

FAP-6

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FORM - TAPP  
Original - June, 1990  
Revised - October, 1994  
Modified (1) - April, 1995  
Modified (2) - September, 1995  
Modified (3) - September, 1997

FAP-6

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

TECHNICAL ASSISTANCE PROJECT PROFORMA (TAPP)  
ON THE  
NORTHEAST REGIONAL STUDY (REVISED)

BN-282  
A-335

FAP-6

B.N-282

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BANGLADESH WATER DEVELOPMENT BOARD  
MINISTRY OF WATER RESOURCES

FAP-6



FORM - TAPP  
Original - June, 1990  
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GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

TECHNICAL ASSISTANCE PROJECT PROFORMA (TAPP)  
ON THE  
NORTHEAST REGIONAL STUDY (REVISED)

MAN-2726  
08-02

BANGLADESH WATER DEVELOPMENT BOARD  
MINISTRY OF WATER RESOURCES



TAPP PART A PROJECT ID (1)		PROJECT NO (2) TA			TAPP DATE APRIL 1995		REVISED (3) YES	
PROJECT TITLE (4) TAPP ON NORTHEAST REGIONAL STUDY (FLOOD ACTION PLAN COMPONENT NO.6)								
ADM. MINISTRY (5) MINISTRY OF WATER RESOURCES		EXECUTING AGENCY (6) BANGLADESH WATER DEVELOPMENT BOARD						
SECTOR (7) WATER RESOURCES								
PROJECT MANAGER (8) A.T.M. KHORSHED ALAM DIRECTOR, PLANNING SCHEMES-1 BWDB, DHAKA PHONE: 9550976				TAPP PREPARED BY (9) A.T.M. KHORSHED ALAM DIRECTOR PLANNING SCHEMES-1, BWDB PHONE-9550976 ADDRESS-ANSAR CHAMBER (7TH FLOOR) 149, MOTIHEEL C/A, DHAKA 1000				
TAPP PART B PROJECT DATES				START MM YY (10) PLANNED July 1990; ACTUAL Aug. 1991		PLANNED MM YY (11) COMPLETION Oct. 2002		
TAPP PART C PROJECT FINANCING (APPENDIX-A/O)				DONOR (12) CIDA		CURRENCY/RATES (15) US\$1 = Tk 40.00		
LOCAL COST SOURCE (13) GOB/CIDA		FOREIGN EXCHANGE (14) CIDA						
FISCAL YEAR	TOTAL COST (16)	F/E COST (17)	TK COST (18)	GOB COST (19)	PROJECT AID (20)	RPA (21)	CDVAT (22)	
F/Y 1 (91/92)	937.772 (23.444)	460.604 (11.515)	477.168 (11.929)	51.066 (1.277)	886.706 (22.168)	426.102 (11.277)	0	
F/Y 2 (92/93)	1023.024 (25.576)	502.478 (12.562)	520.547 (13.014)	55.709 (1.393)	967.316 (24.183)	464.838 (12.303)	0	
F/Y 3 (93/94)	767.268 (19.182)	376.858 (9.421)	390.410 (9.760)	41.781 (1.045)	725.487 (18.137)	348.626 (9.227)	0	
SUBTOTAL PHASE-1	2728.065 (68.202)	1339.940 (33.499)	1388.125 (34.703)	148.556 (3.714)	2679.509 (64.488)	1239.569 (32.807)	0	
F/Y 3 (93/94)	263.015 (6.575)	99.284 (2.482)	163.731 (4.093)	13.811 (0.345)	249.204 (6.230)	149.921 (3.748)	0	
F/Y 4 (94/95)	1052.059 (26.301)	397.134 (9.928)	654.925 (16.373)	55.242 (1.381)	996.817 (24.920)	599.683 (14.992)	0	
F/Y 5 (95/96)	1052.059 (26.301)	397.134 (9.928)	654.925 (16.373)	55.242 (1.381)	996.817 (24.920)	599.683 (14.992)	0	
F/Y 6 (96/97)	964.388 (24.110)	364.040 (9.101)	600.348 (15.009)	146.639 (3.666)	817.749 (20.444)	453.709 (11.343)	96.000 (2.40)	
SUBTOTAL PHASE-II	3331.521 (83.288)	1257.592 (31.440)	2073.929 (51.848)	270.933 (6.773)	3060.588 (76.515)	1802.996 (45.075)	96.000 (2.40)	
Sub-Total Phase I+II	6059.586 (151.490)	2597.532 (64.938)	3462.054 (86.551)	419.489 (10.487)	5640.097 (141.002)	3042.565 (77.882)	96.000 (2.40)	

Note: Figures in the parenthesis are US\$

### SUMMARY OF PHASE II EXTENSION

FISCAL YEAR	TOTAL COST (16)	F/E COST (17)	TK COST (18)	GOB COST (19)	PROJECT AID (20)	RPA (21)	CDST (22)
F/Y 7 (9798)	743.864 (17.299)	183.381 (4.265)	560.473 (13.034)	202.661 (4.713)	541.203 (12.586)	357.812 (8.321)	0
F/Y 8 (98/99)	838.682 (19.504)	204.923 (4.766)	633.759 (14.739)	209.62 (4.875)	629.062 (14.629)	424.139 (9.864)	0
F/Y 9 (99/2000)	387.195 (9.005)	61.593 (1.432)	325.602 (7.572)	82.11 (1.910)	305.085 (7.095)	243.492 (5.663)	0
F/Y 10 (2000/01)	172.422 (4.010)	13.692 (0.318)	158.74 (3.692)	82.11 (1.910)	90.312 (2.100)	76.63 (1.782)	0
F/Y 11 (01/02)	220.516 (5.128)	26.356 (0.613)	194.16 (4.515)	81.11 (1.886)	139.406 (3.242)	113.05 (2.629)	0
F/Y 12 (02/03)	177.422 (4.126)	12.07 (0.281)	165.352 (3.845)	94.16 (2.190)	83.262 (1.936)	71.192 (1.656)	20.00 (0.465)
<b>Sub-Total Extension</b>	<b>2540.101 (59.072)</b>	<b>502.015 (11.675)</b>	<b>2038.086 (47.397)</b>	<b>751.771 (17.483)</b>	<b>1788.33 (41.589)</b>	<b>1286.315 (29.914)</b>	<b>20.00 (0.465)</b>
<b>TOTAL (Phase I+ II+Extension)</b>	<b>8599.687 (210.561)</b>	<b>3099.547 (76.613)</b>	<b>5500.14 (133.948)</b>	<b>1171.26 (27.970)</b>	<b>7428.427 (182.591)</b>	<b>4328.88 (107.796)</b>	<b>116.00 (2.865)</b>

Notes: 1. Cost in lakh Tk, figures in parenthesis are lakh US\$

2. Costs for Phase I are actual costs.

3. The total cost increase of TAPP (Phase II) over the June 1990 TAPP comprises of three components:

i) a relative increase of the total project cost in Taka, 35.96% which also includes a 17.6% increase in the US\$ exchange rate (34 Tk/\$ in 1990 to 40 Tk/\$ in 1994),

ii) a relative increase of the project cost in US currency, 15.4% (US\$ 132.803 lakh in the original 1990 TAPP and US\$ 151.490 lakh in this TAPP), and

iii) an increase of the CIDA Grant contribution, 20.5%, (from CDNS 17.0 M in the original 1990 TAPP to CDNS 20.5 M in Phase II modified TAPP).

4. Cost increase of this TAPP (extension) over Modified TAPP (September, 1995) both GOB and CIDA grant includes:

i) an increase of CIDA Grant contribution 34.15%, (from CDNS 20.5 million in the Modified Phase II TAPP to CDNS 27.5 million in this TAPP. This includes CAD\$ 6.0 million as project Aid and CDNS 1.0 million is kept in CIDA's budgetary extra provision for unforeseen items.

ii) GOB cost increase is mainly due to land acquisition which will be required for the Dampara Water Management Project.

5. In Phase II, Extension 1 US\$ = Tk. 43.00



FINANCIAL ARRANGEMENT WITH DONOR (23)		NONE	DISCUSSED
NAME/DESIGNATION OF DONOR CONTACT (24)		MOHAMMAD SARIATULLAH DEVELOPMENT ADVISOR CANADIAN HIGH COMMISSION	
FINANCING AFTER COMPLETION OF THE PROJECT (25)		FUNDS REQUIRED, YEAR To be finalized during implementation-shared between beneficiaries and GOB	
Name of Financing (26) DONOR LOAN	GRANT	GOB ADP BUDGET	REVENUE BUDGET
SELF-FINANCING (27)		5.44% (first phase) 8.13% (second phase) 29.6% (second phase extension)	

## 1. BACKGROUND

The disastrous floods of 1987 and 1988 stimulated the Government of Bangladesh (GOB) to undertake a comprehensive flood policy review. Following preliminary studies by several donors, the World Bank (WB) agreed to coordinate the various flood control initiatives and prepared a five-year Action Plan (1990-95) which was discussed and adopted at a GOB, WB, donors conference in London in December 1989.

The Action Plan is a phased program of flood control activities supported by surveys, special studies, and pilot projects organized into 26 Items, of which 11 are main components and 15 are supporting activities. The donors agreed to support the Action Plan by each accepting to assist Bangladesh in the implementation of one or more Plan Items.

The Action Plan is the first of several stages in the implementation of rural infrastructure and flood control to meet the needs of agriculture, fisheries, navigation, urban flushing, and annual recharge of surface and groundwater resources. In support of the Action Plan, the GOB proposed to review all on-going works and commitments in the pipeline to ensure their compatibility with the plan.

The Canadian International Development Agency (CIDA) has agreed to support the implementation of Item 6 of the Action Plan, the North East Regional Project (NERP). NERP will incorporate the Haor Development Project previously taken up by CIDA.

## 2. THE PROJECT

The project will assist the GOB with water resources planning and development in the northeast region. The project area is bounded to the north and east by the international border, to the west and south by the Brahmaputra and Old Brahmaputra, and to the south by the Meghna River and by the northern boundary of the South East Region between Nasir Nagar and Madhabpur, for a total area of some 24,500 km<sup>2</sup>.

The northeast region experiences some of the most severe flooding problems in the country. Flash floods and deep flooding of basin areas results from average local monsoon rainfall of 2000 to 5000 mm, plus uncontrolled influx from adjacent hill regions where average rainfall can be as large as 11,000 mm (Meghalaya plateau). Flash floods also carry and deposit huge sediment loads that impede drainage and reduce land fertility. River floods also occur occasionally along the Old Brahmaputra channel to the southwest. Deep (greater than 4 meters is common) persistent flooding affects the lower parts (*haors*) of the Kushiara, Surma, and lesser Meghna tributaries' floodplains that cover most of the region.

All three rice crops (*aus*, *aman*, and *boro*) are frequently damaged by floods: the great depth of flooding prevents wet season crops from being grown over much of the Sylhet basin, and early flooding often damages nearly mature dry season crops. At the same time, the interconnected system of rivers, floodplains, *haors*, and *beels* support a large inland fishery.



Over the years, submersible embankments have been built around many *haors* in order to protect the irrigated dry-season crop of rice (*boro*) against destruction by early floods, and full embankments have been built along some of the rivers. In nearly all cases, these embankments were planned and designed without adequate consideration for:

- appropriate construction sequencing (impact of a given embankment on other planned or existing embankments);
- upstream and downstream effects (drainage congestion, higher flooding);
- navigation, fisheries, and other impacts.

The project is divided into two phases. Phase I and Phase II were described in the TAPP (June 1990) as follows: Phase I will consist of a Regional Water Management Study, Regional Database Development, and Regional Surfacewater Simulation Modelling, plus associated Management Activities. Phase II will construct one or more Priority Subprojects after relevant Surfacewater Modelling and preparation of studies and detail designs; Institution Building and Management activities will continue through Phase II.

The person-months and the consultancy costs for the work described for the TAPP (June 1990) and for this TAPP (October 1994) are summarized in Appendix 8.

The scope of work for the project has been revised and the justification for the revision to the TAPP, along with the required new positions are given in Appendix 9. The work carried out for Phase I included the Regional Water Management Study, Regional Database Development, Regional Surfacewater Simulation Modelling, preparation of 22 pre-feasibility studies, plus associated Institution Building and Management activities.

The work carried out in Phase II included the Fishpass Test Project, Evaluation of Improved Flood Warning, Kalni-Kushiyara Test Project, and Upper Kangsha Basin Development. Institution Building and Management Activities will continue through Phase II.

Phase II extension now includes work on two sub-projects: Kalni-Kushiyara Community Development and Monitoring, and Dampara Water Management Project.

The project is being implemented by the Bangladesh Water Development Board.

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## TAPP PART D-2

## PROJECT OBJECTIVES (29)

The objective of NERP Phase I was defined in the TAPP (June, 1990) as follows, "to assist the GOB in planning and guiding the development of the project region and to provide criteria for the selection, design, implementation, operation and maintenance of individual water management project benefitting the agricultural, fisheries, and related sectors, with due attention to the growing landlessness of the rural population. The regional water resources management program established by NERP will contribute to conditions for sustained economic growth and social improvement, in accordance with Flood Action Plan objectives".

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The objective of Phase II was defined in the TAPP (June, 1990) as follows, "to construct one or more Priority Subprojects, including necessary preparatory activities (surface water modelling, feasibility studies, detailed designs)".

The objectives of Phase II for the four sub-projects are now defined as follows:

***Fishpass Test Project***

To test the technical feasibility of using the vertical slot type of fishpass to provide passage for migrating fish stocks across flood control embankments during the pre-monsoon season in the haor region of Bangladesh.

***Evaluate Improved Flood Warning***

To evaluate the reliability and effectiveness of the rainfall observers to predict flash floods, and to assess the local people's acceptability of the proposed flood warning system.

***Kalni-Kushiyara Test Project***

To investigate the feasibility and long-term sustainability of dredging the Kalni-Kushiyara River to lower flood water levels in the Haor Basin, and to provide prototype information about river improvement operations, to determine whether the spoil can be utilized as a resource, and to review the social and environmental aspects of river improvement works.

***Upper Kangsha Basin***

To develop a water management plan for the programme area and to establish the feasibility of the Greater Dampara Project and Someswari Project.

***Phase II Extension***

Extension of Phase II includes two sub-projects. These are pilot projects in nature and were developed and proposed for implementation based on the planning studies carried out during the Phase II. There is a provision in the management plan of FAP-6 (exhibit 1.1 page 1.1 and article 2.5 Page 2-4 May 1991) for pilot sub-project development within the frame work of NERP. These sub-projects are:

- Kalni-Kushiyara Community Development and Monitoring Sub-Project;
- Dampara Water Management Sub-Project.

***Kalni-Kushiyara Community Development and Monitoring Sub-Project***

The main objective of the Kalni-Kushiyara Community Development and Monitoring Sub-Project is to maintain the sustainability of newly built-up village platforms with dredged spoils of Kalni-Kushiyara Pilot Dredging Project. The post project maintenance for improvement of platforms and hydromorphological monitoring of the Kalni-Kushiyara river will be conducted through the implementation of Kalni-Kushiyara Community Development and Monitoring Project for which CIDA will provide a grant of CDN \$ 2.5 million. The Project will start in September, 1997 and will be completed in August, 1999.

The Draft Final Feasibility Report of the Kalni-Kushiyara River Management Project was submitted in May 1997 and is expected to be finalized by GOB, CIDA and ADB in September, 1997. CIDA has also informed that the Kalni-Kushiyara River Management Project will be funded jointly by CIDA & ADB. ADB has agreed to finance the project and kept the provision for funding in its Lending and Technical Assistance Pipe Line of 1997-2000. CIDA has proposed that the gap between September 1997 to August



1999 will be bridged by implementation of the Kalni-Kushiyara Community Development and Monitoring Project.

#### **Dampara Water Management Project**

The Project has a gross area of 15,000 ha and is located near Netrokona Town and about 140 km north of Dhaka City. The main water resources issues in the area are the flooding from Kangsha River and drainage congestion in the Dhalai Channel catchment.

To solve flooding problems and to relieve drainage congestion, the feasibility study proposes the following structural interventions:

- construction of 30.0 km of flood embankment along Kangsha River;
- re-sectioning of 2.0 km of Caritas Road along Natrokona as flood embankment;
- closing off Kalihar Channel at its outfall near the existing drainage regulator;
- excavation of diversion channel to connect the existing drainage regulator with Kalihar Channel;
- construction of 4 small drainage structures and 30 LLP inlet structures; and,
- re-excavation of about 10.0 km of Dhalai Channel.

These interventions will increase significantly agricultural production, create employment opportunities for farm labourers and enhance economic activities through flood protection to homesteads and infrastructures.

As per request of ERD, CIDA has agreed to undertake the Dampara Water Management Project as a Pilot Sub-Project within the frame work of NERP rather than a full fledged project. The intent of CIDA in this project is to develop a sustainable project model in the water sector for replication in future. CIDA has also agreed to provide a grant of CDN \$ 3.5 million to carry out the project. The duration of the project is five years (1997-2002), three years for implementation and two years for O&M and Monitoring.

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#### **CONSEQUENCES IF NOT APPROVED (30)**

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If the project is not approved, water resources development in the northeast region will continue in an *ad hoc* manner with the result that water management and the sectors that depend on it will perform below their potential. Specifically, projects will likely not be phased correctly, flood control and drainage improvements within planned projects will be partly or wholly negated by adverse impacts in adjacent areas, and intersectoral conflicts will likely be worse. Institutional and human resources deficiencies of water resources management and related sector organizations will persist, with the result that benefit realization and operation and maintenance will be hindered. Other funding for the construction of Priority Subprojects will have to be sought.

