 1 (3 months)	306.697 (7.667)	28.883 (0.722)	28.883 (0.722)	306.697 (7.667)	20.000 (0.500)	335.580 (8.390)
F/Y 2 (12 months)	843.966 (21.099)	75.532 (1.888)	75.532 (1.888)	843.966 (21.099)	40.000 (1.000)	919.498 (22.987)
ESCALATION @10%		7.553 (0.189)	7.553 (0.189)		4.000 (0.100)	7.553 (0.189)
Total F/Y 2 (12 months)	843.966 (21.099)	83.085 (2.077)	83.085 (2.077)	843.966 (21.099)	44.000 (1.100)	927.051 (23.176)
F/Y 3 (9 months)	524.864 (13.122)	26.649 (0.666)	26.649 (0.666)	524.864 (13.122)	-	551.513 (13.788)
ESCALATION @20%		5.330 (0.133)	5.330 (0.133)			5.330 (0.133)
Total F/Y 3 (9 months)	524.864 (13.122)	31.979 (0.799)	31.979 (0.799)	524.864 (13.122)	-	556.843 (13.921)
Total Escalation		12.883 (0.322)	12.883 (0.322)			12.883 (0.322)
Grand Total	1675.528 (41,888)	143.947 (3.599)	143.947 (3.599)	1675.528 (41.888)	64.000 (1.600)	1819.475 (45.487)

1. Figures indicate Tk in Lakh
2. Fig. in parenthesis is US$ in Lakh

Appendix A/1

Detailed Cost Estimates of Expatriate Consultants (34)

1 US $ = Tk 40.000

Sl.No.	Description of Consultants	No	Man month	Monthly rate (US $)	Total Cost US $	Total Cost Tk (Lakh)	Remarks
1	Team Leader (Senior Agricultural Civil Engineer)	1	23	20000	460000	184.000	
2	Senior Rural Development Specialist	1	17	16500	280500	112.200	
3	Agro-economist	1	6	18000	108000	43.200	
4	Socio-Institutional Specialist	1	12	16500	198000	79.200	
5	Environmentalist	1	8	18000	144000	57.600	
6	Fresh-water Ecologist	1	3	18000	54000	21.600	
7	Fishery Specialist	1	7	18000	126000	50.400	
8	Senior Civil Engineer	1	14	16500	231000	92.400	
9	Drainage-Irrigation Engineer	1	8	18000	144000	57.600	
10	Hydrologist/Modeller	1	12	16500	198000	79.200	
11	Civil Engineering Specialist	1	9	18000	162000	64.800	
12	Hydromechanical Specialist	1	2	18000	36000	14.400	
13	Others *	4	4	18000	72000	28.800	
	Total	16	125		2213500	885.400	FEC

Cost/Manmonth = 7.083 Lakh Tk

Note : Salary includes air freights per diem and all allowances

* The provision has been made to cover the disciplines which are not available in the table. This will be confirmed as the study progresses.

Detailed Cost Estimates of Local Consultants (36)

1 US $ = Tk. 40.000

Sl.No.	Description of Consultants	No	Man month	Monthly rate in Tk.	Total Cost (Lakh) Tk	Total Cost US $	Remarks
1	Co-Team Leader (Senior Water Resources Engineer)	1	24	35,000	8.400	21000.000	
2	Agronomist Senior/Rural Development	1	20	30,000	6.000	15000.000	
3	Economist	1	14	30000	4.200	10500.000	
4	Socio-logist/ Institution	1	20	30,000	6.000	15000.000	
5	WID/Health/Nutrition Specialist	1	18	30,000	5.400	13500.000	
6	Environmentalist	1	18	30,000	5.400	13500.000	
7	Fishery Specialist	1	20	30,000	6.000	15000.000	
8	Drainage Engineer	1	20	30,000	6.000	15000.000	
9	Irrigation Engineer	1	9	30,000	2.700	6750.000	
10	Hydrologist	1	17	30,000	5.100	12750.000	
11	Modeller	1	15	30,000	4.500	11250.000	
12	Geo-technical Engineer	1	8	30000	2.400	6000.000	
13	Structural Engineer	1	11	30000	3.300	8250.000	
14	Embankment Engineer	1	11	30000	3.300	8250.000	
15	Hydro-mechanical Specialist	1	6	30000	1.800	4500.000	
16	Contract Sppecialist	1	6	30000	1.800	4500.000	
17	Junior Civil Specialist	1	24	15000	3.600	9000.000	
18	Others(as and when needed)*	3	9	30000	2.700	6750.000	
A	Sub-total of 1 to 18	20	270		78.600	196500.000	FEC
19	Social charge @ 30% of (A)				23.580	58950.000	
20	Overhead @100% (A)				78.600	196500.000	
B	Sub-total of 1 to 20	20	270		180.780	451950.000	FEC
C	Fixed fee @15% of B				27.117	67792.500	FEC
21	Local Travelling and other						

	allowances 1) D.A. for Consultant 8 days each month @ Tk 150 per day 2) T.A. for Consultant				2.160 4.000	5400.000 10000.000	
	Total	20	270		214.057	535142.500	FEC

Cost/Manmonth = 0.793 Lakh Tk

* The provision has been made to cover the disciplines which are not available in the table. This will be confirmed as the study progresses.

Appendix A/3

Detailed Cost estimiate of GOB personnel (38)

1 US $ = Tk. 40.000

Sl.No.	Description	No.	Man-month	Monthly rate (in Tk)	Total Cost		Remarks
					Tk (Lakh)	US $	
1	Superintending Engineer	1	24	10,000	2.400	6000.000	
2	Executive Engineer , SMU	1	24	8,000	1.920	4800.000	
3	Executive Engineer, LGED	1	24	8,000	1.920	4800.000	
4	Executive Engineer, Environment/Public health	1	24	8,000	1.920	4800.000	
5	SDF/Assistant Engineer	2	48	5,000	2.400	6000.000	
6	Agriculture	1	24	5000	1.200	3000.000	
7	Fishery	1	24	5000	1.200	3000.000	
8	Computer Operator	1	24	6000	1.440	3600.000	
9	Sub-Assistant Engineer	1	24	4000	0.960	2400.000	
10	Estimator	1	24	4000	0.960	2400.000	
11	Head Clerk	1	24	4000	0.960	2400.000	
12	Accountant	1	24	4000	0.960	2400.000	
13	Clerk(2)/Typist/Photo copier Operator	4	96	3000	2.880	7200.000	
14	MLSS(Guard, Peon, M.Peon, etc)	10	240	2500	6.000	15000.000	
15	Driver	3	72	3000	2.160	5400.000	
A	Sub-total of 1 to 15	30	720		29.280	73200.000	GOB
16	CPF, BF and Income Tax @15%				4.392	10980.000	
17	TA-DA etc for local movement @ 15%				4.392	10980.00	
18.	Price escalation				4.758	11895.00	
	Total				42.822	107055.000	GOB

Cost/Manmonth = 0.053 Lakh Tk

Note : New Recruitment will be limited to minimum as far as possible

Appendix A/4

Detailed Cost Estimates of Project Personnel Others (Supporting Staff) (43)

