E. PROJECT COST ESTIMATE

E. PROJECT COST ESTIMATE

E-1 MASTER PLAN STUDY

LIST OF TABLES

Table E.1 Standard Cost of Long-term Program for Char Area

Long-term Development Programs	Unit	Cost (Tk.)	Remarks
Sector-wise Programs			
1. Protection of Human Lives			
1-1 Flood Proofing Program			
1-1-1 Raising Plinth of Homestead Area	m3	50	Earth work only
1-1-2 Clustering Houses on High Platforms	nos	2,000,000	for 20 H/H, incl. homestead raising, hand tubewell, community latrine,etc.
1-2 Sheltering System Program			
1-2-1 Constructing Multi-purpose Flood Shelter	nos	11,000,000	Area 3,000 sq.m for people and cattles, incl. 2 shelter buildings, tubewell, community latrine clinic,etc.
1-2-2 Establishing Effective Flood Warning System	boat	200,000	One Engine boats for 200 refugees
1-2-3 Propagation of Flood Preparedness Awareness	gram	40,000	for flood preparedness Training cost of Gram by NGO
2. Living Environment Improvement			
2-1 Primary Health Care Promotion Program			
2-1-1 Enhancing Education of Nutrition and Health Care	gram	50,000	Nutrition and health care training to one Gram
2-1-2 Constructing Hand Tube-wells and Community Latrines			
1) Provision of Hand Tube-well	nos	4,500	for one raised hand tubewell
2) Provision of Sanitary Latrine	nos	55,000	for one community sanitary latrines
2-1-3 Providing Health Training	gram	25,000	Health Training to Village Doctor and Workers to one Gram
2-2 Rural Electrification Expansion Program			
2-2-1 Extending Electricity Line	km	1,600,000	for electricity line including substations/10 km
3. Livelihood Development (Objective 3)			
3-1 Communication Activation Program			
3-1-1 Strengthening Rural Road Network			
1) Paving FC embankment	km	1,900,000	RCC pavement on existing embankment
2) Constructing submersible road	km	3,600,000	Embankment and RCC pavement with tree plantation
3-1-2 Constructing Pontoon Transport and Submersible Bridges			
1) Pontoon Transport	nos	1,000,000	one set of steel floating pontoon
2) Submersible Bridge	nos	500,000	25m length of submersible bridge with brick pier and RCC slab
3-1-3 Improving Pontoon Launch Ghats	nos	10,000,000	steel floating pontoon ghat
3-1-4 Provision of Tele/ radio Communication Netwok			
1) Tele-communication	km	300,000	Cost of Telephone line extention
2) Radio-communication	nos	500,000	Cost of wireless radio
3-2 Appropriate Farming Technologies Intriduction Program			
3-2-1 Introducing Appropriate Farming Technologies			
1) Introducing to cultivate non-rice crops	gram	75,000	for Training cost to one Gram by DAE, UAO
2) Improving provision of crop seeds and other inputs	union	250,000	Cost of Seeds, fertilizer and other inputs supply to Union parishad
3-2-2 Providing Drying Yard with Parboilong Plant	nos	5,000,000	Area 1,500 sq.m of RCC pavement incl. Parboiling, milling plants and storage
3-3 Community Based Fishery Development and Management Program			
3-3-1 Introducing Fish Farm Tecnology	union	100,000	for Training cost to one Gram by DOF, UFO
3-3-3 Developing Pilot Fish Farm	farm	2,500,000	Earth digging and soil cement Cost for one fish pond of area 3,750 sq.m
3-4 Growth Center Construction Program			
3-4-1 Constructing Growth Center	G.C.	5,108,658	Area 2,000 sq.m of Growth center incl. Meat, fish, vegetable shed and women's corner, hand tubewel, community latrines, etc.
3-4-2 Strengthening Low Income Women's Groups	G.C.	50,000	Credit for starting women's group activity in one Growth center
3-5 Skill Traning Program			
3-5-1 Provision of Skill Training Program	person	30,000	Education and skill training cost to one person
3-5-2 Provision of Credit for Starting Business	person	30,000	Credit for starting business to one person
3-6 Primary Education Strengthening Program			
3-6-1 Reorganizing School Committees Provision of School Lunch Monitoring Absentee School Children	person	1,000	Cost of School lunch to one student for one year
3-6-2 Rehabilitation of School Facilities	nos	1,300,000	50% of one scholl construction cost incl. Building, hand tubewell, community latrines
4. Capacity Building (Objective 4)			
4-1 Social Mobilization and Institutional Building Program			
4-1-1 Organizing Villigers	gram	300,000	Implementation cost of PLA in one Gram
4-1-2 Establishment of Bottom-up Planning System from Village Level to Upazila			