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### **LINKAGE TO OTHER PROJECTS/ORGANIZATIONS (31)**

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The project includes regional water resources planing, and thus liaison, consultation, and exchange of information with agencies and projects in sectors linked to water resources will be necessary. These include but are not limited to departments of the Ministry of Agriculture, Department of Fisheries, the Inland Water Transport Authority, the Ministry of Environment, Ministry of Land and Forests, etc.

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### **TAPP PART E PROJECT OUTPUT (IN QUANTITATIVE OR QUALITATIVE TERMS) (32)**

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#### **PREPARATORY ASSISTANCE**

As stated in D-1 above.

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#### **TECHNOLOGY TRANSFER**

A multi-disciplinary counter part team of BWDB would share the knowledge from the expatriate and local professionals in the fields of engineering surveys, hydraulic studies, detailed engineering analysis, economic analysis, social survey, agricultural and soil aspects, etc. A certain amount of technology is expected to be transferred between the parties aforesaid.

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#### **TRAINING**

Incorporation of NERP findings in GOB water resources planning and in donor funding decisions; increased awareness of possible replication of NERP participation and organization methodology; individualized training programs for BWDB and others, and training imparted to selected participants in field level training.

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#### **MANAGEMENT IMPROVEMENT**

The study will necessarily impart knowledge to the BWDB professionals in respect of improving skill to manage future projects development in a more efficient way.

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#### **INSTITUTIONAL SUPPORT**

The study will identify the most appropriate institutional framework for efficient execution and management of the North-East Regional Projects particularly the Kalni-Kushiyara River Management Project and Kangsha Basin Water Management Project.



## ACTION EXPECTED AFTER COMPLETION OF THE PROJECT (33)

After completion of Phase II, the implemented priority subproject(s) will be operated and maintained by BWDB in cooperation with other Government departments and the local beneficiaries. After completion of the Fishpass Test Project, if viable, other fishpass structures would be constructed in the Northeast Region (about 26 Nos), and possibly in other parts of Bangladesh. After completion of the evaluation of the Improved Flood Warning test project, if proven viable, flood warning infrastructure would be constructed for the Improved Flood Warning Test Project on the Juri River. After completion of the Kalni-Kushiyara Test Project, if viable, river dredging operations would be carried out on the full scale Kalni-Kushiyara River Improvement Project. The Upper Kangsha Basin study reports will be used for implementation of the identified water projects.

### TAPP PART F-1

### PROJECT INPUT PERSONNEL

Expatriate Consultants (34)	Person months	No of Consultants	Cost/PM
See Professional Resource Allocation (Appendix 1)	556.7	46	Tk 5.375 lakh (13,238 US\$)

Tasks and qualifications required (35)

Tasks: see Appendix 10

Qualifications required: As per usual practice in other BWDB projects.

Local Consultants (36)	Person months	No of Consultants	Cost/PM
See Professional Resource Allocation (Appendix 2)	2810.9	126	Tk 0.585 lakh

Tasks and qualifications required (37)

Tasks: see Appendix 10

Qualifications required: As per usual practice in other BWDB projects.

Project Personnel GOB (38)	Person months	No of Personnel	Cost/PM
(Appendix 3)	8282	191	Tk 0.110 lakh

No of Staff	Staff Available	Staff to be Recruited (41)
Available Full Time (39)	Part Time (40)	Nil
As in Appendix 3	Nil	

Tasks and qualifications required (42)

The tasks and qualifications of all the DPS-1 personnel under the different professional cadres: engineering, soils, agronomy, economics, etc., are defined as usual by the Government regulations of Bangladesh Water Development Board service, and therefore are not mentioned here separately.

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**PROJECT PERSONNEL OTHERS (SUPPORT STAFF) (43)**


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Personmonths: 3939

No. personnel: 134

Cost/PM: 0.102 Lakh

See also Appendix 4.

Tasks and qualifications required: As per usual practice in other BWDB projects.

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**ANNUAL PHASING OF PERSONNEL COSTS BY PERSONNEL CATEGORY (44)**


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All costs in Lakh Tk

Estimated Personnel Cost	Expatriate Consultants	Local Consultants	Project Personnel GOB	Project Personnel (Others)
FY 91/92	481.260	129.083	51.066	41.263
FY 92/93	443.963	140.818	55.709	45.015
FY 93/94	475.660	154.776	55.592	44.046
FY 94/95	501.682	275.028	55.242	41.141
FY 95/96	385.498	285.898	55.242	41.141
FY 96/97	227.069	180.717	146.639*	37.714
<b>Sub-Total (91/97)</b>	<b>2,515.132</b>	<b>1,166.320</b>	<b>419.489</b>	<b>250.320</b>
FY 97/98	164.761	136.787	74.161	42.39
FY 98/99	199.427	157.409	81.120	48.40
FY 99/2000	60.765	74.922	82.110	24.37
FY 2000/01	13.050	27.150	82.110	9.18
FY 01/02	26.100	54.300	81.110	18.36
FY 02/03	13.050	27.150	94.160*	9.18
<b>Sub-total (97/03)</b>	<b>477.153</b>	<b>477.718</b>	<b>494.771</b>	<b>151.88</b>
<b>Total</b>	<b>2992.285</b>	<b>1644.038</b>	<b>914.260</b>	<b>402.20</b>

NOTE: Includes CDST



**TAPP PART F-2****PROJECT INPUT EQUIPMENT****SPECIFICATION OF ITEMS (45)**

See Appendix 5

**ANNUAL PHASING OF ESTIMATED COSTS (46)**

In lakh Tk

FY 91/92	FY 92/93	FY 93/94	FY 94/95	FY 95/96	FY 96/97	Sub-Total FY 91/97
65.200	20.280	5.000	4.000	1.600	0.	96.080

In lakh Tk

FY 97/98	FY 98/99	FY 99/2000	FY 2000/01	FY 01/02	FY 02/03	Sub-Total FY 97/03	TOTAL FY 91/03
19.130	5.996	1.428	1.142	0.857	0.000	28.552	124.632

**TAPP PART F-3****PROJECT INPUT TRAINING****SPECIFICATION (47)****INSTITUTION (48)****NO. PARTICIPANTS (49)****COST (50)**

No. of experts

BWDB-WARPO

In Phase II extension, in-house and field training will be offered based on the decision between the executing agencies and the consultants.

**ANNUAL PHASING OF ESTIMATED COSTS (51)**

To be determined during field activities.

**TAPP PART F-4****PROJECT INPUT OTHERS**

See Appendix 7.

**SPECIFICATION (52)**

Description	Unit Rate (Tk)	Duration (months)
Dhaka Office Rent	80,000	130
Netrokona Office Rent	10,000	80
Ajmiriganj Office Rent	10,000	62
Utilities	30,000	130
Furnishings	6,000	
Stationary	40,000	130
Printing	10,000	130
Communications	30,000	130

**ANNUAL PHASING OF TOTAL ESTIMATED COSTS (53)**

In lakh Tk

FY 91/92	FY 92/93	FY 93/94	FY 94/95	FY 95/96	FY 96/97	Sub-Total
48.000	52.354	52.354	52.354	50.554	47.984	303.600

In lakh Tk

FY 97/98	FY 98/99	FY 99/2000	FY 2000/01	FY 01/02	FY 02/03	Sub-Total FY 97/03	TOTAL FY 91/03
23.88	23.88	23.88	17.91	17.91	11.94	119.40	423.00

**PROVISION IN FIVE YEAR PLAN (54)****PROVISION IN ADP/ATAP (55)**

Included in FFYP/1996-2000

Included in the ADP/ATAP (1997-98)

Total provision: Tk 1,305 lakh

In lakh Tk

FY 91/92	FY 92/93	FY 93/94	FY 94/95	FY 95/96	FY 96/97	Sub-Total
937.772	1023.024	1030.283	1052.059	1052.059	964.388	6059.586

In lakh Tk

FY 97/98	FY 98/99	FY 99/2000	FY 2000/01	FY 01/02	FY 02/03	Sub-Total FY 97/03	TOTAL FY 91/03
743.864	838.682	387.195	172.422	220.516	177.422	2540.101	8599.687

**ENCLOSURES**

Appendices 1 through 7: Project Master Schedule, Professional Resources Allocation. Appendix 8: Comparative Statement of Expatriate and Local Consultants. Appendix 9: Reasons for review of TAPP and justification for new positions. Appendix 10: Job Descriptions. Appendix 11: Work Plan and Staffing Schedule.

**SIGNATURE OF THE RECOMMENDING AUTHORITY (56)**

M. Badiuzzaman  
Joint Chief  
Ministry of Water Resources

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**Item 16A: Cost Estimate Summary for Phase I-FY91/93 (All Costs in Bangladesh Lakh Taka)**

Major Items	Total Cost	Foreign Exchange	Taka Cost	GOB Cost	Project Aid	RPA	Remarks
Expatriate Consultants	1271.300	1267.220	4.080		1271.300	4.080	App. 1
Local Consultants	375.518		375.518		375.518	375.518	App. 2
Support Staff	120.040		120.040		120.040	120.040	App. 4
BWDB Counterpart Personnel	148.556		148.556	148.556			App. 3
Equipment and Vehicles	72.720	72.720			72.720		App. 5
Surveys/Mapping	91.131		91.131		91.131	91.131	App. 6
Consultant Office	218.800		218.800		218.800	218.800	App. 7
Mobilization & Inception Report	430.000		430.000		430.000	430.000	
<b>TOTAL</b>	<b>2728.065</b>	<b>1339.940</b>	<b>1388.125</b>	<b>148.556</b>	<b>2579.509</b>	<b>1239.569</b>	

Note: Estimates are based on actual expenditures.

**Item 16B: Cost Estimate Summary for Phase II-FY93/97 (All Costs in Bangladesh Lakh Taka)**

Major Items	Total Cost	Foreign Exchange	Taka Cost	GOB Cost	Project Aid	RPA	Remarks
Expatriate Consultants	1243.832	1234.232	9.600		1243.832	9.600	App. 1
Local Consultants	790.802		790.802		790.802	790.802	App. 2
Support Staff	130.280		130.280		130.280	130.280	App. 4
BWDB Counterpart Personnel	270.933		270.933	270.933			App. 3
Equipment and Vehicles	23.360	23.360			23.360		App. 5
Surveys/Mapping	67.514		67.514		67.514	67.514	App. 6
Consultant Office	84.800		84.800		84.800	84.800	App. 7
Construction	720.000		720.000		720.000	720.000	App. 7
<b>TOTAL</b>	<b>3331.521</b>	<b>1257.592</b>	<b>2073.929</b>	<b>270.933</b>	<b>3060.588</b>	<b>1802.996</b>	

<b>TOTAL Phase I + Phase II</b>	<b>6059.586</b>	<b>2597.532</b>	<b>3462.054</b>	<b>419.489</b>	<b>5640.097</b>	<b>1802.996</b>	
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**16 C: Cost Estimate Summary for Phase II Extension - FY 97/03 (All Cost in Lakh Taka)**

Major Items	Total Cost	Foreign Exchange	Taka Cost	GOB Cost	Project Aid	RPA	Remarks
Expatriate Consultants	477.15	473.46	3.69		477.15	3.69	Appendix 1
Local Consultants	477.72		477.72		477.72	477.72	Appendix 2
Support Staffs	151.88		151.88		151.88	151.88	Appendix 4
BWDB Counterpart Consul.	494.771		494.771	494.771			Appendix 3
Equipment and Vehicle	28.55	28.55			28.55		Appendix 5
Survey / Mapping	4.50		4.50		4.50	4.50	Appendix 6
Consultant Office	119.40		119.40		119.40	119.40	Appendix 7
Mobilization and Report	25.40		25.40		25.40	25.40	*
Construction	760.73		760.73	257.00	503.73	503.73	Appendix 7
<b>TOTAL</b>	<b>2540.101</b>	<b>502.015</b>	<b>2038.086</b>	<b>751.771</b>	<b>1788.330</b>	<b>1286.315</b>	
<b>TOTAL Phase I + Phase II + Phase II Extension</b>	<b>8599.687</b>	<b>3099.540</b>	<b>5500.140</b>	<b>1171.260</b>	<b>7428.420</b>	<b>3089.311</b>	

Note: \* A block provision has been made for Mobilization and Report.



**Item 16: Cost Estimate Summary for Northeast Regional Study (FAP-6)**  
(All Costs are in Bangladesh Lakh Taka)

**A. Item-Wise Comparative Statement**

Sl. No	Item	Cost Estimate in Original TAPP			Cost Estimate in Modified TAPP			Cost Difference between original TAPP & Modified TAPP	Remarks
		Phase I	Phase II	Total	Phase I	Phase II	Total		
1	Expatriate Consultants	728.682	607.738	1336.420	1271.300	1243.832	2515.132	1178.712	Appendix 1
2	Local Consultants	163.021	227.867	390.888	375.518	790.802	1166.320	775.432	Appendix 2
3	Support Staff	33.000	59.400	92.400	120.040	130.280	250.320	157.920	Appendix 4
4	BWDB Counterpart Personnel	110.612	165.918	276.530	148.556	270.933	419.489	142.959	Appendix 3
5	Equipment-Vehicles & Surveys	181.152	81.600	262.752	163.851	90.874	254.725	8,027(-)	Appendix 5;6
6	Consultants Office	42.400	73.920	116.320	218.800	84.800	303.600	187.280	Appendix 7
7	Mobilization & Inception Report	0.000	0.000	0.000	430.000	0.000	430.000	430.000	
8	Construction	0	2040.000	2040.000	0	720.000	720.000	1320.000(-)	
	<b>Total:</b>	<b>1258.867</b>	<b>3256.443</b>	<b>4515.310</b>	<b>2728.065</b>	<b>3331.521</b>	<b>6059.586</b>	<b>1544.276</b>	

**Item 16: Cost Estimate Summary for Northeast Regional Study (FAP-6) - Continued**  
(All Costs are in Bangladesh Lakh Taka)

**B. Item-Wise Cost and Man-months Utilization**

No	Item	Total Estimate in Original TAPP		Utilization upto June 1994		Total Estimate in Modified TAPP	
		(Lakh Tk)	(m-m)	(Lakh Tk)	(m-m)	(Lakh Tk)	(m-m)
1	Expatriate Consultants	1336.420	300.5	1270.820	248.1	2515.132	475
2	Local Consultants	390.888	605.0	375.518	834.8	1166.320	2098
3	Support Staff	92.400	1400.0	442.230		250.320	1982
4	BWDB Counterpart Personnel	276.530	3780.0			419.489	4442
5	Equipment - Vehicles & Surveys	262.752				254.725	
6	Consultants Office	116.320				303.600	
7	Mobilization & Inception Report					430.000	
8	Construction	2040.000				720.000	
	<b>Total:</b>	<b>4515.310</b>	<b>6085.5</b>	<b>2088.568</b>	<b>1082.9</b>	<b>6059.586</b>	<b>8997</b>

**Item 16: Cost Estimate Summary for Northeast Regional Project (FAP-6) - Continued**

**A. Item-Wise Comparative Statement (All Cost in Lakh Taka)**

Sl. No	Item	Cost Estimate in Phase II Extension TAPP				
		Original Phase II (FY 93/97)	Phase II Extension			Total for TAPP
			KKCDMP (FY 97/99)	Dampara (FY 97/03)	Total Extension	
1	Expatriate Consultants	2515.132	346.653	130.500	477.153	2992.285
2	Local Consultants	1166.320	206.218	271.500	477.718	1644.038
3	Support Staff	250.320	60.080	91.800	151.88	402.200
4	BWDB Counterpart Personnel	419.489	197.908	296.863	494.771	914.260
5	Equipment, Vehicle & Survey	254.725	27.502	5.550	33.052	287.777
6	Consultants Office	303.600	26.440	92.960	119.4	423.000
7	Mobilization & Report	430.000	16.207	9.190	25.397	455.397
8	Construction	720.000	65.730	695.000	760.73	1480.730
	<b>TOTAL:</b>	<b>6059.586</b>	<b>946.738</b>	<b>1593.363</b>	<b>2540.101</b>	<b>8599.687</b>

**Item 16: Cost Estimate Summary for Northeast Regional Project (FAP-6)**

**B. Item-Wise Cost and Man-months Utilization (All Cost in Lakh Taka)**

Sl. No	Item	Total Estimate in Phase II (Original)		Utilization Upto June 1997		Total Estimate in Phase II (Extension)	
		(Lakh Tk)	(m-m)	(Lakh Tk)	(m-m)	(Lakh Tk)	(m-m)
1	Expatriate Consultants	2515.132	475	2182.8	500.9	2992.285	556.70
2	Local Consultants	1166.320	2098	1026.8	2277.3	1644.038	2810.90
3	BWDB Counterpart Personnel	419.489	4442	2291.4		914.26	8282.00
4	Support Staff	250.320	1982			402.200	3939.00
5	Equipment, Vehicle & Survey	254.725				287.78	
6	Consultants Office	303.600				423.000	
7	Mobilization & Report	430.000				455.397	
8	Construction	720.000				1480.730	
	<b>TOTAL:</b>	<b>6059.586</b>	<b>8997</b>	<b>5501.0</b>	<b>2278.2</b>	<b>8599.687</b>	<b>15588.60</b>

Note: 1) Modified TAPP (September, 1995) has been termed as Original Phase II (FY 93/97)

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Note: 2) Tk. 2,291.4 lakh includes cost of Support Staff, Equipment, Vehicle & Survey, Consultants Office, Mobilization & Report and Construction. The cost increase is mainly due to additional length of river survey and related equipment as proposed by CIDA.