Sl.No.	Description	No.	Man-month	Manthly rate (in Tk)	Total Cost		Remarks
					(Lakh) Tk	US $	
1	Administrative officer	1	24	12000	2.880	7200.000	
2	Public Relation Officer	1	24	12000	2.880	7200.000	
3	Accountant	1	24	8000	1.920	4800.000	
4	Draftsman	3	72	6000	4.320	10800.000	
5	Tracer	1	24	6000	1.440	3600.000	
6	Computer Operator	3	72	6000	4.320	10800.000	
7	Typist/Office Assistant	2	48	5000	2.400	6000.000	
8	Driver	3	72	6000	4.320	10800.000	
9	MLSS	4	96	4000	3.840	9600.000	
	Total	19	456		28.320	70800.000	FEC

Cost/Manmonth : 0.062 Lakh Tk

Detailed Cost estimate of project Input equipment (45)

1 US $ = Tk 40.000

Sl.No.	Description of item	Unit Price in Tk.	Total Cost TK (Lakh)	Total Cost US $	Remarks
1	4 WD Vehicle (4 Nos)	1000000	40.000	100000.000	2 for Consultant 2 for SMU
2	Pick-up (2200 C.C) (1 no.)	700000	7.000	17500.000	For Consultant
3	Motor Cycles (3 Nos)	80000	2.400	6000.000	1 for SMU 2 for Consultant
4	Computer (4 No) (with necessary accessories including WordParfect and Lotus 1-2-3)	150000	6.000	15000.000	1 for SMU 3 for Consultant
5	Typewriter (2 Nos)	50000	1.000	2500.000	1 for SMU 1 for Consultant
6	Photocopier (2 No)	100000	2.000	5000.000	1 for SMU 1 for Consultant
7	Telephone for Consultant - 3 nos and for SMU 2 nos	30000	1.500	3750.000	
8	Fax (2 Nos)	100000	2.000	5000.000	1 for SMU 1 for Consultant
9	Air cooler : For the Consultants office - 4 nos. For SMU - 4 nos. For Consultants Residence and rest house - 8 nos.	50000	8.000	20000.000	
10	Other Office and Field Equipment	L.S	8.000	20000.000	Both for SMU and Consultant
A	Sub-Total		77.900	194750.000	FEC
11	COST	-	60.000	150000.000	GOB
	Total		137.900	344750.000	

Appendix A/6

Detailed Cost estimate of project Input others (52)

1 US $ = Tk. 40.000

Sl.No.	Description	Monthly rate TK (Lakh)	Total Cost TK(lakh)	Total Cost US $	Remarks
1	O & M Cost of Transport including fuel and lubricant per month per vehicle for Consultants 4 nos. and for SMU 3 nos @Tk 8000	0.560	13.440	33600.000	
2	O & M cost of motor cycle 2 nos for Consultant and 1 no for SMU @Tk 1000	0.030	0.720	1800.000	
3	a) Office Accommodation at Dhaka for consultant 2000 sft @ Tk. 30 per sft	0.600	14.400	36000.000	
	b) Office Accommodation at Jamalpur for				
	Consultant : 4000 sft @ Tk 5	0.200	4.800	12000.000	
	SMU : 2000 sft @ Tk 5	0.100	2.400	6000.000	
	c) Rest house for Consultants and GOB personnel at Jamalpur 5000 sft @ Tk 5	0.250	6.000	15000.000	
	d) Residence for Consultant				
	At Jamalpur (7), 1500 sft @ 5 Tk	0.525	12.600	31500.000	
	At Dhaka (2), 1500 sft @ 8 Tk	0.240	5.760	14400.000	
4	Printing of reports for Consultants	L.S	20.000	50000.000	
5	Cost of furniture for Office, residence and rest house of Consultant	L.S	10.000	25000.000	
6	Misc.(reparing, maintenance of office residence and rest house) of Consultant	L.S	12.000	30000.000	
7	Field Survey (Details in Appendix A/8)	Appen. A/8	199.931	499826.250	
8	Flood Proofing pilot project	L.S	136.000	340000.000	
A	Sub-Total (1..8)		438.051	1095126.250	FEC
9	Office stationery and Others	L.S	5.000	12500.000	
10	Cost of furniture and others accessories for office and rest house	L.S	10.000	25000.000	
11	O & M of Office and rest house (tele., electricity, taxes, etc)	L.S	5.000	12500.000	

20

12	O & M of vechicles	L.S	3.000	7500.000	
13	Data collection	L.S	5.000	12500.000	
14	Misc.	L.S	5.000	12500.000	
B	Sub-Total (9..14)		33.000	82500.000	GOB
	Price escalation		4.125	10312.00	
	Total (B)		37.125	92812.00	
	Grand Total=		475.176	1187940.000	

Appendix A/7

Training for the Project Personnel

Sl.No.	Discipline	Duration	No.	Cost/person (US $)	Total Cost (Lakh) Tk	Total Cost US $	Remarks
(a)Foreign							
1	Geo-technical Engineering	3-4 Weeks	3	6000	7.200	0.180	
2	Construction Management	3-4 Weeks	2	6000	4.800	0.120	
3	Water Management/ Environmental Impact Assesment/ Management/Socio-economic/ Agro-economic	3-4 Weeks	*6	6000	0.000	0.000	
4	Fisheries	3-4 Weeks	1	6000	2.400	0.060	
(b) Local	For Local training there will be provision of 3.00 Lakh Tk.		20		3.000	0.075	
	Total		26		17.400	0.435	FEC

* One personnel from Planning Commission (irrigation wing) and one personnel from IMED (Sector Division) will be included.

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Appendix A/8
(Shown in Appendix A/6)

Detailed Cost estimate of Survey Works

Sl.No.	Description	Phase I (in KF)	Phase II (in KF)	Total (in KF)	Total (in Lakh Tk)	Remarks
1	TOPOGRAPHY :					
	a) Topographic Survey Charland for an area of 75,000 hectare	300.000	-	300.000	20.790	
	b) Drainage Pilot area 5,000 hectare on the basis of 1/20,000 maps available and profiles, cross-sections of drainage channels (existing and proposed)	-	100.000	100.000	6.930	
2	HYDROLOGY :					
	a) Phase 1 : Installations of 30 extra stations, water level reading at 40 stations, discharge measurements and 2 GPS purchase	840.000	-	840.000	58.212	
	b) Phase 2 : Water level (40 stations) discharge	-	345.000	345.000	23.909	
3	Geo-technics	-	400.000	400.000	27.720	
4	Socio-Economic survey 8 months survey(including logistic)	200.000	-	200.000	13.860	
5	Agricultural survey 6 month including logistic and transport	250.000	-	250.000	17.325	
6	Environmental survey Ecology, Water quality, Soil chemistry, etc.	200.000	-	200.000	13.860	
7	Fisheries survey For 12 months	250.000	-	250.000	17.325	
	Total Cost	2040.000	845.000	2885.000	199.931	FEC

Note : 1 FF = Tk. 6.93 app.