Table E.2 Standard Cost of Long-term Program for Haor Area

Long-term Development Programs	Unit	Cost (Tk.)	Remarks
1. Protection of Human Lives			
1-1 Flood Proofing Program			
1-1-1 Raising Plinth of Village Mounds with Protection			
1) Earth-only protection with vegetation	mound	110,000	Cost for one mound of 250 m length with vegetation
2) Retaining wall of the erosion-affected village mound	mound	5,000,000	Cost for one mound of 250 m length with brick retaining wall
1-1-2b Expanding Area of Village Mounds	mound	6,900,000	One mound of 250 m length and 3m height of brick retaining wall with hand tubewell, latirne, etc.
1-1-3b Protection Measures against Wave Action			
1) Establishing a vegetative protection by Hijal and Koroch	mound	750,000	Cost for one mound of 250 m length with wave protection by Hijal and/or Koroch
2) Provision RCC retaining wall	mound	2,500,000	Cost for one mound of 250 m length with RCC retaining wall
1-2 Sheltering System Program			
1-2-1 Constructing Multi-purpose Flood Shelter	nos	11,000,000	Area 3,000 sq.m for people and cattles, incl. 2 shelter buildings, tubewell, community latrine clinic,etc.
1-2-2 Establishing Effective Flood Warning System	gram	500,000	One Engine boats for 200 refugees and wireless radio
1-2-3 Propagation of Flood Preparedness Awareness	gram	40,000	for flood preparedness Training cost of Gram by NGO
2. Living Environment Improvement			
2-1 Primary Health Care Promotion Program			
2-1-1 Enhancing Education of Nutrition & Health Care	gram	50,000	Nutrition and health care training to one Gram
2-1-2 Constructing Hand Tube-wells and Community Latrines			
1) Provision of Hand Tube-well	nos	4,500	for one raised hand tubewell
2) Provision of Sanitary Latrine	nos	55,000	for one community sanitary latrines
2-1-3 Providing Health Training	gram	25,000	Health Training to Village Doctor & Workers to one Gram
2-2 Rural Electrification Expansion Program			
2-2-1 Extending Electricity Line	km	1,600,000	for electricity line including substations/10 km
3. Livelihood Development (Objective 3)			
3-1 Communication Activation Program			
3-1-1 Strengthening Rural Road Network			
1) Paving flood control embankment	km	1,900,000	RCC pavement on existing embankment
2) Constructing submersible road	km	3,600,000	Embankment and RCC pavement with tree plantation
3-1-2 Constructing Pontoon Transport and Submersible Bridges			
1) Pontoon Transport	nos	1,000,000	one set of steel floating pontoon
2) Submersible Bridge	nos	500,000	25m length of submersible bridge with brick pier and RCC slab
3-1-3 Improving Pontoon Launch Ghats	nos	10,000,000	steel floating pontoon ghat
3-1-4 Provision of Tele/ radio Communication Netwok			
1) Tele-communication	km	300,000	Cost of Telephone line extention
2) Radio-communication	nos	300,000	Cost of wireless radio
3-2 Appropriate Farming Technologies Intriduction Program			
3-2-1 Introducing Appropriate Farming Technologies			
1) Introducing to cultivate non-rice crops	gram	75,000	for Training cost to one Gram by DAE, UAO
2) Improving provision of crop seeds and other inputs	union	250,000	Cost of Seeds, fertilizer and other inputs supply to UP
3-2-2 Constructing Submersible Embankment	km	2,500,000	Earthern submersible enbankment with regulating gate
3-3 Community Based Fishery Development and Management Program			
3-3-1 Introducing Fish Farm Tecnology	union	100,000	for Training cost to one Gram by DOF, UFO
3-3-2 Developing Pilot Fish Farm	farm	2,500,000	Earth digging and soil cement Cost for one fish pond of area 3,750 sq.m
3-4 Growth Center Construction Program			
3-4-1 Constructing Growth Center	G.C.	5,200,000	Area 2,000 sq.m of Growth center incl. market shed and women's corner, tubewel, community latrines, etc.
3-4-2 Strengthening Low Income Women's Groups	G.C.	50,000	Credit for starting women's group activity in one Growth center
3-5 Skill Traning Program			
3-5-1 Provision of Skill Training Program	person	4,000	Education and skill training cost to one person
3-5-2 Provision of Credit for Starting Business	person	10,000	Credit for starting business to one person
3-6 Primary Education Strengthening Program			
3-6-1 Reorganizing School Committees/Provision of School Lunch/Monitoring Absentee School Children	person	1,000	Cost of School lunch to one student for one year
3-6-2 Rehabilitation of School Facilities	nos	1,300,000	50% of one scholl construction cost incl. Building, hand tubewell, community latrines
4. Capacity Building			
4-1 Social Mobilization and Institutional Building Program			
4-1-1 Organizing Villigers	gram	300,000	Implementation cost of PLA in one Gram
4-1-2 Establishment of Bottom-up Planning System from Village Level to Upazila			