APPENDIX 1

**Item 34A : Detailed Cost Estimate - Expatriate Consultants (Phase I - FY 91/93)**

Designation	Number of People	Person Months	Monthly Billing Rate (US\$)	Total Cost	
				(US\$)	(Lakh Tk)
Canadian Team Leader	1	27.7	12,000	332,400	132.960
Water Resources Planner	1	27.9	12,000	334,800	133.920
Planning/Civil Engineer	1	23	12,000	276,000	110.400
River/Sediment Engineer	1	28	12,000	336,000	134.400
Hydrologist/Modelling	1	26.7	12,000	320,400	128.160
Hydraulic Modelling Specialist	1	28.2	12,000	338,400	135.360
Environment Specialist	1	13.6	12,000	163,200	65.280
Fisheries Specialist	1	16.6	12,000	199,200	79.680
Gender (WID) Specialist/Sociologist	1	19.8	12,000	237,600	95.040
<b>A. Long Term Consultants Sub-total</b>	<b>9</b>	<b>211.5</b>		<b>2,538,000</b>	<b>1,015.200</b>
Economist	1	9.3	12,000	111,600	44.640
Livestock Specialist	1	1.6	12,000	19,200	7.680
Head Office Management	2	6	12,000	72,000	28.800
Fish Bypass Specialist	1	2.2	12,000	26,400	10.560
Rural Planner	1	4.4	12,000	52,800	21.120
Head Office Support	2	10	10,200	102,000	40.800
<b>B. Short Term Consultants Sub-total</b>	<b>8</b>	<b>33.5</b>		<b>384,000</b>	<b>153.600</b>
<b>Total</b>	<b>17</b>	<b>245</b>		<b>2,922,000</b>	<b>1,168.800</b>

Category	Number of Specialist	Quantity	Unit Cost (US\$)	Total Cost	
				(US\$)	(Lakh Tk)
Expatriate Consultant Remuneration	17	245	12,000	2,922,000	1,168.800
International Air Travel	17	80	2,800	224,000	89.600
Local Travel	17	68	150	10,200	4.080
Per Diem		245	90	22,050	8.820
<b>G. Total</b>				<b>3,178,250</b>	<b>1,271.300</b>

\* Based on actual expenditures.



**Item 34B : Detailed Cost Estimate - Expatriate Consultants (Phase II - FY 93/97)**

Sl. No.	Description	Nos	Person Months	Monthly Rate		Total Cost	
				(US\$)	(Taka)	(US\$)	(Lakh Tk)
A.1	Canadian Team Leader	1	35	6,495	259,800	227,325	90.930
A.2	Planning/Civil Engineer	1	22	5,242	209,680	115,324	46.130
A.3	River/Sediment Engineer	1	25.5	5,400	216,000	137,700	55.080
A.4	Social & Inst. Dimensions Spec.	1	26	5,360	214,400	139,360	55.744
A.5	Hydraulic Modelling Specialist	1	14	5,350	214,000	74,900	29.960
A.6	Fisheries Specialist	1	15	5,400	216,000	81,000	32.400
A.7	Community Participation Specialist	1	12	5,050	202,000	60,600	24.240
A.8	Morphological Survey Specialist	1	18	5,200	208,000	93,600	37.440
<b>a. Long Term Consultants Sub-total</b>		<b>8</b>	<b>167.5</b>			<b>929,809</b>	<b>371.924</b>
A.9	Economist	1	7	5,300	212,000	37,100	14.840
A.10	Hydrologist/Modelling	1	6	5,350	214,000	32,100	12.840
A.11	Gender Specialist	1	5	5,000	200,000	25,000	10.000
A.12	Environment Specialist	1	4	5,400	216,000	21,600	8.640
A.13	Dredging Impact Management Specialist	1	4	5,400	216,000	21,600	8.640
A.14	Fish Bypass Engineer Specialist	1	1.5	5,400	216,000	8,100	3.240
A.15	Ground Water Specialist	1	3	5,400	216,000	16,200	6.480
A.16	Head Office Management	2	8	5,400	216,000	43,200	17.280
A.17	Head Office Support	1	12	4,000	160,000	48,000	19.200
A.18	Miscellaneous Specialist	1	12	5,400	216,000	67,800	25.920
<b>b. Short Term Consultants Sub-total</b>		<b>11</b>	<b>62.5</b>			<b>317,700</b>	<b>127.080</b>
<b>Sub Total of A</b>		<b>19</b>	<b>230</b>			<b>1,247,509</b>	<b>499.004</b>
B	Social Charge @ 30% of A					374,253	149.701
	Overhead & Fee @ 70% of A					873,256	349.303
<b>Sub Total of A &amp; B</b>						<b>2,495,018</b>	<b>998.007</b>
C	Fixed Fee @ 10% of A & B					249,502	99.801
<b>Total A, B &amp; C</b>						<b>2,744,520</b>	<b>1,097.808</b>
D	Airfare, Per Diem, Shipping and Other Direct Costs					365,060	146.024
<b>Grand Total</b>		<b>19</b>	<b>230</b>			<b>3,109,580</b>	<b>1,243.832</b>



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**Item 34B: Detailed Cost Estimate - Expatriate Consultants (Phase II - FY 93/97) - Continued**

Total Phase I + Phase II	Number of Specialists	Person Months	Total Cost	
			(US\$)	(Lakh Tk)
Phase I	17	245	3,178,250	1,271.300
Phase II	19	230	3,109,580	1,243.832
<b>Grand Total</b>		<b>475</b>	<b>6,287,830</b>	<b>2,515.132</b>

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**Item 34 C: Detailed Cost Estimate - Expatriate Consultants(Phase II Extension - FY 97/99)**  
**I: Kalni-Kushiyara Community Development and Monitoring Project (KKCDMP) (FY 97/99)**

Sl. No.	Description	Nos	Person Months	Monthly Rate		Total Cost	
				US\$	(Taka)	US\$	Lakh
	<b>Long-Terms Consultants</b>						
A.1	Canadian Team Leader	1	23.00	6042	259800	138962.7907	59.754
A.2	Community Partici.& Gen.Specilist	1	12.50	4702	202200	58779.06977	25.275
	<b>Sub-Total:</b>	<b>2</b>	<b>35.5</b>	<b>10744.18605</b>	<b>462000</b>	<b>197741.8605</b>	<b>91.800</b>
	<b>Short-Term Consultants</b>						
A.3	Head Office Management	2	4.8	5023	216000	24111.62791	10.368
A.4	Head Office Support	1	2.4	3721	160000	8930.232558	3.840
A.5	River/Sediment Engineer	1	8.4	5023	216000	42195.34884	18.144
A.6	Morphological Survey Engineer	1	2.4	4837	208000	11609.30233	4.992
A.7	Community & Gender Specialist	1	2.4	4698	202000	11274.4186	4.848
A.8	Miscellaneous Specialist	1	4.8	4000	172000	19200	8.256
	<b>Sub-Total:</b>	<b>7</b>	<b>25.2</b>			<b>117320.9302</b>	<b>50.448</b>
	<b>SUB-TOTAL of A:</b>	<b>9</b>	<b>60.7</b>			<b>315062.7907</b>	<b>142.248</b>
B.1	Social Charge @ 30% of A					94518.83721	42.674
B.2	Over and Fee @ 70% of A					220543.9535	99.574
	<b>SUB-TOTAL A &amp; B:</b>					<b>630125.5814</b>	<b>284.496</b>
C	Fixed Fee @ 10% of A & B:					63012.55814	28.450
	<b>SUB-TOTAL A,B &amp; C:</b>					<b>693138</b>	<b>312.946</b>
D	Airfare, Per Diem, Shipping and Other Direct Cost					85365	33.707
	<b>TOTAL</b>	<b>9</b>	<b>60.7</b>			<b>778503</b>	<b>346.653</b>

**II: Dampara Water Management Project (FY 97 /03)**

Sl. No.	Description	Nos	Person Months	Monthly Rate		Total Cost	
				US\$	(Taka)	US\$	Lakh Tk
A.1	<b>Long-Term Consultants</b> Canadian Team Leader	1	21	6042	259800	126879	54.558
B.1	Social Charge @ 30% of A					38064	16.367
B.2	Over and Fee @ 70% of A					88815	38.191
	<b>SUB-TOTAL A &amp; B:</b>					<b>253758</b>	<b>109.116</b>
C	Fixed Fee @ 10% of A & B:					25376	10.912
	<b>SUB-TOTAL A,B &amp; C:</b>					<b>279134</b>	<b>120.028</b>
D	Airfare, Per Diem, Shipping and Other Direct Cost					24353	10.472
	<b>TOTAL</b>	<b>1</b>	<b>21</b>			<b>303487</b>	<b>130.500</b>

Total Phase I + Phase II + Phase II Extension	Number of Specialist	Person Months		Total Cost	
				US\$	Lakh Tk
Phase I	17	245.0		3178250	1271.300
Phase II Original	19	230.0		3109580	1243.832
Phase II Extension KKCDMP	9	60.7		778503	346.653
Dampara	1	21.0		303487	130.500
<b>TOTAL</b>	<b>46</b>	<b>556.7</b>		<b>7369820</b>	<b>2992.285</b>

**Item 34A-1 : Comparative Estimate for Expatriate Consultants (Phase I - FY 91/93)**

Description / Position		Person Months	
Original Approved TAPP	Modified TAPP	Original TAPP	Modified TAPP
Canadian Team Leader	Canadian Team Leader	20	27.7
Water Resources Planner	Water Resources Planner	20	27.9
Planning/Civil Engineer	Planning/Civil Engineer	12	23
River/Sediment Engineer	River/Sediment Engineer	19	28
Hydrologist/Modelling	Hydrologist/Modelling	20	26.7
Hydraulic Modelling Specialist	Hydraulic Modelling Specialist	17	28.2
Environment Specialist	Environment Specialist	5	13.6
Fisheries Specialist	Fisheries Specialist	18	16.6
WID Specialist	Gender/WID Specialist/Sociologist	3	19.8
Agricultural Economist	Economist	1.5	9.3
Agronomist	-	5.5	-
Botanist	-	1.5	-
Ornithologist	-	1.5	-
-	Livestock Specialist	-	1.6
Head Office Management	Head Office Management	3.8	6
-	Fish Bypass Specialist	-	2.2
Rural Planner	Rural Planner	1	4.4
DHI Math Model Advisor	-	4	-
Computer System Specialist	-	1	-
Mapping Survey Specialist	-	1.5	-
Wetland Ecologist	-	3.5	-
Head Office Support	Head Office Support	2	10
Miscellaneous Specialists	-	6	-
	<b>Subtotals</b>	<b>166.8</b>	<b>245</b>



**Item 34B-1: Comparative Estimate for Expatriate Consultants (Phase II - FY 93/97)**

Description / Position		Person Months	
Original Approved TAPP	Modified TAPP	Original TAPP	Modified TAPP
Canadian Team Leader	Canadian Team Leader	36	35
Water Resources Planner	-	4	-
Planning/Civil Engineer	Planning/Civil Engineer	19	22
River/Sediment Engineer	River/Sediment Engineer	9	25.5
-	Social & Inst. Dimensions Spec.	-	26
Hydrologist/Modelling	Hydrologist/Modelling	13	6
Hydraulic Modelling Specialist	Hydraulic Modelling Specialist	24	14
Fisheries Specialist	Fisheries Specialist	3	15
-	Community Participation Specialist	-	12
-	Morphological Survey Specialist	-	18
-	Economist	-	7
Agricultural Economist	-	2	-
Agronomist	-	1	-
WID Specialist	WID Specialist	2	5
Environment Specialist	Environment Specialist	4	4
-	Dredging Impact Management Specialist	-	4
-	Fish Bypass Engineer Specialist	-	1.5
Geotechnical Specialist	Ground Water Specialist	3	3
DHI Math Model Advisor	-	2	-
Computer Systems Specialist	-	1	-
Rural Planner	-	1	-
Head Office Management	Head Office Management	6	8
Head Office Support	Head Office Support	2	12
Miscellaneous Specialists	Miscellaneous Specialists	3	12
	Subtotals	135	230

**Item 34 C-1: Comparative Estimate for Expatriate Consultants  
(Phase II Extension - FY 97/03)**

Description/Position		Person Months	
Phase II Original TAPP (FY 93/97)	Phase II Extension TAPP (FY 97/03)	Phase II Original TAPP (FY 93/97)	Phase II Extension TAPP (FY 97/03)
Canadian Team Leader	Canadian Team Leader	35	44
Planning/Civil Engineer		22	
River/ Sediment Engineer	River/ Sediment Engineer	25.5	8.4
Social & Inst. Dimension Spec.		26	
Hydrologist/Modelling		6	
Hydraulic Modelling Engineer		14	
Fisheries Specialist		15	
Community Participation Spec.	Community Particip. Spec.	12	12.5
Morphological Survey Spec.	Morphological Survey Spec.	18	2.4
Economist		7	
WID Specialist	Community & Gender Spec.	5	2.4
Environment Specialist		4	
Dredging Impa. Management Spec.		4	
Fish Bypass Engr. Specialist		1.5	
Ground Water Specialist		3	
Head Office Management	Head Office Management	8	4.8
Head Office Support	Head Office Support	12	2.4
Miscellaneous Specialist	Miscellaneous Specialist	12	4.8
<b>TOTAL</b>		<b>230</b>	<b>81.7</b>

APPENDIX 2



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**Item 36A : Cost Estimate for Local Consultants (Phase I - FY 91/93)**

Description	Number of Specialists	Person Months	Basic Salary (Tk)	Total Salary (Lakh Tk)	Total Salary (US\$)
Water Resources Engineer	1	32	38,400	12.288	30,720
Planning & Design Engineer	1	30.7	38,400	11.789	29,472
Hydrologist	1	24	25,240	6.058	15,144
Agronomist	2	36.6	33,430	12.235	30,588
Agricultural Economist	1	16	25,100	4.016	10,040
Hydraulic Model Specialist	2	22.6	30,000	6.780	16,950
Intermediate Modelling Engineer	1	30.2	24,000	7.248	18,120
Intermediate Sediment Engineer	1	29.7	24,000	7.128	17,820
Intermediate Engineer	1	30.8	24,000	7.392	18,480
Fisheries Specialist	1	18	30,000	5.400	13,500
Fisheries Field Specialist	1	23.9	30,000	7.170	17,925
Socio-economist	1	16.5	30,000	4.950	12,375
Senior Anthropologist	2	44	30,000	13.200	33,000
Engineering Survey Monitor	1	27.4	30,000	8.220	20,550
Training Coordinator/Instit. Specialist	1	14.6	30,000	4.380	10,950
NGOs	14	360	12,000	43.200	108,000
<b>Subtotals</b>	<b>32</b>	<b>757</b>		<b>161.454</b>	<b>403,364</b>

Category	Number of Specialists	Quantity	Unit Cost (Tk)	Total Cost (Lakh Tk)	Total Cost (US\$)
Basic Salaries Payable (Quantity - pm)	32	757		161.454	403,634
Firm's Social Charges (30% of basic)				48.436	121,090
Firm's Overhead (70% of basic)				113.018	282,544
Firm's Fixed Fee (10% of basic + + )				32.291	80,727
Subtotal				355.198	887,996
Travel Allowance (Quantity in days)	32	32 x 160	350	17.920	44,800
Travel Costs (Quantity in No of trips)	32	32 x 3	2,500	2.400	6,000
<b>TOTAL</b>				<b>375.518</b>	<b>938,796</b>



**Item 36B : Cost Estimate for Local Consultants (Phase II - FY 93/97)**

Sl. No.	Description	Nos	Man Months	Monthly Rate		Total Cost	
				(Tk)	(US\$)	(Lakh Tk)	(US\$)
A1.B	Water Resources Engineer	1	32	54,000	1,350	17.280	43,200
A2.B	Planning & Design Engineer	1	18	52,420	1,311	9.436	23,589
A3.B	Hydro-geologist	1	18	54,000	1,350	9.720	24,300
A4.B	Hydrologist	1	13	53,500	1,338	6.955	17,388
A5.B	Intermediate Engineer	2	45	30,000	750	13.500	33,750
A6.B	Junior Engineer	2	20	19,900	498	9.980	9,950
A7.B	Agronomist	1	25	36,000	900	9.000	22,500
A8.B	Agriculture Field Assistant	4	78	13,000	325	10.140	25,350
A9.B	Livestock Specialist	1	4	34,000	850	1.360	3,400
A10.B	Fisheries Specialist	2	45	54,000	1,350	24.300	60,750
A11.B	Junior Fisheries Biologist	5	122	14,000	350	17.080	42,700
A12.B	Senior Modelling Engineer	1	30	53,500	1,338	16.050	41,125
A13.B	Intermediate Modelling Engineer	1	30	30,000	750	9.000	22,500
A14.B	Intermediate Sediment Engineer	1	31	30,000	750	9.300	23,250
A15.B	Junior Sediment Engineer	1	30	23,000	575	6.900	17,250
A16.B	Agricultural Economist	1	30	25,000	625	7.500	18,750
A17.B	Environment Advisor	1	32	54,000	1,350	17.280	43,200
A18.B	EIA Specialist	1	26	40,000	1,000	10.400	26,000
A19.B	Botanist	1	31	24,000	600	7.440	18,600
A20.B	Senior Wildlife Biologist	1	11	24,000	600	2.640	6,600
A21.B	Junior Wildlife Biologist (NGO)	1	24	11,800	295	2.832	7,080
A22.B	Gender Specialist	1	18	50,000	1,250	9.000	22,500
A23.B	Senior Anthropologist	2	48	50,500	1,263	24.240	60,600
A24.B	Community Organizers	22	434	12,550	314	54.467	131,168
A25.B	Engineering Survey Monitor	1	31	52,000	1,300	16.120	40,300
A26.B	Navigation Specialist	1	25	31,000	775	7.750	19,375
A27.B	Navigation Field Assistant	2	48	11,000	275	5.280	13,200
A28.B	Training Coordinator/Instit. Specialist	1	32	53,600	1,340	17.152	42,880
A29.B	Miscellaneous Technical Advisors	1	10	30,000	750	3.000	7,500
<b>Sub Total of A</b>		<b>62</b>	<b>1341</b>			<b>349.060</b>	<b>872,650</b>
B	Social Charge @ 30% of A					104.718	261,795
	Overhead @ 70% of A					244.342	610,855
<b>Sub Total of A &amp; B</b>						<b>701.720</b>	<b>1,754,300</b>
C	Fixed Fee @ 10% of A & B					70.172	175,430
<b>Total A, B &amp; C</b>						<b>771.892</b>	<b>1,929,730</b>
D	Per Diem Allowance and Travel Costs					18.910	47,275
<b>Grand TOTAL</b>						<b>790.802</b>	<b>1,977,005</b>