SMU's EXPENDITURE FOR PHASE I
(Included in A/5)

Appendix A/9

Sl.No	Description of item	Unit price in Tk.	Total Cost US $	Total Cost	Remarks
1	4 WD Vehicle (2 Nos)	1000000	20.000	50000.000	
2	Motor Cycle (1 No.)	80000	0.800	2000.000	
3	Computer (1 No.) (with necessary accessories including Word Parfect and Lotus 1-2-3)	150000	1.500	3750.000	
4	Photocopier (1 No.)	100000	1.000	2500.000	
5	Telephone (2 Nos.)	30000	0.300	750.000	
6	Fax (1 No.)	100000	1.000	2500.000	
7	Air Coller (4 Nos.)	90000	3.600	9000.000	
A	Sub-Total (1...7)		28.200	70500.000	FEC
	Rest House and Office accommodation @ Tk. 15,000 (For 15 months)	L.S	2.250	5625.000	
	Total (A+B)		30.450	76125.000	FEC

০৫–০৫–১৯৯৪ইং তারিখে অনুষ্ঠিত এস.পি.ইসি সভার সিদ্ধান্ত		সংস্থা/মন্ত্রণালয় কর্তৃক গৃহীত ব্যবস্থা
(ক)	প্রকল্পটিতে ২টি কার কেনার সংস্থান বাদ দিতে হইবে।	(ক) বাদ দেওয়া হইয়াছে (Appendix A/5)
(খ)	একজন স্থানীয় পরামর্শকের বেতন/ ভাতাদি সম–পর্যায়ের একজন বৈদেশিক পরামর্শকের বেতন/ভাতাদির ২৫% এর কম করা হতে পারবে না।	(খ) বৈদেশিক পরামর্শকের বেতন/ভাতাদির ভিতর Perdiem, প্লেন ভাড়া ও অন্যান্য খরচ ধরা আছে। সুতরাং প্রকৃত বেতন স্থানীয় পরামর্শক অপেক্ষা ৪গুনের বেশী হইবে না।
(গ)	একজন পাবলিক রিলেশন অফিসারের পদ কমাইতে হইবে।	(গ) কমানো হইয়াছে। (Appendix–A/3).
(ঘ)	বৈদেশিক প্রশিক্ষণের ক্ষেত্রে পরিকল্পনা কমিশনসহ সংশ্লিষ্ট সংস্থাকে অন্তর্ভূক্ত করিতে হইবে।	(ঘ) বৈদেশিক প্রশিক্ষণের ক্ষেত্রে পরিকল্পনা কমিশনসহ সংশ্লিষ্ট সংস্থাকে অন্তর্ভূক্ত করা হইয়াছে। (Appendix–A/7).
(ঙ)	উপরোক্ত ক, খ, গ ও ঘ সিদ্ধান্তের আলোকে প্রয়োজনীয় সংখ্যক রিকাষ্ট টিএপিপি পরিকল্পনা কমিশনে প্রেরণ করিতে হইবে।	(ঙ) উপরোক্ত ক, খ, গ ও ঘ সিদ্ধান্তের আলোকে প্রয়োজনীয় সংখ্যক রিকাষ্ট টিএপিপি পরিকল্পনা কমিশনে প্রেরণ করা হইল।