E. PROJECT COST ESTIMATE

E-2 FEASIBILITY STUDY

LIST OF TABLES

Table E.3 Summary of Project Cost for Algar Char and Gurai Gram

1. Algar Char Gram

Unit: Taka

Description		Amount	Remarks
A. Direct Cost			
I. Flood Proofing and Improvement of Living Environment			
I-1 Sheltering place by raising school groud		816,575	A=4,500 sq.m
I-2 Approach road to sheltering place		484,492	L=503 m
I-3 Homestaed raising		934,995	61 H/H
I-4 Raised hand tubewell		8,170	(1+5) nos.
I-5 Flood warning and evacuation		20,000	
Sub-total (I)		**2,264,232**	
II. Support Services for Livelihood Development			
II-1 Home gardening promotion with nurtition education		20,000	
II-2 Poultry promotion		20,000	
II-3 Skill training on hand weaving		14,000	
II-4 Mulberry plantation and cocoon production		20,000	
Sub-total (II)		**74,000**	
Direct Cost Total (A)		**2,338,232**	
B. Land Acquisition		**362,923**	A=10,674 sq.m
C. Indirect Cost			
I. Administrative cost	(5.0%) of Direct cost	116,912	
II. Engineering fee	(8.0%) of Direct cost	187,059	
Total (I+II)		**303,970**	
D. Physical Contingency	(10.0%) of Direct cost	**233,823**	
E. Price Contingency	(5.0%) of above total	**161,947**	
Ground Total (A+B+C+D+E)		**3,400,895**	

2. Gurai Gram

Unit: Taka

Description		Amount	Remarks
A. Direct Cost			
I. Flood Proofing and Improvement of Living Environment			
I-1 Mound protection		11,482,897	L=1,756 m
I-2 Raised hand tubewell		176,548	(19+27) nos.
I-3 Training on Flood warning and evacuation		20,000	
Sub-total (I)		**11,679,445**	
II. Support Services for Livelihood Development			
II-1 Poultry promotion		22,000	
II-2 Home gardening promotion with nurtition education		20,000	
II-3 Nursery development for social forestry		14,000	
II-4 Technical training on fish culture utilizing borrow pit		14,000	
II-5 Training on entrepreneurship & business management for a parboi		26,000	
Sub-total (II)		**96,000**	
Direct Cost Total (A)		**11,775,445**	
B. Land acquisition		**662,300**	A=8,950 sq.m
C. Indirect Cost			
I. Administrative cost	(5.0%) of Direct cost	588,772	
II. Engineering fee	(8.0%) of Direct cost	942,036	
Total (I+II)		**1,530,808**	
D. Physical contingency	(10.0%) of Direct cost	**1,177,545**	
E. Price contingency	(5.0%) of above total	**757,305**	
Ground Total (A+B+C+D+E)		**15,903,402**	