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**Item 36B/34B: Comparable Positions (Phase II - FY 93/97)**

Sl. No.	Local Consultant		Expatriate Consultant	
	Item No.	Description	Item No.	Description
1	A1.B	Water Resources Engineer	A.3	River/Sediment Engineer
2	A2.B	Planning & Design Engineer	A.2	Planning Civil Engineer
3	A3.B	Hydro-geologist	A.15	Ground Water Specialist
4	A4.B	Hydrologist	A.10	Hydrologist/Modelling
5	A10.B	Fisheries Specialist	A.6	Fisheries Specialist
6	A12.B	Senior Modelling Engineer	A.5	Hydraulic Modelling Specialist
7	A17.B	Environment Advisor	A.12	Environment Specialist
8	A22.B	Gender Specialist	A.11	Gender Specialist
9	A23.B	Senior Anthropologist	A.7	Community Participation Specialist
10	A25.B	Engineering Survey Monitor	A.8	Morphological Survey Specialist
11	A28.B	Training Coordination/Institutional Specialist	A.4	Social & Institutional Dimensions Specialist

Note: Salaries of local consultants listed in the above Table represent 25% of the equivalent expatriate consultant's salary.

Item 36 (A & B) continued

Total Phase I + Phase II	Number of Specialists	Person Months	Total Cost	
			(US\$)	(Lakh Tk)
Phase I	32	757	938,796	375.518
Phase II	62	1341	1,977,005	790.802
<b>G. Total</b>		<b>2098</b>	<b>2,915,801</b>	<b>1,166.320</b>

**Item 36 C: Cost Estimate for Local Consultants (Phase II Extension - FY 97/03)**  
**Kalni-Kushiara Community Development & Monitoring (FY 97/99)**

Sl. No.	Description	Nos.	Man Months	Monthly Rate		Total Cost	
				(Tk)	(US\$)	(Lakh Tk)	(US\$)
A1.C	Water Resources Engineer	1	24	54000	1256	12.960	30140
A2.C	Int. Sediment Engineer	1	24	30000	698	7.200	16744
A3.C	Agriculturist/Agronomist	1	3	36000	837	1.080	2512
A4.C	Agriculture Field Assistant	1	22	13000	302	2.860	6651
A5.C	Sr. Anthropologist	1	24	50500	1174	12.120	28186
A6.C	Training Consultant	1	1.9	53600	1247	1.018	2368
A7.C	Engineering Survey Monitor	1	22	30000	698	6.600	15349
A8.C	Community Organizers (M)	2	47	12550	292	11.797	27435
A9.C	Community Organizers (F)	3	69	12550	292	25.979	60415
A10.C	Process Documenter	1	24	15000	349	3.600	8372
	<b>Sub-Total B</b>	<b>13</b>	<b>260.9</b>	<b>307200</b>	<b>7144.1860465</b>	<b>85.214</b>	<b>198172</b>
B	Social Charge @ 30% of A					25.564	59452
	Over Head @ 70% of A					59.650	138720
	<b>Sub-Total A &amp; B</b>					<b>170.428</b>	<b>396344</b>
C	Fixed Fee @ 10% of A&B					17.043	39634
	<b>Total A,B&amp;C</b>					<b>187.471</b>	<b>435978</b>
D	Per Diem Allowance and Travel Cost					18.747	43598
	<b>TOTAL</b>	<b>13</b>	<b>260.9</b>			<b>206.218</b>	<b>479576</b>

**Dampara Water Management Project (FY 97/03)**

Sl. No	Description	Nos.	Man Months	Monthly Rate		Total Cost	
				(Tk)	(US\$)	(Lakh Tk)	(US\$)
A1.C	Water Resources Engineer/Team Leader	1	33	60000	1395	19.800	46047
A2.C	Design Engineer/Project Coordinator	1	12	54000	1256	6.480	15070
A3.C	Senior Construction Engineer	1	30	50500	1174	15.150	35233
A4.C	Junior Construction Engineer	3	72	19900	463	14.328	33321
A51.C	Gender Specialist	1	12	50000	1163	6.000	13953
A6.C	Sociologist	1	12	45000	1047	5.400	12558
A7.C	Community Organizers	4	110	12550	292	13.805	32105
A8.C	Senior Fisheries Biologist	1	15	54000	1256	8.100	18837
A9.C	Junior Fisheries Biologist	2	66	13000	302	8.580	19953
A10.C	Agronomist	1	15	36000	837	5.400	12558
A11.C	Agricultural Field Assistant	1	33	13000	302	4.290	9977
A12.C	Socio-economist	1	9	45000	1047	4.050	9419
A13.C	Junior Economist	1	33	19900	463	6.567	15272
	<b>Sub-Total A:</b>	<b>19</b>	<b>452</b>			<b>117.950</b>	<b>274302</b>
B	Social Charge @ 30% of A					35.385	82291
	Overhead @ 70% of A					82.565	192012
	<b>Sub-Total A &amp; B</b>					<b>235.900</b>	<b>548605</b>
C	Fixed Fee @ 10% of A & B					23.590	54860
	<b>Sub-Total A, B &amp; C</b>					<b>259.490</b>	<b>603465</b>
D	Per Diem, Allowance and Travel Cost					12.010	27930
	<b>TOTAL</b>	<b>19</b>	<b>452</b>			<b>271.500</b>	<b>631395</b>



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**Item 36 C: Cost Estimate for Local Consultants (Phase II Extension - FY 97/03)**  
**Dampara Water Management Project (FY 97/03) - Continued**

Total Phase I + Phase II + Phase Extension	Number of Specialist	Person Months	Total Cost	
			(Lakh Tk)	(US\$)
Phase I	32	757	375.518	938796
Phase II Original	62	1341	790.802	1977005
Phase II Extension - KKCDMP	13	260.9	206.212	479576
- Dampara	19	452	271.500	631395
<b>TOTAL</b>	<b>126</b>	<b>2810.9</b>	<b>1644.032</b>	<b>4194424</b>

**Item 36A-1 : Comparative Statement for Local Consultants (Phase I - FY 91/93)**

Description / Position		Person Months	
Original Approved TAPP	Modified TASPP	Original TAPP	Modified TAPP
Water Resources Planner	Water Resources Engineer	20	32
Sr Hydraulic & FC Engineer	Planning & Design Engineer	19	30.7
Sr Hydraulic Design Engineer	-	12	-
-	Hydrologist	-	24
Agronomist	Agronomist (2 pos)	4	36.6
Agricultural Economist	Agricultural Economist	6	16
Hydraulic Model Specialist	Hydraulic Model Specialist	20	22.6
Junior Modelling Engineer	Intermediate Modelling Engineer	20	30.2
Junior Sediment Engineer	Intermediate Sediment Engineer	19	29.7
-	Intermediate Engineer	-	30.8
Junior Engineer (2pos)	-	48	-
Fisheries Specialist	Fisheries Specialist	20	18
Fisheries Field Specialist	Fisheries Field Specialist	20	23.9
Environment Grad Student (2 pos)	-	12	-
Socio-economist	Socio-economist	4	16.5
NGO Advisor	Senior Anthropologist	10	44
-	Engineering Survey Monitor	-	27.4
Head Office Management	-	2	-
Training Coordinator	Training Coordinator	9	14.6
Sr Training Advisor	-	1	-
Institutional Specialist	-	2	-
O&M Specialist	-	4	-
Irrigation & Water Management Specialist	-	1	-
Miscellaneous Technical Advisors	-	2	-
-	NGOs	-	360
	<b>Subtotals</b>	<b>255</b>	<b>757</b>

**Item 36B-1 : Comparative Statement for Local Consultants (Phase II - FY 93/97)**

Description / Position		Person Months	
Original Approved TAPP	Modified TAPP	Original TAPP	Modified TAPP
Water Resources Planner	Water Resources Engineer	28	32
Sr Hydraulic & FC Engineer	Planning & Design Engineer	8	18
Sr Hydraulic Design Engineer	-	18	-
Hydraulic Design Engineer (2 pos)	-	36	-
Geotechnical Engineer	Hydro-geologist	4	18
-	Hydrologist	-	13
-	Intermediate Engineer	-	45
Construction Engineer	-	18	-
Junior Engineer (3 pos)	Junior Engineer	40	20
Agronomist	Agronomist	1	25
-	Agriculture Field Assistant	-	78
-	Livestock Specialist	-	4
Fisheries Specialist	Fisheries Specialist (2 pos)	16	45
Fisheries Field Specialist	-	16	-
-	Junior Fisheries Biologist	-	122
Hydraulic Model Specialist	Senior Modelling Engineer	24	30
Junior Modelling Engineer	Intermediate Modelling Engineer	24	30
-	Intermediate Sediment Engineer	-	31
Junior Sediment Engineer	Junior Sediment Engineer	24	30
Agricultural Economist	Agricultural Economist	13	30
-	Environment Advisor	-	32
-	EIA Specialist	-	26
Environment Grad Student (2 pos)	-	12	-
-	Botanist	-	31
-	Senior Wildlife Biologist	-	11
-	Junior Wildlife Biologist (NGO)	-	24
-	Gender Specialist	-	18
NGO Advisor	Senior Anthropologist (2 pos)	17	48
Structural Engineer	-	3	-
Socio-economist	-	2	-
-	Community Organizers	-	434
-	Engineering Survey Monitor	-	31
-	Navigation Specialist	-	25
-	Navigation Field Assistant	-	48
Head Office Management	-	3	-
Training Coordinator	Training Coordinator/Inst. Spec.	15	32
Senior Training Advisor	-	1	-
Institutional Specialist	-	2	-
O&M Specialist	-	7	-
Irrigation and Water Management Spec.	-	11	-
Miscellaneous Technical Advisors	Miscellaneous Technical Advisors	7	10
	Subtotals	350	1341



### APPENDIX 3

**Item 38A : Detailed Estimate for GOB Personnel (Phase I - FY 91/93)**

Description	Number of People	Duration (Months)	Person Months	Salary (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Officers Director	1	32	32	8,199	2.624	6,559
Executive Engineer	3	32	96	7,000	6.720	16,800
Deputy Director	2	32	64	5,180	3.315	8,288
Chief Soil and Agricultural Survey Officer	1	32	32	7,980	2.554	6,384
Economist	1	32	32	5,600	1.792	4,480
Deputy Chief Agronomist	1	32	32	7,840	2.509	6,272
Agronomist	1	32	32	6,860	2.195	5,488
Soil Survey Officer	2	32	96	5,460	5.242	13,104
Assistant Engineer	8	32	256	5,460	13.978	34,944
Assistant Director	3	32	96	4,620	4.435	11,088
Accounts Officer	1	32	32	5,460	1.747	4,368
Junior Economist	1	32	32	3,500	1.120	2,800
Assistant Agricultural Survey Officer	1	32	32	3,500	1.120	2,800
Assistant Director (Administration)	1	32	32	4,900	1.568	3,920
Support Staff Head Assistant	1	32	32	3,640	1.165	2,912
Upper Division Assistant	1	32	32	3,500	1.120	2,800
Draftsman	2	32	64	4,200	2.688	6,720
Tracer	2	32	64	2,800	1.792	4,480
Sub-Assistant Engineer Estimator	1	32	32	4,200	1.344	3,360
Surveyor	3	32	96	3,500	3.360	8,400
Scenographer	1	32	32	3,500	1.120	2,800
Senior Accounts Assistant	1	32	32	2,900	0.928	2,320
Steno-Typist	2	32	64	2,900	1.856	4,640
Lower Division Assistant	3	32	96	2,175	2.088	5,220
Typist	3	32	96	2,030	1.949	4,872
Store Keeper	1	32	32	2,175	0.696	1,740
Extension Overseer	1	32	32	4,200	1.344	3,360
Driver	3	32	96	2,610	2.506	6,264
Blue Printer	1	32	32	1,200	0.384	960
Photocopy Operator	1	32	32	1,200	0.384	960
Guard	2	32	64	1,200	0.768	1,920
Peon	6	32	192	1,200	2.304	5,760
Sweeper	1	32	32	1,200	0.384	960
<b>Total</b>	<b>63</b>		<b>2,048</b>		<b>79.097</b>	<b>197,743</b>

Table continued on following page

Item 38A : Detailed Estimate for GOB Personnel (Phase I - FY 91/93) continued

Description	Number of People	Duration (Months)	Person Months	Unit Cost (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Staff Enumeration	63		2,048		79.097	197,743
Office Rent		32		70,000	22.400	56,000
Office Furnishings					2.000	5,000
Staff Travel and Daily Allowance					8.000	20,000
Utilities		32		5,000	1.600	4,000
Income Tax for Officers					5.333	13,332
Telephone					3.466	8,665
Operational Costs					26.660	66,650
<b>Total</b>					<b>148.556</b>	<b>371,390</b>



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**Item 38B : Detailed Estimate for GOB Personnel (Phase II - FY 93/97) Lakh Taka**

Description	Number of People	Duration (Months)	Person Months	Salary (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Officers Director	1	38	38	8,199	3.116	7,789
Executive Engineer	3	38	114	7,000	7.980	19,950
Deputy Director	2	38	76	5,180	3.937	9,842
Chief Soil and Agricultural Survey Officer	1	38	38	7,980	3.032	7,581
Economist	1	38	38	5,600	2.128	5,320
Deputy Chief Agronomist	1	38	38	7,840	2.979	7,448
Agronomist	1	38	38	6,860	2.607	6,517
Soil Survey Officer	2	38	76	5,460	4.150	10,374
Assistant Engineer	8	38	304	5,460	16.598	41,496
Assistant Director	3	38	114	4,620	5.267	13,167
Accounts Officer	1	38	38	5,460	2.075	5,187
Junior Economist	1	38	38	3,500	1.330	3,325
Assistant Agricultural Survey Officer	1	38	38	3,500	1.330	3,325
Assistant Director (Administration)	1	38	38	4,900	1.862	4,655
Support Staff Head Assistant	1	38	38	3,640	1.383	3,458
Upper Division Assistant	1	38	38	3,500	1.330	3,325
Draftsman	2	38	76	4,200	3.192	7,980
Tracer	2	38	76	2,800	2.128	5,320
Sub-Assistant Engineer Estimator	1	38	38	4,200	1.596	3,990
Surveyor	3	38	114	3,500	3.990	9,975
Scenographer	1	38	38	3,500	1.330	3,325
Senior Accounts Assistant	1	38	38	2,900	1.102	2,755
Steno-Typist	2	38	76	2,900	2.204	5,510
Lower Division Assistant	3	38	114	2,175	2.480	6,199
Typist	3	38	114	2,030	2.314	5,786
Store Keeper	1	38	38	2,175	0.827	2,066
Extension Overseer	1	38	38	4,200	1.596	3,990
Driver	3	38	114	2,610	2.975	7,439
Blue Printer	1	38	38	1,200	0.456	1,140
Photocopy Operator	1	38	38	1,200	0.456	1,140
Guard	2	38	76	1,200	0.912	2,280
Peon	6	38	228	1,200	2.736	6,840
Sweeper	1	38	38	1,200	0.456	1,140
<b>Total</b>	<b>63</b>		<b>2,394</b>		<b>91.853</b>	<b>229,633</b>

Table continued on following page

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**Item 38B : Detailed Estimate for GOB Personnel (Phase II - FY 93/97) - Continued**

Description	Number of People	Duration (Months)	Person Months	Unit Cost (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Staff Enumeration	63		2,394		91.853	229,633
Office Rent		38		70,000	26.600	66,500
Office Furnishings					3.000	7,500
Staff Travel and Daily Allowance					9.500	23,750
Utilities		38		5,000	1.900	4,750
Income Tax for Officers					6.320	15,800
Telephone					4.100	10,250
Operational Costs					31.660	79,150
CDST					96.000	240,000
<b>Total</b>					<b>270.933</b>	<b>677,333</b>

Total Phase I + Phase II	Number of People	Person Months	Total Cost	
			(US\$)	(Lakh Tk)
Phase I	63	2,048	371,390	148.556
Phase II	63	2,394	677,333	270.933
<b>G. Total</b>		<b>4,442</b>	<b>1,048,723</b>	<b>419.489</b>