ANNEX I

FIGURES

Figure 1 : Location map

Figure 2 : Project area / existing situation

Figure 3 : Project area / with project situation

Figure 4 : JPP Implementation Schedule

Figure 5 : Reporting Schedule

Figure 6 & 7 : Indicative Manning Schedule

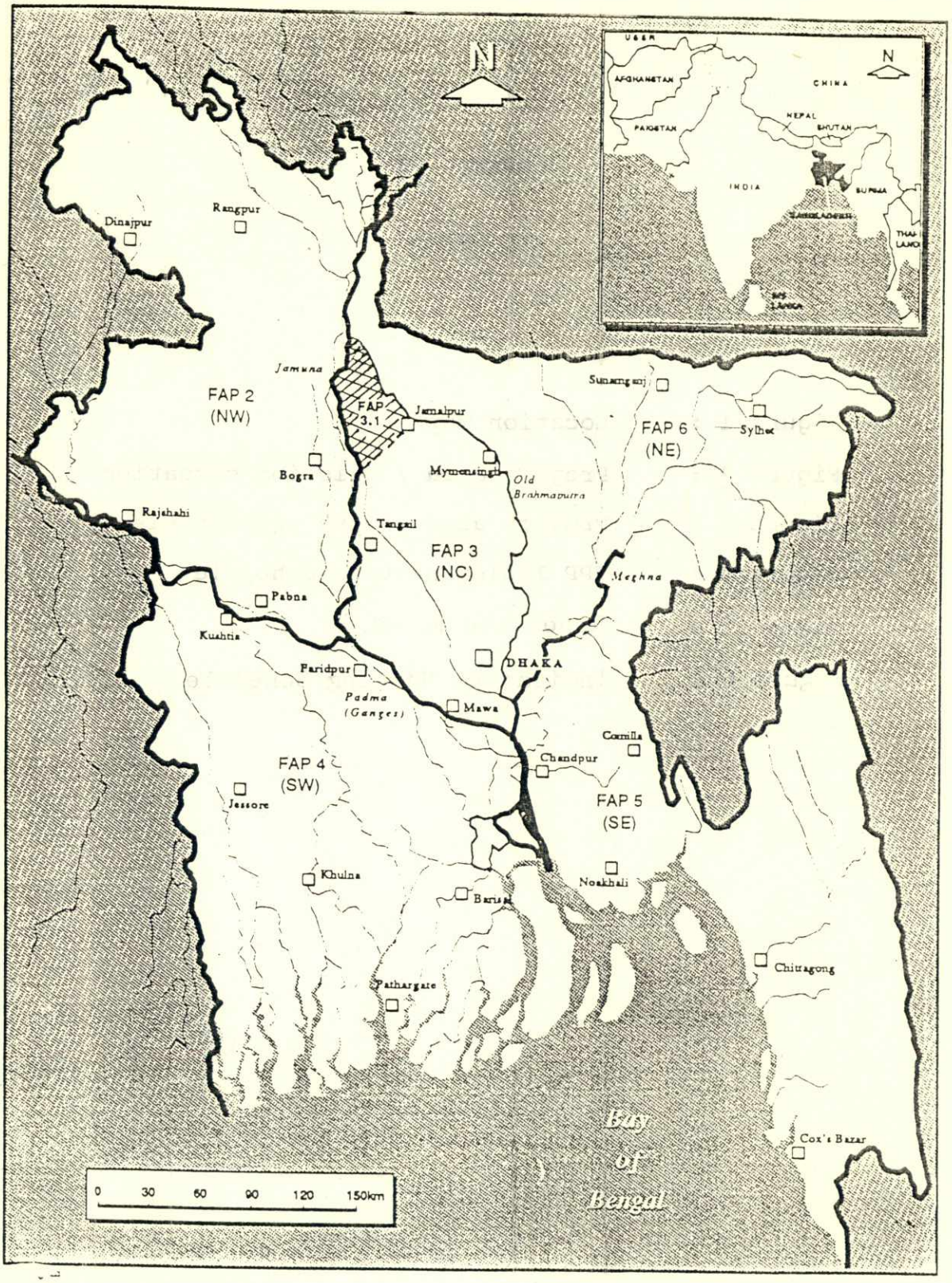
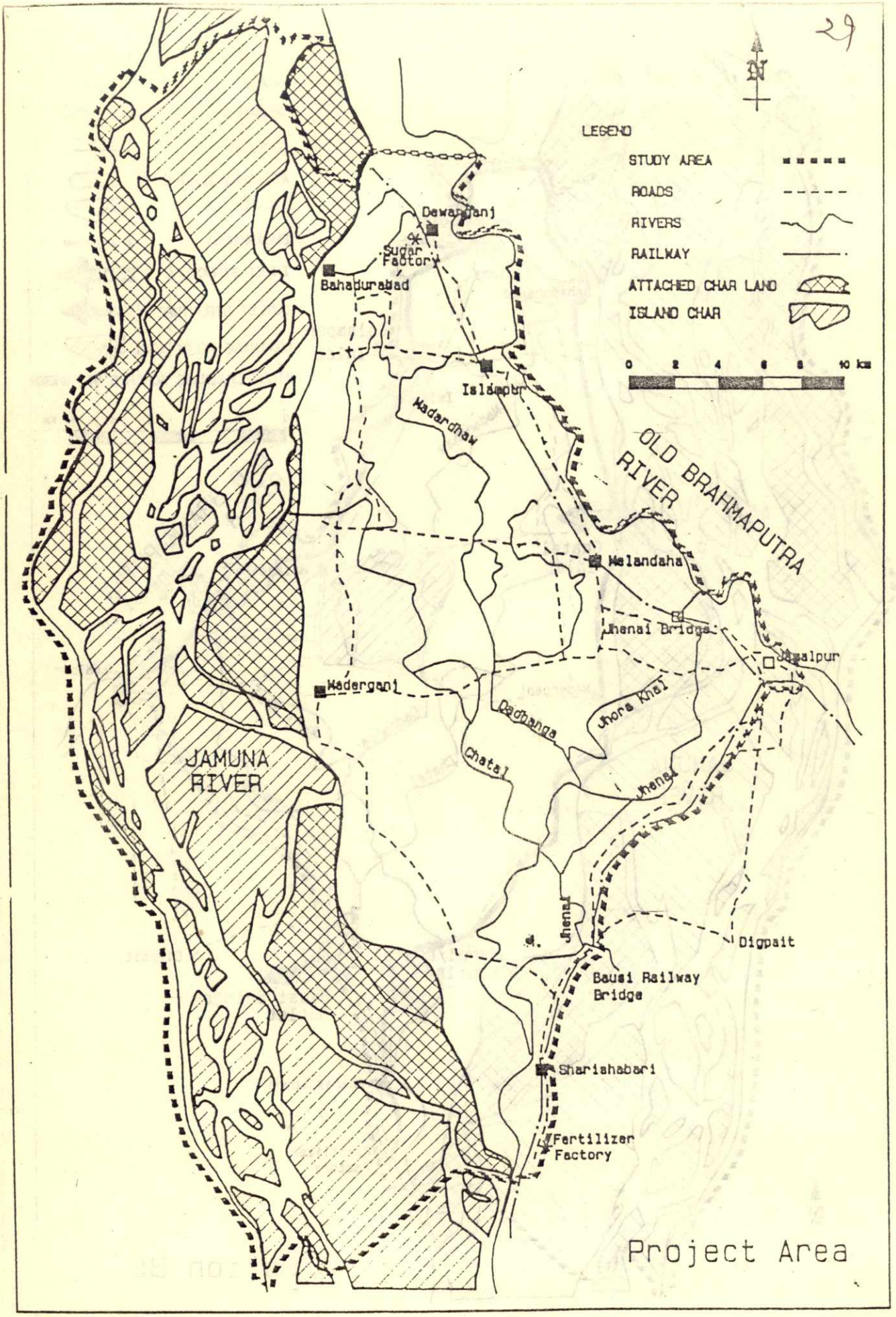
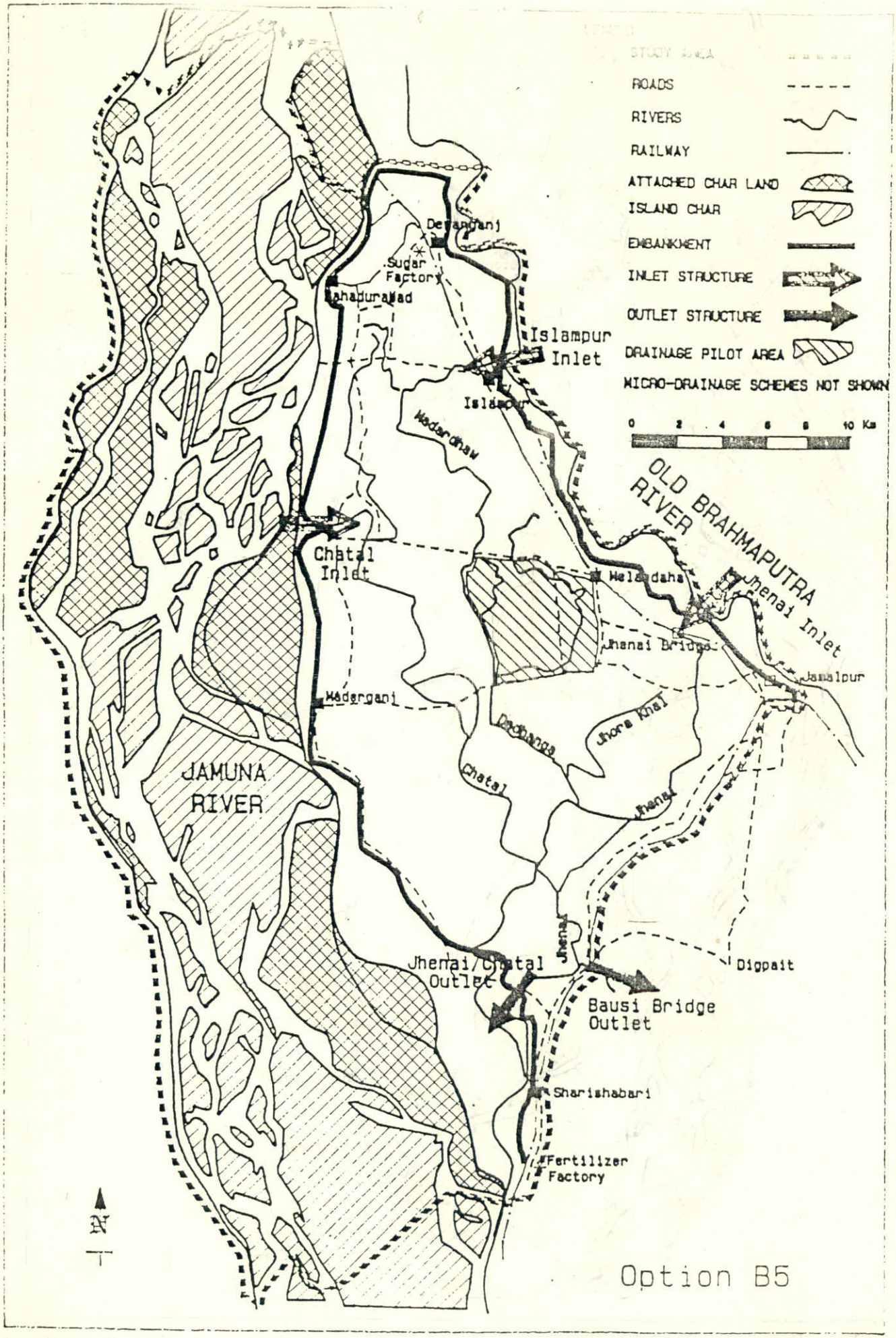