**Item 38C: Detailed Estimate for GOB Personnel (Extension Phase II FY 1997/2002)**

Description	Number of People	Duration (Months)	Person Months	Salary (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Officers Director	1	60	60	14,500	8.70	21,750
Executive Engineer	3	60	180	13,500	24.30	60,750
Deputy Director	2	60	120	9,600	11.52	28,800
Chief Soil and Agricultural Survey Officer	1	60	60	14,500	8.70	21,750
Economist	1	60	60	9,600	5.76	14,400
Deputy Chief Agronomist	3	60	180	13,500	24.30	60,750
Agronomist	1	60	60	9,600	5.76	14,400
Soil Survey Officer	2	60	120	9,600	11.52	28,800
Assistant Engineer	8	60	480	9,300	44.64	111,600
Assistant Director	3	60	180	6,000	10.80	27,000
Accounts Officer	1	60	60	6,000	3.60	9,000
Junior Economist	1	60	60	6,000	3.60	9,000
Assistant Agricultural Survey Officer	1	60	60	6,000	3.60	9,000
Assistant Director (Administration)	1	60	60	6,000	3.60	9,000
Support Staff Head Assistant	1	60	60	5,000	3.00	7,500
Upper Division Assistant	1	60	60	5,000	3.00	7,500
Draftsman	2	60	120	4,500	5.40	13,500
Tracer	2	60	120	4,000	4.80	12,000
Sub-Assistant Engineer Estimator	1	60	60	5,000	3.00	7,500
Surveyor	3	60	180	4,000	7.20	18,000
Scenographer	1	60	60	4,000	2.40	6,000
Senior Accounts Assistant	1	60	60	3,500	2.10	5,250
Steno-Typist	2	60	120	3,500	4.20	10,500
Lower Division Assistant	3	60	180	3,000	5.40	13,500
Typist	3	60	180	2,500	4.50	11,250
Store Keeper	1	60	60	2,500	1.50	3,750
Extension Overseer	1	60	60	5,000	3.00	7,500
Driver	3	60	180	3,500	6.30	15,750
Blue Printer	1	60	60	2,500	1.50	3,750
Photocopy Operator	1	60	60	2,500	1.50	3,750
Guard	2	60	120	2,500	3.00	7,500
Peon	6	60	360	2,500	9.00	22,500
Sweeper	1	60	60	2,500	1.50	3,750
<b>Total</b>	<b>65</b>		<b>3,840</b>		<b>242.70</b>	<b>606,750</b>

Table continued on following page



**Item 38C : Detailed Estimate for GOB Personnel (Phase II - FY 97/03) - Continued**

Description	Number of People	Duration (Months)	Person Months	Unit Cost (Tk)/per month	Total Cost	
					(Lakh Tk)	(US\$)
Staff Enumeration	65		3,840		242.70	606,750
Office Rent		60		42,000	25.20	63,000
Office Furnishings					3.00	7,500
Staff Travel and Daily Allowance				75,000	3.751	9,375
Utilities		60		5,000	3.00	7,500
Income Tax for Officers		60			7.50	18,750
Telephone		60			4.00	10,000
Operational Costs					40.00	100,000
CDST					20.00	50,000
<b>Total</b>					<b>145.62</b>	<b>364,050</b>
Add 60% for enhancement of new national scale of pay					494.771	1,236,925

Total Phase I + Phase II	Number of People	Person Months	Total Cost	
			(US\$)	(Lakh Tk)
Phase I	63	2,048	371,390	148.556
Phase II	63	2,394	677,333	270.933
<b>Total of Phase I &amp; II</b>		<b>4,442</b>	<b>1,048,723</b>	<b>419.489</b>
Extension	65	3,840	1,236,925	494.771
<b>G. Total</b>	<b>191</b>	<b>8,282</b>	<b>2,285,648</b>	<b>914.260</b>



## APPENDIX 4

**Item 43A : Detailed Estimate for Consultant Support Staff (Phase I - FY 91/93)**

Description	Number of People	Duration (Months)	Person Months	Rate (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Logistic Manager	1	32	32	60,000	19.200	48,000
Accountant	1	32	32	54,000	17.280	43,200
Administrative Assistant	1	30	30	12,000	3.600	9,000
Secretary	1	32	32	20,000	6.400	16,000
Receptionist	1	30	30	12,000	3.600	9,000
Reproduction Clerk	2	32	64	12,000	7.680	19,200
Drivers	7	30	210	10,000	21.000	52,500
Facilitator	1	32	32	6,000	1.920	4,800
Cleaner	1	32	32	6,000	1.920	4,800
Guards	12	32	384	6,000	23.040	57,600
AutoCad Operator	2	28	56	15,000	8.400	21,000
Other Technical Ass.	4	10	40	15,000	6.000	15,000
<b>Total</b>	<b>34</b>		<b>974</b>		<b>120.040</b>	<b>300,100</b>

**Item 43B : Detailed Estimate for Consultant Support Staff (Phase II - FY 93/97)**

Description	Number of People	Duration (Months)	Person Months	Rate (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Logistic Manager	1	30	30	60,000	18.000	45,000
Accountant	1	38	38	54,000	20.520	51,300
Administrative Assistant	1	30	30	12,000	3.600	9,000
Secretary	1	38	38	20,000	7.600	19,000
Receptionist	1	30	30	12,000	3.600	9,000
Reproduction Clerk	2	35	70	12,000	8.400	21,000
Drivers	9	25.8	250	10,000	25.000	62,500
Facilitator	1	38	38	6,000	2.280	5,700
Cleaner	1	38	38	6,000	2.280	5,700
Guards	10	31	310	6,000	18.600	46,500
AutoCad Operator	2	36.5	74	15,000	11.100	27,750
Other Technical Ass.	4	15.5	62	15,000	9.300	23,250
<b>Total</b>	<b>34</b>		<b>1008</b>		<b>130.280</b>	<b>325,700</b>

TOTAL PHASE I + PHASE II	NUMBER OF PEOPLE	PERSON MONTHS	TOTAL COST	
			(US\$)	(LAKH TK)
Phase I	34	974	300,100	120.040
Phase II	34	1008	325,700	130.280
<b>G. Total</b>		<b>1982</b>	<b>625,800</b>	<b>250.320</b>



**Item 43 C: Detailed Estimate for Consultants Support Staff (Phase II Extension - FY 97/03)**  
**Kalni-Kushiyara Community Development and Monitoring Project (FY 97/99)**

Description	Number of People	Duration Months	Person Months	Rate (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Topographic Surveyor	1	22	22	5000	1.10	2558
Autocad Operator	1	24	24	15000	3.60	8372
Primary Teacher	2	21	42	5000	2.10	4884
VET Instructor	2	21	42	5000	2.10	4884
Accountant	1	24	24	54000	12.96	30140
Field Bookkeeper	1	24	24	5000	1.20	2791
Project Secretary	1	24	24	20000	4.80	11163
Librarian	1	24	24	8000	1.92	4465
Clerk	1	24	24	7000	1.68	3907
Driver	3	24	72	10000	7.20	16744
Speed Boat Driver	2	22.5	45	6000	2.70	6279
Facilitator and Cleaner	2	24	48	6000	2.88	6698
Security Guards Office	4	24	96	6000	5.76	13395
Security Guards Field	6	24	144	3000	4.32	10047
Guards Houses	3	24	72	3000	2.16	5023
Guesthouse Manager	1	24	24	5000	1.20	2791
Guesthouse Staffs	4	24	96	2500	2.40	5581
<b>Total</b>	<b>36</b>		<b>847</b>		<b>60.08</b>	<b>139721</b>

**Dampara Water Management Project (FY 97/03)**

Description	Number of People	Duration Months	Person Months	Rate (Tk)	Total Cost	
					(Lakh Tk)	(US\$)
Topographic Surveyor	3	30	30	5000	1.500	3488
Autocad Operator	1	48	48	15000	7.200	16744
Gauge Reader	4	48	48	3000	1.440	3349
Accountant	1	36	36	54000	19.440	45209
Administrative Assistant	1	36	36	12000	4.320	10047
Secretary	1	36	36	20000	7.200	16744
Receptionist	1	60	60	12000	7.200	16744
Reproduction Clerk	1	60	60	12000	7.200	16744
Drivers	3	36	108	10000	10.800	25116
Speedboat Driver	1	48	48	6000	2.880	6698
Facilitator and Cleaner	2	36	72	6000	4.320	10047
Security Guards Office	2	36	72	6000	4.320	10047
Security Guards Field	3	48	144	3000	4.320	10047
Guards Houses	2	36	72	3000	2.160	5023
Guesthouse Manager	1	60	60	5000	3.000	6977
Guesthouse Staffs	3	60	180	2500	4.500	10465
<b>Total</b>	<b>30</b>		<b>1110</b>		<b>91.800</b>	<b>213488</b>

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**Item 43C: Detailed Estimate for Consultants Support Staff  
(Phase II, Extension) - Continued**

Total Phase I + Phase II Original + Phase II Extension	Number of People	Person Months	Total Cost	
			(Lakh Tk)	(US\$)
Phase I	34	974	120.04	300100
Phase II Original	34	1008	130.28	325700
Phase II Extension (KKCDMP + Dampara)	66	1957	151.88	353209
<b>Grand Total</b>	<b>134</b>	<b>3939</b>	<b>402.20</b>	<b>979009</b>

APPENDIX 5



**Item 45A : Cost Estimate for Equipment and Vehicles (Phase I - FY 91/93)**

Vehicle Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Jeep	4	25,000	100,000	40.000
Sedan	1	11,000	11,000	4.400
Van	1	18,000	18,000	7.200
<b>Total</b>			<b>129,000</b>	<b>51.600</b>

Equipment Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Computers	20	2,000	40,000	16.000
Printers	8	1,000	8,000	3.200
UPS	8	600	4,800	1.920
<b>Total</b>			<b>52,800</b>	<b>21.120</b>

**Item 45B : Cost Estimate for Equipment and Vehicles (Phase II - FY 93/97)**

Vehicle Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Speedboat	2	10,000	20,000	8.000
<b>Total</b>			<b>20,000</b>	<b>8.000</b>

Equipment Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Computers	6	3,000	18,000	7.200
Printers	4	1,500	6,000	2.400
UPS	4	600	2,400	0.960
GPS	2	6,000	12,000	4.800
<b>Total</b>			<b>38,400</b>	<b>15.360</b>

Note: The work volume has been increased due to implementation of two projects which require water transportation, the Kalni-Kushiyara and the Fishpass pilot projects.

The computers and printers have been increased based on the increased numbers of local professional staff.

**Item 45C: Cost for Equipment and Vehicles (Phase II Extension- FY 97/03)**

**Kalni-Kushiyara Community Development and Monitoring (FY 97/99)**

Equipment Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Computers	4	4000	16000	6.880
Printers	4	2000	8000	3.440
Ups	4	600	2400	1.032
DGPS	2	15000	30000	12.900
<b>Sub-Total</b>			<b>56400</b>	<b>24.252</b>

**Dampara Water Management Project (FY 97/03)**

Equipment Category	Number	Unit Cost (US\$)	Total Cost	
			(US\$)	(Lakh Tk)
Speedboat	1	10000	10000	4.300
<b>Sub-Total</b>			<b>10000</b>	<b>4.300</b>

Equipment Category	Total Cost	
	(US\$)	(Lakh Tk)
<b>TOTAL (KKCDMP + DAMPARA)</b>	<b>66400</b>	<b>28.552</b>

- NOTE: i) Provision of new computers have been made for the following purposes:
- Upgrade and update data base for transferring to BWDB with modern equipment
  - the computers purchased since 1991-96, mostly have become obsolete.
- ii) DGPS, latest equipment is required for bathy-metric survey. The old GPS machines become obsolete, since it was purchased in 1991/92.
- iii) To carry out construction and monitoring during the monsoon season, one speedboat is required at Netrokona. It may be mentioned here that the project does not have any speedboat at Netrokona.



APPENDIX 6



**Item 7A: Field Surveys and Investigations (Phase I - FY 91/93)**

Description of Work	Total Cost	
	(Lakh Tk)	(US\$)
Engineering Survey (2-nd Order Levelling Program)	87.531	218,828
Mapping (Aerial Photo)		
Agro-Economic Survey		
Socio-Economic Survey		
Institutional Survey		
Hydrometric Survey	3.600	9,000
Fisheries Survey		
<b>Totals</b>	<b>91.131</b>	<b>227,828</b>

**Item 7B : Field Surveys and Investigations (Phase II - FY 93/97)**

Description of Work	Total Cost	
	(Lakh Tk)	(US\$)
Engineering Survey (2-nd Order Levelling Program)	24.272	60,679
Mapping (Aerial Photo)	37.962	94,906
Agro-Economic Survey		
Socio-Economic Survey		
Institutional Survey		
Hydrometric Survey	5.280	13,200
Fisheries Survey		
<b>Totals</b>	<b>67.514</b>	<b>168,785</b>

## Item 7C: Field Survey and Investigation (Phase II Extension - FY 97/03)

## Kalni-Kushiyara Community Development and Monitoring (FY 97/99)

Description of Works	Total Cost	
	(Lakh Tk)	(US\$)
Hydrometric Survey	3.250	7558
<b>Sub-Total</b>	<b>3.250</b>	<b>7558</b>

## Dampara Water Management Project (FY 97/03)

Description of Works	Total Cost	
	(Lakh Tk)	(US\$)
Hydrometric Survey	1.250	2907
<b>Sub-Total</b>	<b>1.250</b>	<b>2907</b>

Hydrometric Survey	Total Cost	
	(Lakh Tk)	(US\$)
<b>KKCDMP + DAMPARA TOTAL</b>	<b>4.500</b>	<b>10465</b>

APPENDIX 7



**Item 52A : Miscellaneous Expenditure (Phase I - FY 91/93)**

Description	Unit Rate (Tk)	Duration (months)	Total Cost	
			(Lakh Tk)	(US\$)
Dhaka Office Rent	80,000	32	25.600	64,000
Sylhet Office Rent	30,000	32	9.600	24,000
Housing	60,000	245	147.000	367,500
Utilities	25,000	32	8.000	20,000
Furnishings			3.000	7,500
Stationery	40,000	32	12.800	32,000
Printing	10,000	32	3.200	8,000
Communications	30,000	32	9.600	24,000
<b>Total</b>			<b>218.800</b>	<b>547,000</b>

**Item 52B : Miscellaneous Expenditure (Phase II - FY 93/97)**

Description	Unit Rate (Tk)	Duration (months)	Total Cost	
			(Lakh Tk)	(US\$)
Dhaka Office Rent	80,000	38	30.400	76,000
Netrakona Office Rent	10,000	20	2.000	5,000
Ajmiriganj Office Rent	10,000	38	3.800	9,500
Kashimpur Office Rent	10,000	38	3.800	9,500
Utilities	30,000	38	11.400	28,500
Furnishings		38	3.000	7,500
Stationery	40,000	38	15.200	38,000
Printing	10,000	38	3.800	9,500
Communications	30,000	38	11.400	28,500
<b>Total</b>			<b>84.800</b>	<b>212,000</b>

Item 52 C: Miscellaneous Expenditure (Phase II Extension - FY 97/03)

Description	Unit Rate (Tk)	Duration (Months)	Total Cost	
			(Lakh TK)	(US\$)
Dhaka Office Rent	80000	60	48.00	111628
Netrokona Office Rent	10000	60	6.00	13953
Ajmiriganj Office Rent	10000	24	2.40	5581
Utilities	30000	60	18.00	41860
Furnishing		60	3.00	6977
Stationary	30000	60	18.00	41860
Printing	10000	60	6.00	13953
Communications	30000	60	18.00	41860
<b>Total</b>			<b>119.40</b>	<b>277674</b>

Kalni-Kushiyara Community Development & Monitoring	26.44	11070
Dampara Water Management Project	92.96	266604
<b>Total</b>	<b>119.40</b>	<b>277674</b>

**Item 52D : Construction (Phase II - FY 93/97)**

Description	Total Cost	
	(Lakh Taka)	(US\$)
Fishpass Structure	90.50	226,250
Pilot Dredging Project		
Dredging and Associated Works	568.92	1,422,300
Environmental Management Works	60.58	151,450
<b>Sub-Total</b>	<b>629.50</b>	<b>1,573,750</b>
<b>Total</b>	<b>720.00</b>	<b>1,800,000</b>

**Item 52E : Construction (Phase II Extension - FY 97/03)**

Description	Total Cost	
	(Lakh Taka)	(US\$)
<b>Dampara Water Management Project</b>		
Embankments, drainage & irrigation structures and channel excavation	385.00	962,500
O&M for 2 Years	53.00	132,500
Land Acquisition	257.00	642,500
<b>Sub-Total</b>	<b>695.00</b>	<b>1,737,500</b>
<b>Kalni-Kushiyara Community Development Project</b>		
Platform Protection and Maintenance	44.16	110,400
Community Development	21.57	53,925
<b>Sub-Total</b>	<b>65.73</b>	<b>164,325</b>
<b>Total</b>	<b>760.73</b>	<b>1,901,825</b>