N
Dinajpur
Rangpur
Jamuna
FAP 2
(NW)
FAP
3.1
Jamalpur
Sunamganj
Sylhet
FAP 6
(NE)
Bogra
Mymensingh
Old
Brahmaputra
Rajshahi
Tangail
FAP 3
(NC)
Meghna
Pabna
Kushtia
DHAKA
Faridpur
Padma
(Ganges)
Mawa
Comilla
Chandpur
FAP 4
(SW)
Jessore
FAP 5
(SE)
Khulna
Barisal
Noakhali
Chittagong
Patharghata
Bay
of
Bengal
Cox's Bazar
0 30 60 90 120 150km
AFGHANISTAN
PAKISTAN
CHINA
NEPAL
BHUTAN
INDIA
BURMA
BANGLADESH
SRI LANKA

Figure-1



Jamalpur Priority Project Study

Figure-2



Jamalpur Priority Project Study

Figure-3

JAMALPUR PRIORITY PROJECT IMPLEMENTATION PROGRAMME

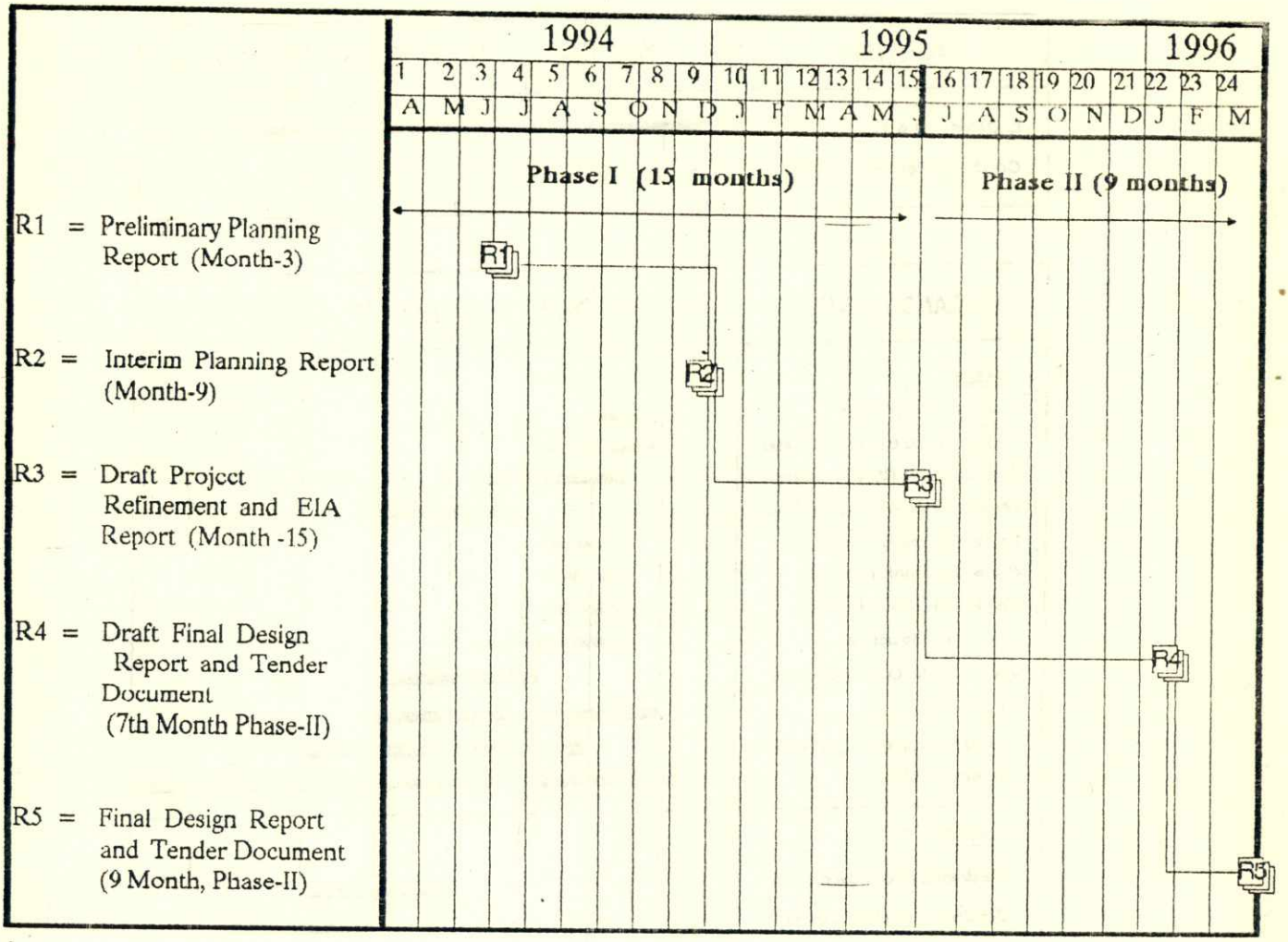
ACTIVITY	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8
Engineering & T.A.	———	———	———	———	———	———	———	———
Contracts Tender & Award	- - -	- - -	- - -	- - -				

MAINLAND PROJECT	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8
PHASE 1								
Drainage Pilot Project		———						
Jamuna Embk. Bahadur.-Chatal		———	———					
Jamuna Embk. Chatal-Madargonj		———	———	———				
Jamuna Embk. Madargonj-Sharia				———	———			
Protection Embk. Dewangonj		———	———					
Protection Embk. Islampur		———	———					
Protection Embk. Jamalpur		———	———					
Chatal Inlet Structure		———	———	———				
Jhenai/Chatal Outlet Structure			———	———	———			
Flushing Structures		———	———	———	———	———		
Drainage Improvement Project			———	———	———	———	———	
Fisheries Project		———	———	———	———	———	———	———
PHASE 2								
Old Brahm. Embk. South Half					———	———		
Old Brahm. Embk. North Half						———	———	
Sharia.-Fertil. Factory Embk.							———	———
Islampur Inlet Structure						———	———	———
Jhenai Inlet Structure				———	———			
Flushing Structures					———	———	———	———
% INVESTMENT PER YEAR (s)	7	15	20	21	20	8	5	4

CHAR AND SETBACK LAND PROJECT	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8
Pilot Project		———	———	———				
Main Development					———	———	———	———

Figure-4

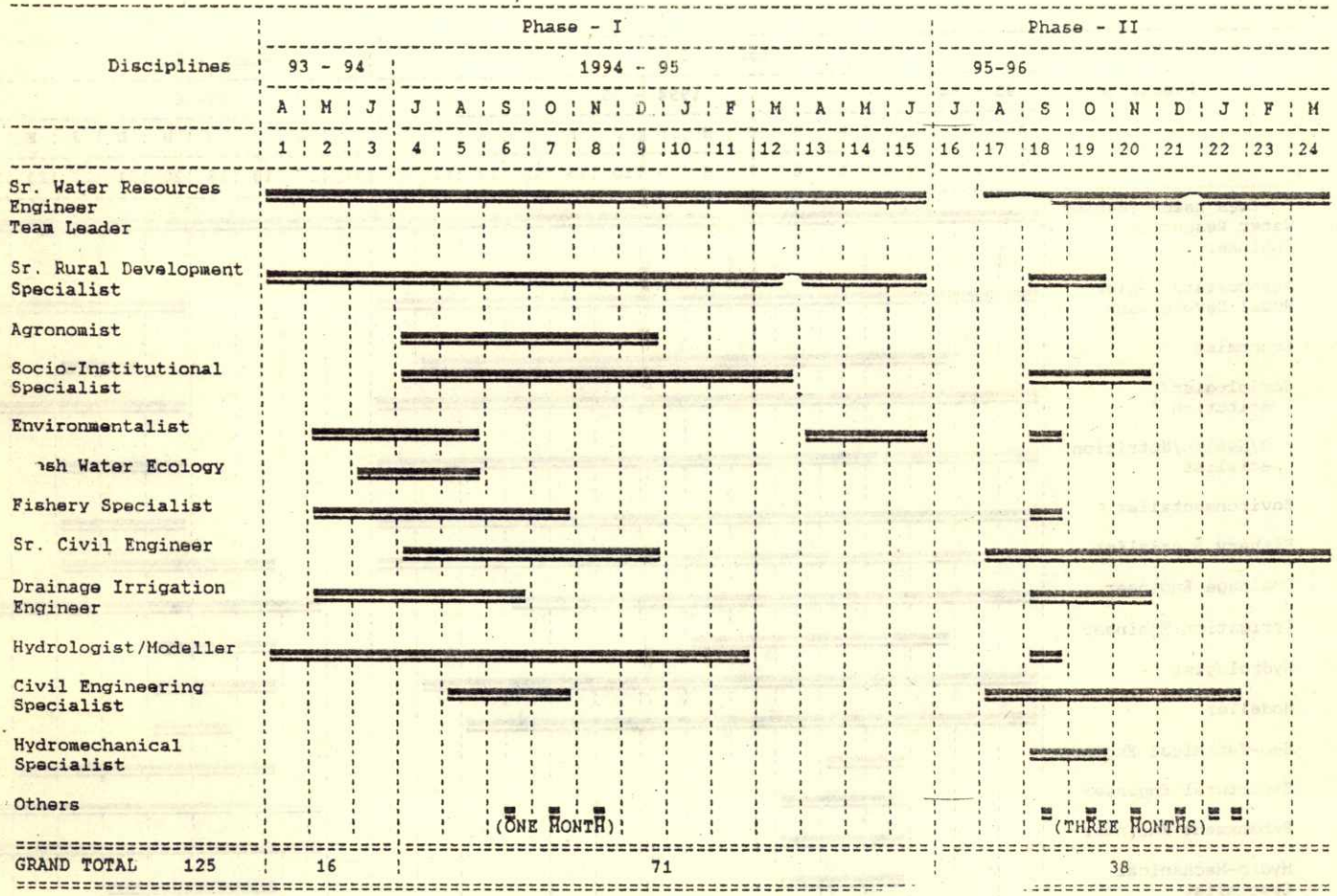
REPORTING SCHEDULE



JAMALPUR PRIORITY PROJECT (FAP 3.1)
Project Refinement, Detailed Planning and Design Study.

Figure-5

Indicative Breakdown of Expatriate Staff



c:azam/wm/16.1.94

Figure-6

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Indicative Breakdown of Local Staff

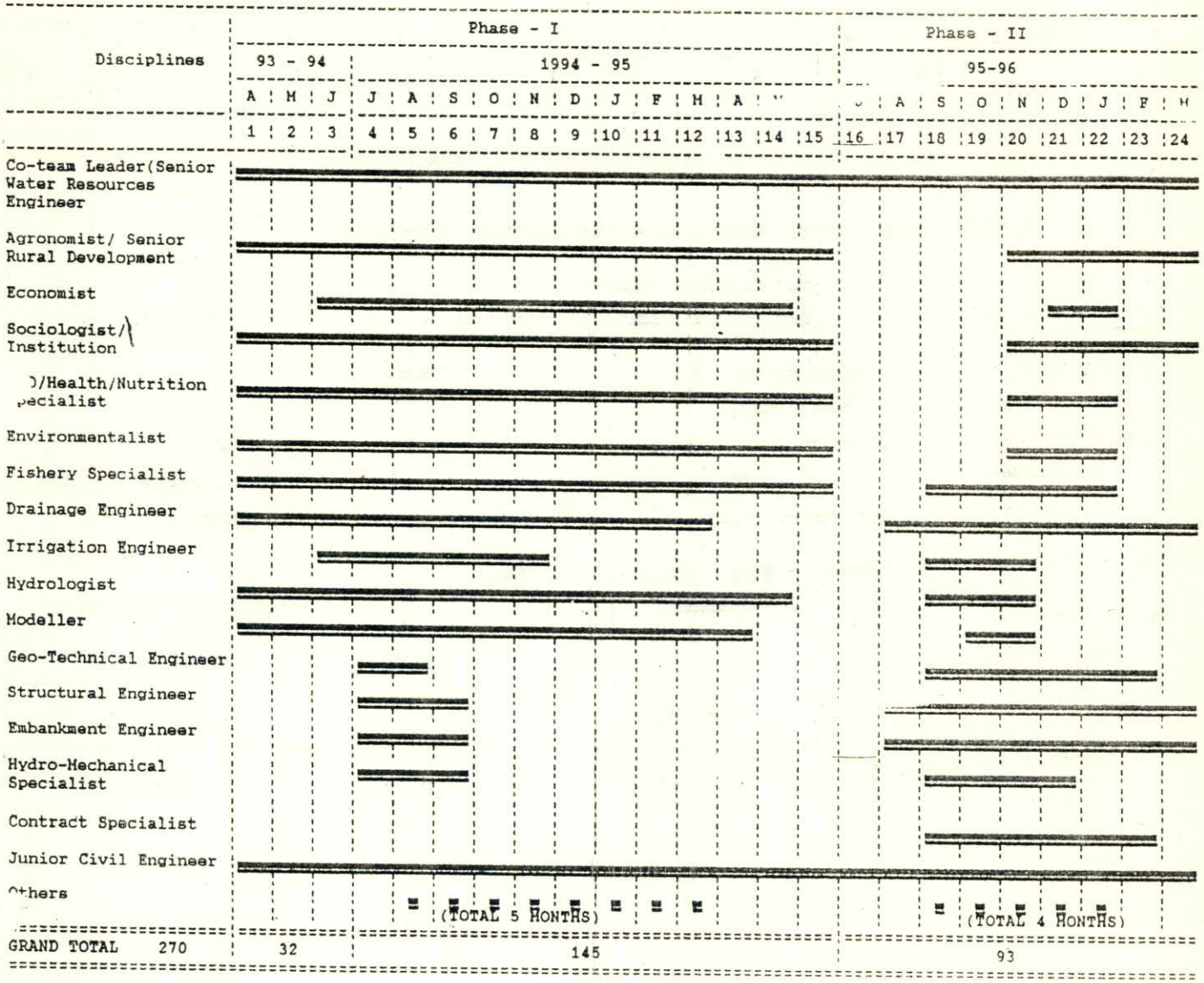

Figure-7

ANNEX II
JOB DESCRIPTIONS

A) Introduction

The indicative numbers of staff required to complete the firm and conditional tranche of the studies for the Jamalpur Priority Project are as follows :

. 125 person-months of expatriate consultants

. 270 person-months of local consultants.