## APPENDIX 8

**COMPARATIVE STATEMENT OF TOTAL PROJECT COSTS**  
(All costs are in Lakh Tk)

Sl. No	Description	Estimates as per Original Approved TAPP				Modified TAPP Cost Estimates				Increase/ Decrease
		Qty (Mos)	Tk Cost	F/E	Total	Qty (Mos)	Tk Cost	F/E	Total	
1	Northeast Regional Project Phase I	20	471.718	783.150	1258.869	32	1388.125	1339.940	2728.065	(+) 1469.196
2	Northeast Regional Project Phase II	36	2648.213	602.228	3256.441	38	2073.929	1257.592	3331.521	(+) 75.080
Total		56	3119.931	1385.379	4515.310	70	3534.774	2597.532	6132.306	(+) 1544.276

**Consultancy Costs Planned and Expended (Phase I)**  
(All costs are in Lakh Tk)

Financial Year	Expatriate Consultants		Local Consultants	
	Planned (TAPP June 90)	Expended (Actual)	Planned (TAPP June 90)	Modified (Actual)
91/92	339.176	470.592	78.000	73.417
92/93	389.506	443.963	85.022	173.621
93/94	0.0	356.745	0.0	128.480
Subtotal Phase I	728.682	1271.300	163.022	375.518

**Consultancy Costs Planned and Revised (Phase II)**  
(All costs are in Lakh Tk)

Financial Year	Expatriate Consultants		Local Consultants	
	Planned (TAPP June 90)	Modified (TAPP Sep 95)	Planned (TAPP June 90)	Modified (TAPP Sep 95)
93/94	302.055	118.915	86.888	55.626
94/95	209.079	501.682	109.827	296.474
95/96	77.554	385.498	30.178	301.411
96/97	19.048	237.737	1.173	137.289
Subtotal Phase II	607.735	1243.832	228.066	790.802
Total	1336.418	2515.132	391.088	1166.320

## COMPARATIVE STATEMENT OF EXPATRIATE AND LOCAL CONSULTANTS

### Person-Months Planned and Expended (Phase I)

Financial Year	Expatriate Consultants		Local Consultants	
	Planned (TAPP June 90)	Expended (Actual)	Planned (TAPP June 90)	Expended (Actual)
91/92	80.0	82.0	124.0	148.0
92/93	86.8	92.0	131.0	350.0
93/94	0.0	71.0	0.0	259.0
<b>Subtotal Phase I</b>	<b>166.8</b>	<b>245.0</b>	<b>255.0</b>	<b>757.0</b>

### Person-Months Planned and Revised (Phase II)

Financial Year	Expatriate Consultants		Local Consultants	
	Planned (TAPP June 90)	Modified (TAPP Sep 95)	Planned (TAPP June 90)	Modified (TAPP Sep 95)
93/94	67.0	25.0	133.4	94.0
94/95	46.4	95.5	168.5	501.0
95/96	17.2	70.5	46.3	516.0
96/97	4.4	39.0	1.8	230.0
<b>Subtotal Phase II</b>	<b>135.0</b>	<b>230.0</b>	<b>350.0</b>	<b>1341.0</b>
<b>Total</b>	<b>301.8</b>	<b>475.0</b>	<b>605.0</b>	<b>2098.0</b>



**A. Comparative Statement between Revised TAPP - 1995 and Revised TAPP - 1997**  
**All Cost in Lakh Taka**

Sl. No	Revised TAPP (1991-97) - Phase I & Phase II		Revised TAPP (1991 - 2003) Phase I, Phase II & Phase II Extension			
	Item 1	Quantity 2	Cost 3	Quantity 4	Cost 5	Quantity 6 Cost 7
1	Expatriate Consultants (Appendix 1)	36 (475 mm)	2515.132	46 (556.70 mm)	2992.285	10 (81.70 mm) 477.153
2	Local Consultants (Appendix 2)	94 (2098 mm)	1166.320	126 (2810.900 mm)	1644.038	32 (712.900 mm) 477.718
3	BWDB's Counterpart Personnel (Appendix 3)	126 (4442 mm)	419.489	191 (8282 m)	914.260	65 (3.840 mm) 494.771
4	Support Staff (Appendix 4)	68 (1982 mm)	250.320	134 (3939 mm)	402.200	66 (1957 mm) 151.88
5	Equipment and Vehicles (Appendix 5)	Equipment: 52 nos. Vehicles: 8 nos. Jeep - 4 = 40.00 Sedan - 1 = 4.40 Van - 1 = 7.20 Speedboat-2 = 8.00 Cost: (a) 36,480 (b) 59,600	a+b: 96.080	Equipment: 66 Nos. Vehicles: 9 Nos Jeep - 4 = 40.00 Sedan - 1 = 4.40 Van - 1 = 7.20 Speedboat-3 = 12.30 Cost: (a) 60,732 (b) 63,90	a+b: 124.632	Equipment: 14 nos Vehicle: 1 no 28,552
6	Survey and Investigation & Mapping (Appendix 6)	Survey Engineering Survey (2nd order levelling) Cost: 111,803 Mapping Cost: 37,962 Hydrometric Survey Cost: 8.88	158.645	Engineering Survey (2nd order levelling) Cost: 111,803 Mapping Cost: 37,962 Hydrometric Survey Cost: 13,380	163.145	Hydrometric Survey 4,500
7	Miscellaneous Expenditure Phase I & II (Appendix 7)	Dhaka Office Rent Cost: 56,000 Shylet Office Rent Cost: 9.6 Housing Cost: 147.00 Netrokona Office Rent Cost: 2.00 Ajmiriganj Office Rent Cost: 3.80 Kashimpur Office Rent Cost: 3.8 Utilities Cost: 19,400 Furnishing Cost: 6.00 Stationary Cost: 28.00 Printing Cost: 7.00 Communications Cost: 21.00	303.600	Dhaka Office Rent Cost: 104.00 Shylet Office Rent Cost: 9.6 Housing Cost: 147.00 Netrokona Office Rent Cost: 8.00 Ajmiriganj Office Rent Cost: 6.20 Kashimpur Office Rent Cost: 3.8 Utilities Cost: 37.40 Furnishing Cost: 9.00 Stationary Cost: 46.00 Printing Cost: 13.00 Communications Cost: 39.00	423.00	Dhaka Office Rent: Tk. 48.00 Netrokona Off. Rent: 6.00 Ajmiriganj Off. Rent: 2.40 Utilities: 18.00 Furnishings: 3.00 Stationary: 18.00 Printing: 6.00 Communication Cost: 18.00 119,400
8	Mobilization & Report	L.S	430.00	L.S	455.397	L.S 25,397
9	Construction (Appendix 7)		720.00		1480.730	760,730
	<b>Total</b>		<b>6059.586</b>		<b>8599.687</b>	<b>2540.101</b>

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APPENDIX 9



## JUSTIFICATION FOR REVISION OF TAPP

### Phase I

The person-months shown in the TAPP (June 1990) have been revised due to extension of the scope of the Phase I work. The TAPP (June 1990) states that Phase I is to include pre-feasibility study "of at least one priority subproject". At the start of the project, it was planned that one or two priority subprojects be studied. Instead, pre-feasibility studies were carried out for each initiative identified in the Northeast Regional Water Management Plan, as instructed by FPCO, and in accordance with the Flood Action Plan procedures. A total of 45 subprojects were studied at pre-feasibility level and were reported on in 24 pre-feasibility reports. Fifteen Specialist Studies were also prepared as supporting documents for the Regional Plan.

### Phase II

At the time of preparing the TAPP and TOR in 1990 the scope of work for Phase II was not known as the scope depended on the outputs from the Phase I Regional Plan studies. The TOR states that the person-months shown for Phase II are tentative; *"The input requirements of Phase II will be reviewed six months before the completion of Phase I"*. In 1990, it was assumed that one or two smaller priority subprojects would be selected "to increase agricultural productivity on about 25,000 hectares". Instead, four projects have been selected that have a total agricultural benefitted area of over 400,000 hectares.

Specific reasons for the revisions to the Phase II work include:

- The revisions to the Phase II work plan conform to the findings of the Phase I study in accordance with the original TAPP (June 1990) strategy.
- The pilot dredging can only be carried out during the post-monsoon season of 1995-96 after finalization of the pre-feasibility report. Impacts of the dredging works need to be monitored up to the end of 1996.
- The fishpass pilot structure is to be constructed in the upcoming dry season 1994-95. Calibrations of the structure, design optimization, and monitoring of impacts will take place over the following two years (1995-96 and 1996-97) up to May 1997.
- Extensive consultations with the local people were key to the preparation of the Northeast Regional Water Management Plan in Phase I. It is planned that the consultation process continue through feasibility studies, design, and implementation of projects. This process takes time and raises the expectations of the local people such that projects that are studied should proceed to implementation if viable.
- Environmental issues were given high priority in the preparation of the Northeast Regional Water Management Plan during Phase I in accordance with FPCO guidelines and to meet GOB and donor requirements. A full-scale Environmental Impact Assessment is included as part of the feasibility level studies.



### REASON FOR REVISION OF TAPP (SEPTEMBER 1997)

The TAPP of NERP has been revised for inclusion of two new pilot sub-projects such as; Kalni-Kushiyara Community Development and Monitoring Project and Dampara Water Management Project. As both the projects are feasible, CIDA has agreed to provide Technical Assistance CDN\$ 2.5 million for implementation of Kalni-Kushiyara Community Development and Monitoring Project and CDN\$ 3.5 million for Dampara Water Management Project. Therefore, both the projects have been undertaken for implementation.

## JUSTIFICATION FOR NEW POSITIONS

**Morphological Survey Specialist (C/MOR)** will assume responsibility for introduction and utilization of new automated survey techniques and data analysis during the preparation and implementation of Kalni-Kushiyara Improvement Project. This new technology and techniques are not currently available in Bangladesh. The activities will include conducting a comprehensive hydrographic survey over a 50 km length of the Kalni/Kushiyara River for assessing dredging requirements, navigation improvements and to carry out morphological modelling. Detailed repeated morphological surveys will also be required at several locations as part of Pilot Project monitoring. Data collection will involve various automated positioning systems such as electronic total stations and data loggers, and high precision satellite positioning systems using differential correction. Automated data analysis and map production will be carried out using computerized digital terrain modelling and CAD plotting packages.

**Social & Institutional Dimensions Specialist (C/SOC)** will assume responsibility for the social and institutional dimensions of the NERP Phase II Program. He will work closely with the Bangladeshi Senior Anthropologists, Training Specialist, Gender Specialist, and Community Organizers so as to impart on-the-job training to them. The objective of his activities is to introduce an effective multidisciplinary approach to the preparation of development schemes that will include: participatory rural appraisal, the impact of proposals on social equity, training and institutional development, action research, diagnostic analysis, and social gender analysis.

**Community Participation Specialist (C/CPS)** will introduce and field test Community Organization based process for community consultation as a component of NERP Phase II studies. The community participation approach, which has successfully been used in other countries in preparation of development projects, is new in Bangladesh, and as such it needs further development in the context of local conditions. The activities will also include training of Community Organizers, training of field candidates who would form the community committees, and work with gender specialists to develop a viable program for maximizing the role of women in community participation programs.

**Community Organizers (B/COR)** will support the extended local community participation and the field social survey programs in accordance with the FPCO guidelines, and to meet the donor requirements.

**Junior Fisheries Biologists (B/FISH)** will undertake field activities related to development of fisheries, collect field data, and study protection of the environment with close cooperation of local communities.

**Agriculture Field Assistants (B/AGRFA)** will assist the agronomist with the extended field investigation programs, carry out land use survey, collect data on crop production and agricultural practices in the feasibility study areas.

For new TAPP (Phase II - Extension) additional justification for position is not required. Since the proposed positions are the same as proposed in the Modified Phase II TAPP.

APPENDIX 10



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## TASKS AND QUALIFICATIONS OF EXPATRIATE PERSONNEL

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**POSITION:**

**CANADIAN TEAM LEADER (C/CTL)**

**SUMMARY DUTIES AND RESPONSIBILITIES:**

In general, the CTL will be responsible for all activities undertaken by the NERP. In this regard, he will have day-to-day responsibility for leading and managing the professional services of the SLI/NHC Joint Venture. His time will be partly allocated to the Management component, and partly in a technical quality assurance role. This latter responsibility means he will keep himself informed about all aspects of NERP. This will be achieved through participation in staff/electrical meetings, report writing or review, day-to-day conversations, and general liaison.

Specific duties/responsibilities will include:

- Full responsibility for all aspects of Planning, Liaison and Reporting;
- Provide advice and direction to the administration group, assuming responsibility for matters related to Canadian personnel, and assistance regarding local staffing matters as appropriate;
- Prepare project work plans, schedules, and progress reports;
- Liaise regularly with NERP Project Coordinators, Advisors and staff, and with concerned/involved agencies;
- Oversee all procurement of services, equipment and materials funded by CIDA;
- Coordinate short term specialist inputs with the Joint Venture Head Office and the offices of the local consultants; and
- Attend (as appropriate) official meetings related to NERP, the FAP and related projects.

**REQUIRED QUALIFICATION:**

BS in Engineering and 17 years of relevant experience or MS and 15 years of experience with at least five years experience as Team Leader.

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**POSITION:**

**WATER RESOURCES PLANNER (C/WRP)**

**SUMMARY DUTIES AND RESPONSIBILITIES:**

In general, the WRP will be responsible for management and planning of studies and designs related to water resources development activities undertaken by the NERP. In this regard, he will have day-to-day responsibility for coordinating activities of various professionals providing inputs to the Regional Plan.

Specific duties/responsibilities will include:

- Responsibility for quality assurance of technical studies and plans developed under the project;
- Assist the CTL in preparation of project work plans, schedules, and progress reports;
- Liaise regularly with NERP Project Coordinators, Advisors and staff; and
- Attend (as appropriate) official meetings related to NERP, the FAP and related projects.

## **REQUIRED QUALIFICATION:**

BS in Engineering and 17 years of relevant experience or MS and 15 years of experience with at least five years experience in design and planning of water resources on Regional Development projects.

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### **POSITION:**

**PLANNING/CIVIL ENGINEER (C/PENGR)**

### **SUMMARY DUTIES AND RESPONSIBILITIES:**

- Advise and assist in project activities including planning, feasibility, design, and supervision and monitoring of construction;
- Provide general technical advice on hydrological and engineering data requirement, design standards and construction;
- Assume responsibility for the construction of the fishpass structure and for contractual matters relating to the pilot dredging of the Kalni-Kushiyara River;
- Advise and assist Bangladeshi engineering staff in data collection, conducting investigations, preparation of plans, construction drawings, cost estimates, preparation and award of contracts, and construction supervision;
- Monitor disbursement of funds for construction works, and quality control of engineering works;
- Assist CTL in preparation of project work plans, schedules, and progress reports;
- Attend (as appropriate) official meetings related to NERP, the FAP and related projects.

## **REQUIRED QUALIFICATION:**

BS in Civil Engineering and 17 years of relevant experience or MS in Water Resources related science and 15 years of experience in design, planning and implementation of water projects, including projects in Bangladesh.

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### **POSITION:**

**MORPHOLOGICAL SURVEY SPECIALIST (C/MOR)**

### **SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for all aspects of automated hydrographic surveys based on satellite positioning for the Kalni-Kushiyara River Improvement Project;
- Organize and supervise the survey of river channel geometry as required to determine the volumes of material removed by dredging and assume responsibility for the accuracy of the volume calculated;
- Organize and supervise the long term programme to monitor morphological changes and environmental impacts of the Kalni-Kushiyara River dredging works;
- Work closely with Modelling and River/Sediment engineers in developing the river channel survey plan(s);
- Develop automated data collection and "CAD" analysis programme. Advise and assist in supervision of collection of samples for sediment, water quality and other morphological and environmental aspects related to river dredging;
- Advise and assist in procurement of river survey equipment;
- Identify facilities and monitor analyzing and processing of the acquired data;
- Participate in on-the-job training and Institution building with BWDB and BIWTA.

### **REQUIRED QUALIFICATION:**

BS in Civil/River Engineering and 10 years of relevant experience or MS and 7 years of practical experience.

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#### **POSITION**

#### **GROUNDWATER SPECIALIST (C/GRWR)**

#### **SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for all groundwater aspects of the Upper Kangsha River Basin Development. Identify the groundwater resources, water quality, suitable methods of extraction, and environmental impacts;
- Assess present and future use of groundwater for domestic, agriculture and industrial purposes in the Upper Kangsha basin;
- Assess groundwater recharge and potential;
- Identify present and future overuse and potential negative impacts on the aquifer and water quality;
- Make a trend analysis of groundwater exploitation;
- Evaluate impacts of groundwater withdrawal on agriculture and drinking water supply.

### **REQUIRED QUALIFICATION:**

BS in Engineering and 17 years of experience in groundwater development projects or MS in Hydrogeology and 15 years of experience.

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#### **POSITION:**

#### **HYDROLOGIST/MODELLING (C/HYDR)**

#### **SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for all hydrology and meteorology aspects of the Improved Flood Warning Pilot Project;
- Work closely with Bangladeshi Hydrologist on analyzing storm characteristics and flash floods in the Juri River;
- Develop practical methods of predicting flood magnitude according to meteorological field observations. Prepare a training material;
- Advise and assist Bangladeshi Hydrologist in training of rainfall observers.

### **REQUIRED QUALIFICATION:**

BS in Engineering and 17 years of experience in Hydrology and or MS in Hydrology/Water Resources and 15 years of experience.



**POSITION:****RIVER/SEDIMENT ENGINEER (C/SEDENGR)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for all sedimentation aspects of NERP;
- Work closely with the Bangladeshi Water Resources Engineer and the Planning and Design Engineer, and supervise the work of the Intermediate and Junior Sedimentation Engineers;
- Advise and assist with river engineering analysis, developing design criteria and conceptual hydraulic designs for river improvement works for the Kalni-Kushiyara Project;
- Work with the modelling group to assess hydraulic impacts of river improvement works;
- Advise on monitoring the engineering data collection effort, and synthesizing and processing the acquired data;
- Advise and assist with sedimentation aspects of the Upper Kangsha basin, Someswari Project, monitoring of the pilot dredging project, and the pre-feasibility and feasibility study for the Kalni-Kushiyara. Tasks include data reviews; data analysis; direction of field data collection on sediment; sedimentation analysis; development/adaptation of computer simulation of sediment transport as appropriate; analysis of impacts of projects on sedimentation and vice-versa; developing mitigative measures; reporting; and
- Participate in on-the-job training and, as requested, in classroom training and, as requested, in classroom training programs.

**REQUIRED QUALIFICATION:**

BS in Civil Engineering and 17 years of experience in river morphology related studies/design or MS in River Engineering and 15 years of experience.

**POSITION:****HYDRAULIC MODELLING SPECIALIST (C/MOD)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Take responsibility for and direct the Surface Water Simulation Model (SWSM) Program Group; this will involve all technical aspects of the modelling;
- Advise on, assist, and undertake various tasks involved with MIKE 11 modelling, including planning, scheduling, hardware/software procurement, schematization, model development, model maintenance, calibration, data collection, data handling, model application and documentation;
- Liaise with the Project Coordinators for the Kalni-Kushiyara project and the Upper Kangsha Basin and develop computer models for these proposed initiatives. Liaise with projects outside NERP which are involved with similar modelling, and with other FAP studies;
- Impart on-the-job training to the Bangladeshi counterpart professionals so as to ensure that they develop the capability to up-date and run the models independently.

**REQUIRED QUALIFICATION:**

BS in Engineering and 17 years of experience in Water Resources/Hydrological Analysis or MS in Mathematics/Computer Science with 15 years of experience in River/Hydrological Mathematical Modelling.

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**POSITION:****WID SPECIALIST/SOCIOLOGIST (C/SOC)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for the Social Studies and Gender aspects of the NERP Program. Guide and supervise the Bangladeshi Social specialists and field researchers. Work will include benchmark surveys, appraisal of rural social structure, social equity, and the impact of proposals on social equity;
- Prepare a Work Plan and design the study methodology and field surveys programme.
- Plan and supervise the socio-economic analysis, and advise and assist on gender aspects of Scenario Development for projects;
- Direct and monitor gender aspects of the Non-Engineering Database; and
- Advise and assist on gender issues and NGO Development.

**REQUIRED QUALIFICATION:**

MA in Social Science and 15 years of relevant experience or PhD in Social Anthropology and 10 years of experience, with 5 years of working experience in Asia (preferably in Bangladesh).

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**POSITION:****LIVESTOCK SPECIALIST (C/LSTOCK)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Analyze and assess the present state of livestock in the NE Region of Bangladesh;
- Identify existing constraints and opportunities for improvement of the livestock population;
- Examine potential for livestock development;
- Provide specialist input on livestock development for the NER Study;
- Formulate a plan for livestock development to help local needs and achieve national goal.

**REQUIRED QUALIFICATION:**

BS Zoology with 17 years of working experience with livestock or MS in Animal Science and 15 years of experience, including practical experience in animal husbandry in tropical countries.

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**POSITION:****GENDER (WID) SPECIALIST (C/GEN)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Prepare policy guidelines to integrate Gender Strategy at all stages of the project;
- Advise and assist Coordinators for the Kalni-Kushiyara and Upper Kangsha initiatives on Gender Issues;
- Contribute to the socio-economic analysis, and advise and assist on gender aspects of Scenario Development for projects;
- Direct and monitor gender aspects of the Non-Engineering Database; and
- Advise and assist on gender issues and NGO Development.

**REQUIRED QUALIFICATION:**

MA in Social Science and 15 years of relevant experience.

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**POSITION:****FISH BYPASS SPECIALIST (C/FISHBP)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Study fish behavior in the NE Region of Bangladesh;
- Identify the fish migration problems caused by infrastructure in the NE Region;
- Advise and recommend means to restore fish passage at the existing and planned facilities;
- Identify and document suitable fish passage facilities;
- Prepare fisheries guidelines and general biological and technical specifications for design of fishpass facilities;
- Advise on mitigation measures required with the future water development program.

**REQUIRED QUALIFICATION:**

BS in Civil Engineering and 15 years of relevant experience or MS and 10 years of practical experience in Fisheries Engineering including design of fishpass structures.

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**POSITION:****FISHERIES SPECIALIST (C/FISH)****SUMMARY DUTIES/RESPONSIBILITIES:**

- In general, advise and assist with the various aspects of fishery resources for the Kalni-Kushiyara, Upper Kangsha and Fishpass initiatives;
- Advise on the planning, designing and implementation of Fishpass Pilot project.
- Advise on the Monitoring of the Impacts of the Fishpass Pilot Project;
- Advise and assist with fishery-concerned input for all aspects of the Upper Kangsha River basin development project and Kalni-Kushiyara River Improvement Project;
- Advise on training requirements, and participate as requested, in classroom training.



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**REQUIRED QUALIFICATION:**

MS in Zoology (Fisheries) or Ichthyology and 15 years of relevant experience.

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**POSITION:** **FISH BYPASS ENGINEER SPECIALIST (AUS/FISH)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Advise in optimizing the adjustments for the Fishpass structure in connection with hydrological regulation of the fishpass;
- Advise on the monitoring of fish movement through the Fishpass structure;
- Advise on design adjustments in relation to the hydrological nature and swimming ability of different fish species.

**REQUIRED QUALIFICATION:**

MS in Fisheries Biology with a minimum of 10 years of practical experience in Fisheries Engineering.

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**POSITION:** **SOCIAL & INSTITUTIONAL DIMENSIONS SPECIALIST (C/SOC)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for the social and institutional dimensions of the NERP Phase 2 Program. Work closely with the Bangladeshi Senior Anthropologists, Training Specialist, Gender Specialist, and Community Organizers so as to impart on-the-job training to them. Work will include benchmark surveys, Participatory Rural Appraisal, social equity, and the impact of proposals on social equity;
- Training and institutional development which will include action research, diagnostic analysis, and Social Gender Analysis Training;
- Preparation and implementation of training programs.

**REQUIRED QUALIFICATION:**

MA or MS in Sociology or Social Science and 15 years of relevant experience including Operation and Management of water projects.

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**POSITION:** **COMMUNITY PARTICIPATION SPECIALIST (C/CPS)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Designing and field testing of a CO-based process for community consultation as a component of NERP Phase 2 studies;
  - Management of CO-based community participation activities;
  - Training of COs'
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- Identification and training of Bangladeshi candidates who would form the community committees;
  - Publicity and promotion of community participation activities;
  - Liaison with other community participation programs in Bangladesh;
  - Working with gender specialists to develop a viable program for maximizing the role of women in community participation programs.

**REQUIRED QUALIFICATION:**

MA or Degree in Social/Political Science and 15 years of experience in development of human resources and Operation and Management of large projects.

**POSITION:**

**ECONOMIST (C/ECON)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist and advise the feasibility study group by undertaking financial and economic analysis for the project feasibility Studies; this work will include projects economic impacts on roads and homesteads, fisheries, agriculture, incorporated with cropping systems, farm budgets, agricultural labor, benefit/cost streams, and justify the compatibility of regional study findings in the context of national economic goals.

**REQUIRED QUALIFICATION:**

MA Eco. and 15 years of experience in financial evaluation and planning of Regional/Agricultural projects.

**POSITION:**

**DREDGING IMPACT MANAGEMENT SPECIALIST (C/DREDG)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Advise and assist with all activities of the Pilot Dredging Operation/Feasibility Study and Database Monitor Groups of the Kalni-Kushiyara River Improvement Project;
- Assume responsibility for producing an effective Dredging Impact management Plan identifying key aspects associated with dredging operations and land disposal of spoil materials with mitigation measures, monitoring requirements, and so on;
- Provide general technical advice/review of social environmental data, criteria, policy etc., and input to planning, Pilot Dredging Operation and Feasibility Studies.

**REQUIRED QUALIFICATION:**

BS in Civil/River engineering and 17 years of relevant experience and/or Degree in Environment and 15 years of practical experience including environmental impact assessment studies.

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**POSITION:**

**ENVIRONMENT SPECIALIST (C/ENV)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Advise and assist on environmental issues and mitigation measures for the Upper Kangsha to ensure that they are adequately identified, documented, understood and addressed;
- Advise and assist with NGO development.

**REQUIRED QUALIFICATION:**

BS and 12 years of relevant experience or MS in Environment or Ecology and 10 years of experience on land reclamation and water development projects. experience.

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**POSITION:**

**RURAL PLANNER (C/RPL)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Advise and guide the NER Project team in conducting studies required for preparation of the Regional Water Management Plan, with properly addressed and understood multi-sectoral aspects of regional planning; and
- Assist the project planners in preparation of the Regional Plan within the context of the National Plan.

**REQUIRED QUALIFICATION:**

MS or PhD in Economics and/or Planning and minimum 15 years of relevant academic and practical experience in preparation of National and Regional Development Plans, including work in Asian countries.



## TASKS AND QUALIFICATIONS OF LOCAL PERSONNEL

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**POSITION:**
**WATER RESOURCES ENGINEER (B/WRE)**
**SUMMARY DUTIES/RESPONSIBILITIES:**

In general, his tasks will be to advise on planning of pre-feasibility studies, pilot project implementation, and feasibility studies taking into account the multi sectoral development.

His specific tasks will include:

- Responsibility for the Kalni-Kushiyara River Improvement Project. The main effort will be to ensure that an effective, interdisciplinary, and coordinated project planning and implementation effort is initiated and maintained; and that linkages are formed to address conflicting concerns between the hydraulic studies, agriculture, fisheries, navigation and beneficiaries;
- Review problems that need to be solved, identify opportunities and formulate development options that will respond to the needs in the project area;
- Provide general technical advice/review on hydrological and engineering data, criteria, policy etc., and input to and/or review of technical reports related to Planning, Feasibility Studies, and Pilot Project Implementation;
- Participate in all public participation meetings and on-the-job training;
- Assist with coordinating inputs of Bangladeshi short term specialists.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 17 years of relevant experience or MS in Water Resources and 15 years of working experience on development projects.

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**POSITION:**
**PLANNING AND DESIGN ENGINEER (B/PDE)**
**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for the Upper Kangsha River Basin Development Project. The main effort will be to ensure that an effective, interdisciplinary, and coordinated project planning and implementation effort is initiated and maintained; and that linkages are formed to address conflicting concerns between the hydraulic studies, agriculture, fisheries, navigation and beneficiaries, in general, tasks will be to advise from a multi-sector viewpoint for the Water Management Plan of the Upper Kangsha basin and feasibility studies;
- Review problems that need to be solved, identify opportunities and formulate development options that will respond to the identified needs in the project area;
- Provide general technical advice/review on hydrological and engineering data, criteria, policy etc., and input to and/or review of technical reports related to Planning and Feasibility Studies;
- Participate in all public participation meetings and on-the-job training;
- Assist with coordinating inputs of Bangladeshi short term specialists.

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**REQUIRED QUALIFICATION:**

Graduate Engineer with 17 years of relevant experience or MS and 15 years of experience.

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**POSITION:****HYDROLOGIST (B/HYDR)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assume responsibility for collection and processing of hydrological and meteorological data required for conducting of feasibility studies and for the design of pilot projects;
- Work closely with Canadian Hydrologist on analyzing storm characteristics and flash floods in the Juri River;
- Assist Canadian Hydrologist in developing practical methods of predicting flood magnitude according to meteorological field observations;
- Prepare a training material;
- Conduct training of rainfall observers.

**REQUIRED QUALIFICATION:**

BS in Civil Engineering/Hydrology and 12 years of relevant experience or MS and 10 years of experience in meteorological analysis and hydrologic designs.

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**POSITION:****SENIOR ANTHROPOLOGIST (B/SOC)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Work as directed by the Canadian Social Institutional Dimensions Specialist. There are two Senior anthropologists: one will be assigned to the Kalni-Kushiyara River Improvement Project and one to the Upper Kangsha River Basin Development;
- Provide socio-economic input to the respective project;
- Assist and supervise the Community Organizers in their day to day activities;
- Act as the Project Implementation Team's liaison with community representatives and local institutions including the NGOs'
- Advise and assist in forming the local committees and by involving the local community in each stage of the respective projects of the projects.

**REQUIRED QUALIFICATION:**

MA in Social Science with 15 years of experience social/demographic studies and statistical analysis of data.

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**POSITION:****SOCIO-ECONOMIST (B/SOCE)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Work as directed by the TL on social and socio-economic studies to be carried out for the development of the Regional Plan;
- Provide socio-economic input to the pre-feasibility studies;
- Conduct socio-economic field surveys for verification of the existing secondary data;
- Plan and conduct studies as required and prepare the relevant specialist studies reports.

**REQUIRED QUALIFICATION:**

BA graduate or MA in Social Science, like sociology, anthropology or social-economics with a minimum of 10 years of relevant experience.

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**POSITION:****HYDRAULIC MODEL SPECIALIST/  
SENIOR MODELLING ENGINEER (B/MOD)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Initially work as directed by the Canadian Modelling/Water Resource Engineer; in general this will involve all aspects of the modelling program, with emphasis on data preparation/input, model calibration, and day-to-day operation;
- Prepare a computer model for the studies of the Upper Kangsha basin and for the Kalni-Kushiyara area. By January 1995, assume responsibility for the modelling program.

**REQUIRED QUALIFICATION:**

BS in Civil Engineering with 12 years of relevant experience or MS in Hydrology and 10 years of experience including computer applications.

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**POSITION:****FISHERIES SPECIALIST (B/FISH)****SUMMARY DUTIES/RESPONSIBILITIES:**

There are two Bangladeshi Fishery Specialists. One specialist will be responsible for the implementation of the Fishpass pilot project and will provide inputs to the Kalni-Kushiyara Project. The second specialist will be assigned to the Upper Kangsha and Kalni-Kushiyara Projects. Specific duties will include:

- Supervise the development of the fishery aspects of the Database;
  - Design and direct the fishery aspects of development strategies for the Upper Kangsha river Basin Development Project and Kalni-Kushiyara river Improvement Project (as applicable);
  - Provide input to the feasibility studies of NERP projects;
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- Assist and participate in planning, designing, construction, operation of the Fishpass structure and supervise the monitoring work on the impact of fishpass pilot project (as applicable);
  - Advise on training requirements, and participate as requested, in classroom training.

**REQUIRED QUALIFICATION:**

BS in Ichthyology with 12 years of relevant experience or MS in Biology (Fisheries) and 10 years of experience in fisheries in Bangladesh.

**POSITION:**

**FISHERIES FIELD SPECIALIST (B/FFISH)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Develop Database for the fishery sector in the NE Region;
- Design and direct the fishery studies in the NE Region for the preparation of the specialist studies reports;
- provide specialist input and assist in the preparation of the NE Regional Plan;
- Provide input to the pre-feasibility studies of NERP projects.

**REQUIRED QUALIFICATION:**

BS with 12 years of experience in fisheries or MS in Biology (Fisheries) and 10 years of relevant experience.

**POSITION:**

**AGRONOMIST (B/AGR)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

Provide specialist input for the water management plan and feasibility studies for the Upper Kangsha River Basin Development and for the feasibility study of the Kalni-Kushiyara River Improvement Project. His duties and responsibilities will include the following:

- Determine agro-ecological characteristics;
- Determine agricultural resource utilization;
- Examine the present land utilization and agricultural production systems;
- Assess existing agricultural practices, farming systems, practice of agro-forestry, homestead production system, and harvest and post-harvest activities;
- Determine present input use and institutional support;
- Undertake detailed agricultural analysis;
- Examine potential for agricultural development;
- Develop projections of realistic and profitable modifications to cropping patterns;
- Determine input requirements and institutional support under the proposed changes in cropping patterns;
- Formulate a plan for agricultural development to help local needs and achieve national goal.

# **REQUIRED QUALIFICATION:**

BS Agr. with 17 years of relevant experience or MS in Agronomy and 15 years of experience in tropical agronomy.

## **POSITION:**

**LIVESTOCK SPECIALIST (B/LSTOCK)**

## **SUMMARY DUTIES/RESPONSIBILITIES:**

Provide specialist input for the feasibility study and livestock development plan for the Upper Kangsha River Basin Development to include the following:

- Determine livestock population;
- Assess existing animal use, management and production of livestock animal and poultry, draught animal supply, animal feed and fodder supply, and institutional support;
- Examine potential for livestock development;
- Determine draught animal requirements under the proposed changes in cropping patterns;
- Formulate a plan for livestock development to help local needs and achieve national goal.

# **REQUIRED QUALIFICATION:**

BS Zoology with 17 years of relevant experience or MS in Animal Science and 15 years of experience.

## **POSITION:**

**ENVIRONMENT ADVISOR (B/ENV)**

## **SUMMARY DUTIES/RESPONSIBILITIES:**

- Responsible for guiding and ensuring Environmental Impact Assessment (EIA) of Kalni-Kushiyara River Improvement Project and Upper Kangsha River Basin Development Project Feasibility studies following the EIA Guidelines of FPCO;
- Integrate activities of the professional involved in the multi-disciplinary feasibility study teams;
- Impart on the job training on EIA to the multi-disciplinary feasibility study team members.