Consultants will propose the specialists they would assign to the study and the inputs that each would make. A bar-chart will be presented relating the proposed inputs by different specialists to the activities that would be undertaken in the study. Consultants will precise the time spent by each specialist in Bangladesh.

The minimum professional experience required for the consultants will be as follows :

. Expatriates :

. Team Leader	15-20 years
. Other Specialists	10 years

. Local consultants :

. Co-Team Leader	15-20 years
. Other Specialists	10 years
. Junior engineers.....	5 years

The Co-Team Leader will be fully associated in the study and take part in the decision making process.

Previous experience of working in Bangladesh or in an Asian country with similar climate and agriculture is highly desirable for the expatriate consultants.

Job descriptions of the staff required for the study are given below.

(The consultant may as well appoint Project Directors in its Head office for the purpose of its internal monitoring and evaluation)

B) Job Descriptions

1. Team Leader

Qualification : He should have a Post-Graduate degree on Water Resources and Agricultural Engineering or equivalent and have at least 15-20 years practical experience in related field.

The Team Leader in consultation with the local Co-Team Leader will take responsibility for :

- the day-to-day management of the study, including the guidance and supervision of the study team of local and expatriate consultants, the production of the reports specified in the TOR and the final outcome of the study ;

- liaison with :

a) The SMU, FPCO, Technical Committee and the representatives of the donors ;

b) The BWDB and other government agencies ;

c) The teams undertaking other studies under the Flood Action Plan.

He will have a large experience in the management of similar projects, including civil engineering and rural development components - He will be responsible for the success of necessary liaison between the hydraulic and civil engineering constraints on one hand, the agronomical/environmental/fishery constraints on the other end.

CIVIL ENGINEERING TEAM

2. Senior Civil Engineer/Deputy Team Leader

Qualification : He should have a Post-Graduate degree in Civil Engineering/Hydraulic Engineering or equivalent with ten years experience in related fields.

The Senior Civil Engineer will assist the Team Leader in the day-to-day coordination and supervision of the study team, and in the production of reports specified in the TOR.

As Civil Engineer, he will be responsible for the civil engineering and hydraulic components of the study. He will have at least 10 years of experience in a similar position for similar work - In close cooperation with other team members, he will :

. assess, jointly with other team members, the adequacy of available geotechnical and topographical data and prepare programmes and contracts for supplementary survey and investigation programmes ;

. assess, jointly with other team members, the design criteria required for the detailed designs ;

. ensure the full efficiency of the detailed-design study with the findings and structural recommendations of other studies under the Flood Action Plan.

3. Drainage-Irrigation Specialist

Qualification : He should have a degree in Agricultural or Civil Engineering/or equivalent with at least ten years experience in related fields.

In close cooperation with the Hydrologist/Modeller, the Civil Engineering Specialist, the Agronomist, the Environmentalist, the Socio-economist/Institutional Specialist and the Fisheries Expert, he will :

. prepare drainage design criteria and other criteria related to the hydraulics of structures, prepare specifications for and supervise the topographical survey for the drainage pilot area;

. assess the status of the drainage conditions in the selected drainage pilot area ;

. prepare the detailed design of the drainage pilot area taking into account the views of beneficiaries as assessed by the Sociologist and with due consideration to environmental impacts ;

.assist the Hydrologist/Modeller in the formulation of water management procedures ;

. set-up drainage farmers' groups ;

. prepare the guidelines and programme for the implementation of drainage improvements over the whole area, taking into account the findings of the detailed study of the pilot drainage area ;

. analyse the present systems of irrigation and propose in liaison with the Agronomist, further developments.

4. The Hydrologist/Modeller

Qualification : He should have a Post-Graduate degree in Hydraulic/Water Resources Engineering or equivalent with at least ten years experience in Modelling works.

The Hydrologist-Modeller will, in close cooperation with the Drainage Specialist and the Agronomist :

. update, improve and operate the hydraulic model for water management, prepared during the feasibility study, using the latest available topographic and hydrometric data ;

. compute water elevation and discharge at the main hydraulic structure locations and finalise design water levels and design discharges ;

. simulate water management of hydraulic structures and propose comprehensive water management procedures for inclusion in the Design Report.

(97)

5. Civil Engineer (geotechnics + earthworks + structures)

Qualification : He should be basically Civil Engineer and should have a Master's degree in the field of Geotechnical/ Structures/Hydraulic Engineering or equivalent with at least ten years experience in related field.

The Civil Engineering Specialist will, in close cooperation with the Hydrologist/Modeller, and other Specialists :

. supervise any additional geotechnical survey which would be required ;

. finalise the layout, cross sections and other technical specifications for embankments and structures ;

. study the detailed physical requirements for the construction of the embankments and bank protection works, covering stability analysis, geotechnical considerations and the identification of borrow-pit areas ;

. study at detailed design level, the major control structures and flushing structures including the production of reinforcement drawings ;

. study at detailed design level, earthworks and minor structures for drainage improvements and compartment boundaries of the drainage pilot area ;

. study at detailed design level, physical components for the flood proofing pilot areas ;

. measure quantities for the preparation of the bills of quantities ;

. estimate the cost of various components of the project, based on the detailed designs and tender documents for inclusion in the engineer's estimate ;

. prepare the technical specifications and conditions of contracts ;

. prepare instructions for tendering and any other documents necessary for tenders ;

. formulate in consultation with the Sociologist/Institutions Specialist, the institutional requirements for the operation and maintenance of the works for inclusion in the O & M Programme.

6. Hydromechanical Specialist

Qualification : He should be Mechanical Engineer with Post-Graduate degree or equivalent with at least ten years experience in relevant fields.

The Hydromechanical Specialist will, in close cooperation with the Civil Engineering Specialist and the Fisheries Specialist :

. study at detailed design level the gates and hydromechanical equipment to be incorporated in the hydraulic structures ;

. prepare technical specifications for the hydromechanical works ;

. estimate the cost of various hydromechanical components of the project based on the detailed designs and tender documents;

. assist the Executing Agency with the preparation of a list of suitable suppliers of hydromechanical equipment and with the evaluation of tenders.

RURAL DEVELOPMENT TEAM

7. Senior Rural Development Specialist/Agro-Economist - Deputy Team Leader

Qualification : He should have a Post-Graduate degree or equivalent in the relevant field with at least fifteen years experience in related works.

The Senior Rural Development Specialist will assist the Team Leader in the day-to-day coordination and supervision of the study team, and in the production of reports specified in the TOR.

In close cooperation with the Environmentalist, the Agronomist, the Socio-economist and the fisheries Specialist, he will :

. prepare and carry out a benchmark agricultural survey in the drainage pilot area. This survey should include agriculture and livestock ;

. assess the existing economic situation of the different typical farming systems ;

. prepare an impact monitoring programme.

8. Agronomist

Qualification : He should have a Post-Graduate degree or equivalent in the relevant field with at least ten years experience.