# **REQUIRED QUALIFICATION:**

BS in Ecology/Agronomy with 17 years experience on water development projects or MS in Environment and 15 years of relevant experience.

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**POSITION:**

**EIA SPECIALIST (B/EIA)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Work with the multi-disciplinary feasibility study team members in collecting and analyzing data for EIA;
- Integration of the data from different disciplines leading to assessment of environmental impact;
- Qualitative analysis of sediment and water samples and their interpretation;
- Work closely with the Environment Adviser in the preparation of EIA Reports and imparting training on EIA to the multi-disciplinary feasibility study team members.

**REQUIRED QUALIFICATION:**

BS in Biology with 15 years of relevant experience or MS in Environment and 15 years of work on water development projects.

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**POSITION:**

**TRAINING/INSTITUTIONAL SPECIALIST (B/TRNG)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Work as directed by the Canadian Social and Institutional Dimensions Specialist;
- Prepare a training Plan for the counter part organizations based on training needs assessment;
- Implement the training programs in accordance with the training Plan which includes setting up of training objectives, establishing criteria for selection of participants, preparing training materials and arranging for all other logistic supports;
- Make arrangements for the Overseas training of the selected candidates of the counter part organizations as proposed in the Training Plan;
- Evaluate training programs and review their effectiveness;
- Make arrangement for people's participation meetings and distribute them to the participants of the meetings and other concerned persons and agencies.

**REQUIRED QUALIFICATION:**

MS in Engineering with degree and education and minimum 15 years of experience with technical training institutions including work in Bangladesh.

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**POSITION:**

**NAVIGATION SPECIALIST (B/NAV)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Conduct baseline studies for the water sector along the Kalni-Kushiyara and Kangsha Rivers including Inter-Country and In-Transit Cargo Movements to identify development constraints and opportunities;
- Identification of present status of traffic and cargo movements through traffic surveys and monitoring and from respective agencies; and



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- Assess impacts of proposed developments and identify facilities required for improved navigation.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 17 years of relevant experience or MS and 15 years of working experience with water transportation in Bangladesh.

**POSITION:**

**HYDRO-GEOLOGIST (B/HGHO)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Study the lithology of the area, identify aquifer characteristics and prepare contour map showing depths to aquifer;
- Quantify number of wells by type (STWs, DTWs and HTWs) and withdrawal volume by well type;
- Assess present use for domestic agriculture and industrial purposes;
- Identify any overuse and/or pollution;
- Make trend analysis in groundwater exploitation and use for the last 10-20 years and assumed trend in future;
- Assess groundwater recharge and potential for further development;
- Evaluate impacts on agriculture, drinking water and groundwater table due to withdrawal.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 17 years of experience in groundwater development or MS in Hydrogeology and 15 years of relevant experience.

**POSITION:**

**SENIOR WILDLIFE BIOLOGIST (B/WILD)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Participate in feasibility study of NERP projects as a member of the multi-disciplinary team, collect data on wildlife in the project areas, analyze the same and assess impacts of proposed projects;
- Advise and assist on issues and consideration regarding wildlife (Mammals, birds, reptiles & amphibians);
- Report on the general considerations of wetland ecology as these relate to animal habitat, aquatic plants, including considerations of water quality, natural pest control, biomass, nutrient cycling, etc. as a component of the feasibility study;
- Responsible for insuring that environmental issues relating to the wild flora and fauna are adequately identified, documented, understood and addressed with possible mitigation measures for increasing the threatened species population, giving protection, improving habitat, etc.;
- Advise and assist on environmental issues directly or indirectly linked with the wetlands and wetland-dependent flora and fauna.

**REQUIRED QUALIFICATION:**

BA in Biology with 15 years of work on ecology/environment studies or MS and 12 years of relevant experience.

**POSITION:**

**INTERMEDIATE MODELLING ENGINEER (B/MOD)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Work as directed by the Canadian Modelling Engineer/Bangladeshi Senior Modelling Engineer in the modelling group; in general this will involve all aspects of the modelling program, with emphasis on data preparation/input, analysis of data, model calibration, day-to-day operation;
- Modelling of feasibility studies of Kalni-Kushiyara River Improvement and Upper Kangsha River Basin Development Projects, and long term simulations; and
- Receive on the job-training leading to assuming responsibility of up-dating and running the models independently.

**REQUIRED QUALIFICATION:**

BS in Engineering with 7 years of experience in computer analysis or MS in Mathematics and 5 years of relevant experience.

**POSITION:**

**GENDER SPECIALIST (B/GEN)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Work with NERP Multidisciplinary Team Members on gender issues including the involvement of women in data generation and the consultation process in the Kalni-Kushiyara and Upper Kangsha Projects;
- Develop strategies to integrate CIDA's Gender Policy into all the stages of on-going project activities;
- Advise project coordinators and anthropologists on the practical applications of gender strategies;
- Prepare sectoral reports on gender activities of NERP;
- Work with the community organizers in encouraging more women's participation in the consultation process of the Kalni-Kushiyara and Upper Kangsha projects;
- Monitor gender aspects within the framework of the Northeast Regional Project to ensure a significant participation and contribution of women in the whole process.

**REQUIRED QUALIFICATION:**

BA with 12 years of relevant experience or MS in Social Science or Education and 10 years of experience in human relations.

**POSITION:****INTERMEDIATE ENGINEER (B/INT.ENG)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Bangladeshi Water Resource Engineer/Planning and Design Engineer on project engineering;
- Assemble all relevant data from the baseline studies;
- Plan and monitor engineering survey;
- Preparation of flood depth maps and floodphases during the pre-monsoon and monsoon seasons;
- Assess surface water availability, present use and future development potential for irrigation, navigation and fishery resources;
- Estimation of capital and operation and maintenance costs; and
- Participate in public participation meetings and on-the-job training and, as requested, in classroom training programs.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 7 years of relevant experience or MS in Engineering and 5 years of experience in water resources projects.

**POSITION:****INTERMEDIATE SEDIMENT ENGINEER (B/ISED)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Canadian River/Sediment Engineer as directed with various sedimentation aspects of the Kalni-Kushiyara River Improvement Project, Upper Kangsha River Basin Development Project, Feasibility Studies, GOB Training, and river surveys;
- Tasks include river survey; data reviews; data analysis; supervision of field data collection on sediment; responsibility for obtaining laboratory analysis of sediment; assistance with sedimentation analysis using methods defined by the Canadian River/Sediment Engineer; assistance with computer simulation of sediment transport; assistance with analysis of impacts of projects on sedimentation; assistance with developing mitigative measures; assistance with reporting; classroom training for GOB staff.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 7 years of relevant experience or MS in Engineering and 5 years of experience on water projects.



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**POSITION:****JUNIOR SEDIMENT ENGINEER (B/JSED)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Canadian and Bangladeshi River/Sediment Engineers as directed with various sedimentation aspects of the Kalni-Kushiyara River Improvement Project, Upper Kangsha River Basin Development Project, Feasibility Studies, and river surveys;
- Tasks include river survey; data reviews; data analysis; field data collection on sediment; obtaining laboratory analysis of sediment; assistance with sedimentation analysis using methods defined by the Canadian River/Sediment Engineer; assistance with computer simulation of sediment transport; assistance with analysis of impacts of projects on sedimentation; assistance with developing mitigative measures.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 5 years of relevant experience or MS in Engineering and 3 years of experience on water projects.

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**POSITION:****BOTANIST (B/BOT)****SUMMARY DUTIES/RESPONSIBILITIES:**

These duties and responsibilities are relevant to both Kalni-Kushiyara river Improvement and Upper Kangsha River Basin Development project.

- Report on plant conservation considerations relevant to water resource development in the project area, especially conservation of wild and local rice varieties and other threatened floral species;
- Report on general plant ecology as they relate to other various project induced influences;
- Report on forests and homestead vegetation baseline data of the project areas and its impacted zone, including general distribution, total area, trends and socioeconomic importance;
- Identification of possible project impact on plant community and report on its mitigation strategies;
- Prepare vegetation maps.

**REQUIRED QUALIFICATION:**

BS with 12 years of relevant experience or MS in Botany and 10 years of practical experience in Bangladesh.

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**POSITION:****AGRICULTURAL ECONOMIST (B/AGECON)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Canadian Economist and the Bangladeshi Senior Economist in data collection and economic analysis;
- Assist with preparation of sectoral studies, as required;
- Assist and advise the feasibility study groups by undertaking financial and economic analysis as directed; this work will include project economic impacts on roads and homesteads, fisheries, wetlands, agriculture, incorporated with cropping systems, farm budgets, agricultural labor, and benefit/cost streams; and
- Assist the Database/Monitor group as required in the acquisition and analysis of economic data.

**REQUIRED QUALIFICATION:**

BS with 7 years of relevant experience or MS Econ. and 5 years of experience in economical analysis of agricultural projects.

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**POSITION:****ENGINEERING SURVEY MONITOR (B/SMON)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Bangladeshi Water Resource Engineer and Planning and Design Engineer in surveys and data collection;
- Identify river cross-section locations by GPS and fix proposed embankment alignments;
- Advise and assist the topographic survey parties in the field;
- Ensure quality and progress of work; and
- Monitor the hydrometric data collection program including quality control.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 12 years of relevant experience or MS Surv. and 10 years of experience in topographic survey.

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**POSITION:****TOPOGRAPHIC SURVEYOR (B/TSR)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Engineering Survey Monitor;
- Survey river sections, cross-sections on proposed embankment alignments and long and cross-sections of drainage channels within proposed projects;
- Monitor aggradation/degradation of selected rivers through river cross-section surveys at pre-selected locations;
- Measure river water and sediment flows at selected stations.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 7 years of relevant experience or MS Surv. and 5 years of field experience.

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**POSITION:**

**JUNIOR ENGINEER (B/JE)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Bangladeshi Planning and Design Engineer;
- Collect and process field data;
- Assist senior professionals.

**REQUIRED QUALIFICATION:**

Graduate Engineer with 3 years of practical experience or MS and 2 years of experience.

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**POSITION:**

**JUNIOR FISHERIES BIOLOGIST (B/FISH)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist Fishery Specialist as directed;
- Undertake field activities related to the development of the fishery aspects of respective NERP projects;
- Participate in other fisheries activities under NERP.

**REQUIRED QUALIFICATION:**

BS Fisheries Honors or MS in Zoology (Fisheries).

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**POSITION:**

**JUNIOR WILDLIFE BIOLOGIST (B/JFBIOL)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Wildlife Biologist with field data and sample specimen collection;
- Monitor the dredging operational and collect biological information from the site; and
- Assist the EIA team by collecting in-depth field data.

**REQUIRED QUALIFICATION:**

BS Biology or MS in Wildlife.

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**POSITION:** **AGRICULTURAL FIELD ASSISTANT (B/AGRFA)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Agronomist with data collection;
- Carry out land use survey, collect data on crop production practices through monitoring in different seasons;
- Take crop cuts for assessing yield levels; and
- Collect data on crop damage, level of input use, and management.

**REQUIRED QUALIFICATION:**

Diploma in Soil Science or Agronomy.

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**POSITION:** **COMMUNITY ORGANIZER (B/COR)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Canadian Community Participation Specialist and the Bangladeshi Senior Anthropologist with data collection;
- Identify local groups comprising community representatives and assist them in active participation in the planning, implementation and O&M of projects;
- Collect primary data through formal and informal methods for use in the project study;
- Assist with the mobilization of community participation in the project; and
- Maintain liaison between NERP and local communities.

**REQUIRED QUALIFICATION:**

BA graduate of Social Science, like sociology, anthropology or political science.

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**POSITION:** **NAVIGATION FIELD ASSISTANT (B/NAVFA)**

**SUMMARY DUTIES/RESPONSIBILITIES:**

- Assist the Navigation Specialist with data collection;
- Carry out survey of boat movement, collect data on commercial and country boat passenger and cargo transportation; and
- Conduct public surveys on the present state and future requirement of water transportation along the Kalni-Kushiyara and Kangsha Rivers.

**REQUIRED QUALIFICATION:**

High School Certificate with 2 years of experience in field work and data collection or Diploma in Social Science.

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**POSITION:****AUTOCAD OPERATOR (B/AUTO OPRTR)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Digitize maps and drawings;
- Prepare maps, figures and construction drawings by AUTOCAD software;
- Prepare as-constructed drawings for the pilot schemes of the project.

**REQUIRED QUALIFICATION:**

Diploma Engineer with 5 years of experience in computer drafting.

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**POSITION:****GAUGE READER (B/GR)****SUMMARY DUTIES/RESPONSIBILITIES:**

- Read water level gauge five times a day;
- Keep the staff gauge free of floating debris and human disturbance; and
- Re-establish the gauge if it is washed away by high current and bring it to the notice of the supervisor for re-calibration.

**REQUIRED QUALIFICATION:**

Primary level literacy skill.



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**APPENDIX 11**



Task Name		1998												1999															
ID	Task Name	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	
1	MANAGEMENT (100)																												
2	Planning (110)																												
3	Liaison & Coordination (120)																												
4	Administration (130)																												
5	Reporting (140)																												
6	Quarterly Report	◆					◆					◆																	
14	Work Plan for 1998-99 FY							◆																					
16	Technical Progress Report					◆																							
20	Draft Completion Report																												
21	Final Completion Report																												
22																													
23	COMMUNITY DEVELOPMENT (200)																												
24	Institutional Strengthening (210)																												
25	Re-Formation of Committees																												
26	Community Contribution																												
27	District level Liaison																												
28	Community Work Facilitation (220)																												
29	Work Plan	◆																											
30	Draft Field Manual																												
31	Final Field manual																												
32	Parcels Planning																												
33	Households Re-settlement																												
34	Destitute Women Rehabilitation																												

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Summary

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Rolled Up Milestone

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Task

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Milestone

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31/10

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30/11

◆

30/06

◆

31/08

◆

31/08

KKCDMP Schedule

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ID	Task Name	1998												1999											
		A	S	O	N	D	J	F	M	A	M	J	J	A	S	O									
35	Tubewells																								
38	Water-Seal Latrines																								
41	Gazaria School-Community Centre																								
42	Gazaria School Opertn+ Transfer																								
43	Kakailseo Community Centre																								
44	Kakailseo Training Centre																								
45	Rehabilitation of Gazaria Mosque																								
46	Community Training (230)																								
47	Platform protection+Horticulture																								
50	Platform Planning+Horticulture																								
53	Platform Committee Workshops																								
58	Manual & Module Preparation																								
61	Womens Life Skills																								
64	Women's Masonry Construction																								
67	Women's Fish Processing																								
70	Women's Bamboo & Murta																								
73	Thana Workshops																								
78	Public Information+Mobilization																								
79	Social Monitoring (240)																								
80	Baseline Data																								
81	Impact Monitoring																								
82																									
83																									



Rolled Up Milestone



Summary



Task Milestone

KKCDMP Schedule

ID	Task Name	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
84	<b>SLOPE PROTECTION (300)</b>															
85	Protection of Existing Dykes (310)															
86	Permanent Drainage															
87	Stairs & Ghats															
88	Dykes Repair & Maintenance															
91	Trees Replanting															
94	Pre-Monsoon Protection															
97	Wave Assessment (320)															
98	Equipment Installation															
99	Measurement															
102	Analysis															
105	<b>Slope protection Alternatives (330)</b>															
106	Design															
107	Constuction															
108	Testing															
111	Evaluation															
112	Design Manual															
113																
114	<b>RIVER MONITORING (400)</b>															
115	Work Plan (410)															
116	River Survey (420)															
121	Results & Mapping (430)															
126	River Monitoring Training (440)															

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ID	Task Name	1998												1999															
		A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	
127																													
128	KNOWLEDGE BASE (500)	<div></div>																											
129	Inventory (510)	<div></div>																											
130	Computer & Software (520)	<div></div>																											
131	Information Loading & Maint. (530)	<div></div>																											
132	Knowledge Base Training (540)	<div></div>																											

KKCDMP Schedule	Task Milestone	Summary	Rolled Up Task	Rolled Up Milestone

NORTHEAST REGIONAL WATER MANAGEMENT PROJECT  
KALNI-KUSHIYARA COMMUNITY DEVELOPMENT AND MONITORING PROJECT  
STAFFING SCHEDULE

Position	Total	1997												1998												1999														
		S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A			
<b>Management &amp; Short Term</b>																																								
Project Director	2.4																																							
Project Administrator	2.4																																							
Head Office Secretary	2.4																																							
River Eng.	8.4																																							
Morphological Survey Eng.	2.4																																							
Community & Gender Spec.	2.4																																							
MIS Advisor	4.8																																							
<b>Long Term Field Staff</b>																																								
Team Leader	23.0																																							
Community & Gender Spec.	12.5																																							
<b>Bangladeshi Consultants</b>																																								
Water Resources Engineer	24.0																																							
Agriculturist	3.0																																							
Agriculture Field Assistant	22.0																																							
Int. Sediment Engineer	24.0																																							
Engineering Survey Monitor	22.0																																							
Training Consultant	1.9																																							
Sr. Anthropologist	24.0																																							
Community Organizer #1 (M)	24.0																																							
Community Organizer #2 (M)	23.0																																							
Community Organizer #3 (F)	23.0																																							
Community Organizer #4 (F)	23.0																																							
Community Organizer #5 (F)	23.0																																							
Process Documenter	24.0																																							



## CIDA FISCAL YEAR

Continuous



**PERSONNEL REQUIREMENT**  
(Main Consultancy)

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