The Agronomist will, in close cooperation with the drainage Specialist :

. prepare, for the drainage pilot programme, a present land-use map (scale 1/5000) and assess the present cropping patterns according to the land categories (F0, F1, F2, F3) ;

. propose the possible evolution in cropping patterns and yields in

the area of the drainage pilot programme ;

. project the possible evolution of livestock production with the present farming systems ;

. participate in the benchmark agricultural survey of the drainage pilot programme area ;

. examine possibilities of extension of conclusions from the pilot drainage area to the whole project area ;

. assist the Hydrologist/Modeller and Civil Engineer in defining water management procedures for controlled flooding and drainage structures.

9. Socio-Economist/Institutions Specialist

Qualification : He should have a Post-Graduate degree or equivalent in the relevant field with at least ten years experience.

The Socio-Economist/Institutions Specialist will, in close cooperation with the Drainage Specialist, the Agronomist, the Civil Engineer and the Environmentalist :

. implement surveys and propose measures to achieve effective involvement of the farmers and other beneficiaries in the detailed formulation of the project, in terms of structural requirements such as ; location of embankments, location of drainage structures, location of drainage channels, flood proofing measures ;

. implement surveys and formulate recommendations to achieve effective involvement of the farmers and other beneficiaries in the operation and maintenance of the Project ;

. participate in the formulation of measures which are needed to compensate for land acquisition ;

. assess the possible roles of the farmers, local authorities, NGOs etc. in the project implementation and construction of the works and propose an appropriate institutional framework and the required organisation for this.

10. Environmentalist

Qualification : He should have a Post-Graduate degree or equivalent in the relevant field with at least 10 years experience.

The Environmentalist will, in conjunction with the Sociologist/Institutions Specialist, the Drainage Specialist, the Civil Engineering Specialist, and the Fisheries Specialist :

. address issues raised in the environmental assessment section of the Feasibility Report and propose measures to be incorporated in the project detailed designs ;

. for flood proofing, assess the location, spacing and size of refuges in consultation with the local people and provide criteria for the formulation of measures related to the preservation of population health, nutrition during flood events ;

. assess the possible multi-purpose use of embankments ;

. consider the likely environmental impact of drainage improvements on fisheries in particular ;

. assess the impact and health hazard of borrow pits and other water bodies created under the project ;

. propose implementable mitigation programmes covering nutrition and public health ;

. assess road transport requirements under the drainage improvement project, when the present waterborne navigation system is affected ;

. prepare a data collection programme concerning the natural environment (water quality, waterborne diseases...) to monitor project environmental impacts.

11. Fisheries Specialist

Qualification : He should have a Post-Graduate degree or equivalent with at least 10 years experience in the relevant field. The Fisheries Specialist should be qualified in pisciculture, river fisheries management, and have experience in the evaluation and mitigation of adverse impacts of hydraulic structures on floodplain fish capture.
He will, in coordination with the Environmentalist, the Sociologist/Institutions Specialist and the Agro-economist :

. propose optimum beel and pond management procedures to maximise project benefits and minimise conflicting situations between farmers and fishermen ;

. provide guidance for pit location and depth policies related to fish farming potential ;

. provide guidance for the formulation of design criteria and water management procedures for flood control structures, drainage infrastructure to minimise losses to fish recruitment and fish growth ;

. propose detailed mitigation measures to minimise the Project impact on fisheries and for the extension of fish farming ;

. prepare a data collection programme concerning fish production to monitor project impacts.

12. Fresh Water Ecologist

Qualification : He should have a Ph.D or Post-Graduate degree or equivalent with at least 10 years experience in the relevant field.

He will, in association, mainly, with the Environmentalist :

. define, monitor and analyse the data collection on surface and ground water quality and related human health or flora and fauna impacts.

. take part in the Environmental Impact Assessment of the project.

13. Bangladeshi Specialists

13.i) Co-Team Leader/Water Resources Engineer

He should have basically degree in Civil/Water Resources Engineering having 15-20 years experience in planning, design and implementation of large Water Resources Projects in Bangladesh and other countries. Candidate having Master Degree in Water Resource, Hydraulic Engineering/Post Graduate Diploma or equivalent will be given preference

As Co-Team Leader he will work closely with Expatriate Team Leader in day to day activities of the Projects. He will be involved in planning works and re-assess the planning option developed during the feasibility studies, formulate alternative development strategies of Water Resources in the study area considering round the year water management.

He will be involved in comparing these strategies using a multi-criteria analysis and co-ordinate in preparing the draft water development plan of the study area. He will identify the priority area for feasibility study in consultation with Team Leader and Drainage Engineer.

13.ii) Economist

Qualification : He should have a Ph.D or Post-Graduate degree or equivalent with at least 10 years of professional experience in the various research field of Bangladesh with special emphasis on water resources planning and evaluation works. Experiences in relevant field in other developing countries particularly in Asia will be given preference.

He will, in association, mainly, with the Team Leader/Co-Team Leader,

. follow the "Guidelines for Project Assessment" (GPA) of FPCO (1992) and the "Guidelines for Environmental Impact Assessment" (EIA) on an overall basis in carrying out financial, economic, and

multicriteria analysis for the project ;

. take care of alternative options/scenarios in the process of study as outlined in its Terms of Reference (ToR) of the Project Refinement, Detailed Planning and Design studies' report of the Jamalpur Priority Project (FAP 3.1).

13.iii) Women in Development Specialist

Qualification : He/She should have a Ph.D or Post-Graduate degree or equivalent in Social Science with at least 10 years of professional experience in project development in planning. He/She should have worked with NGO/International Development Agencies in Bangladesh having a field experience in conducting field survey and people's consultation in related field.

He/She will, in association, mainly, with the Environmentalist, Sociologist/Institutional Specialist and Agronomist,

. define, monitor and analyse the data collection on specific gender issues, health, nutrition of the population and their impacts on women, children ;

. analyse and recommend the possible participation of women in development works ;

. take part in the Environmental Impact Assessment of the project.

13.iv) Health/Nutrition Specialist

Qualification : He/She should have a Ph.D or Post-Graduate degree or equivalent in the field of Nutrition with at least 10 years of professional experience in the field of Health and nutritional activities in Bangladesh. Working experience in NGO/International Development Agencies in Bangladesh should be given preference. He/She should have experience in conducting field survey in related field.

He/She will, in association, mainly, with the Environmentalist, Sociologist/Institutional Specialist, Agronomist and Fisheries Specialist,

. monitor and analyse the data collection in the field of nutrition and health of the study area ;

. recommend the future effect of the project activities on health and nutrition ;

. take part in the Environmental Impact Assessment of the project.

13.v) Contract Specialist

Qualification : He should have a degree in Civil/Water Resources Engineering with at least 10 years of working experience in

construction and design of large water resources projects in Bangladesh. Experiences in preparing contract documents should be given preference.

He will, in association with concerned Specialists,

. define, prepare and analyse different administrative, financial, and juridical aspects of the contract documents ;

. check the conformity of the documents with FIDIC, ICB and Government of Bangladesh regulations.

13.vi) Junior Engineer (local)

He will have a Bachelor's degree in Civil Engineering and have at least 5 years experience in the field of design works.

Job descriptions and qualifications of other local experts will be similar to relevant and appropriate expatriate consultants.