Table E.4 Summary of Project Cost for Algar Char Gram in Para Wise

Unit: Taka

Description		Amount	Remarks
A. Direct Cost			
1. Common			
I. Flood Proofing and Improvement of Living Environment			
I-1 Sheltering place by raising school groud		816,575	A=4,500 sq.m
I-2 Approach road to sheltering place		484,492	L=503 m
I-3 Flood warning and evacuation		20,000	
Sub-total (I)		**1,321,067**	
II. Support Services for Livelihood Development			
II-1 Home gardening promotion with nurtition education		20,000	
II-2 Poultry promotion		20,000	
II-3 Skill training on hand weaving		14,000	
II-4 Mulberry plantation and cocoon production		20,000	
Sub-total (II)		**74,000**	
1. Common Direct cost (I+II)		**1,395,067**	
III. Land Acquisition for sheltering place and road		**212,048**	A=6,237 sq.m
2. Mokbul bapari Para			
I. Flood Proofing and Improvement of Living Environment			
I-1 Homestaed raising		150,126	11 H/H
I-2 Raised hand tubewell		0	
2. Mokbul bapari Para Direct cost (I)		**150,126**	
II. Land Acquisition for homestead raising		**24,225**	A=713 sq.m
4. Aklas member/ Samad fokir Para			
I. Flood Proofing and Improvement of Living Environment			
I-1 Homestaed raising		342,392	22 H/H
I-2 Raised hand tubewell		0	
4. Aklas member/ Samad fokir Para Direct cost (I)		**342,392**	
II. Land Acquisition for homestead raising		**55,250**	A=1,625 sq.m
5. Joynal member/ Hassan Khalifa Para			
I. Flood Proofing and Improvement of Living Environment			
I-1 Homestaed raising		442,476	28 H/H
I-2 Raised hand tubewell		0	
5. Joynal member/ Hassan Khalifa Para Direct cost (I)		**442,476**	
II. Land Acquisition for homestead raising		**71,400**	A=2,100 sq.m
6. Zolil dewani Para			
I. Flood Proofing and Improvement of Living Environment			
I-1 Homestaed raising		0	
I-2 Raised hand tubewell		2,622	(0+3) nos.
6. Zolil dewani Para Direct cost (I)		**2,622**	
II. Land Acquisition for homestead raising		**0**	
7. Maher munshi Para			
I. Flood Proofing and Improvement of Living Environment			
I-1 Homestaed raising		0	
I-2 Raised hand tubewell		5,548	(1+2) nos.
7. Maher munshi Para Direct cost (I)		**5,548**	
II. Land Acquisition for homestead raising		**0**	
Direct Cost Total (A)		**2,338,232**	
B. Land Acquisition		**362,923**	
C. Indirect Cost			
I. Administrative cost	(5.0%) of Direct cost	116,912	
II. Engineering fee	(8.0%) of Direct cost	187,059	
Total (I+II)		**303,970**	
D. Physical Contingency	(10.0%) of Direct cost	**233,823**	
E. Price Contingency	(5.0%) of above total	**161,947**	
Ground Total (A+B+C+D+E)		**3,400,895**	

Table E.5 Summary of Project Cost for Gurai Gram in Para Wise

Unit: Taka

Description			Amount	Remarks
A. Direct Cost				
Common				
I. Flood Proofing and Improvement of Living Environment				
I-1 Training on flood warning and evacuation			20,000	
II. Support Services for Livelihood Development				
II-1 Poultry promotion			22,000	
II-2 Home gardening promotion with nutrition education			20,000	
II-3 Nursery development for social forestry			14,000	
II-4 Technical training on fish culture utilizing borrow pit			14,000	
II-5 Training on entrepreneurship & business management for a parboiling plant operation			26,000	
Sub-total (II)			**96,000**	
Common Direct Cost (I+II)			**116,000**	
III. Land acquisition for parboiling and fish ponds			**0**	
1. Chila Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			720,328	L=115 m
I-2 Raised hand tubewell			8,050	(1+0) nos.
1. Chila Para Direct cost (I)			**728,378**	
II. Land acquisition for homestead raising			**29,600**	A=400 sq.m
2. Bania Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			1,421,931	L=230 m
I-2 Raised hand tubewell			33,948	(4+2) nos.
2. Bania Para Direct cost (I)			**1,455,879**	
II. Land acquisition for homestead raising			**51,060**	A=690 sq.m
4. Uttar Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			1,863,754	L=307 m
I-2 Raised hand tubewell			0	
4. Uttar Para Direct cost (I)			**1,863,754**	
II. Land acquisition for homestead raising			**53,280**	A=720 sq.m
5. Fakir Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			995,993	L=154 m
I-2 Raised hand tubewell			874	(0+1) nos.
5. Fakir Para Direct cost (I)			**996,867**	
II. Land acquisition for homestead raising			**53,280**	A=720 sq.m
6. Jal Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			1,687,391	L=266 m
I-2 Raised hand tubewell			32,200	(4+0) nos.
6. Jal Para Direct cost (I)			**1,719,591**	
II. Land acquisition for homestead raising			**77,700**	A=1,050 sq.m
7. Kuna Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			1,298,872	L=202 m
I-2 Raised hand tubewell			8,740	(0+10) nos.
7. KunaPara Direct cost (I)			**1,307,612**	
II. Land acquisition for homestead raising			**66,600**	A=900 sq.m
10. Dakhin Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			1,410,023	L=227 m
I-2 Raised hand tubewell			29,394	(3+6) nos.
10. Dakhin Para Direct cost (I)			**1,439,417**	
II. Land acquisition for homestead raising			**53,280**	A=720 sq.m
11. Purba Para				
I. Flood Proofing and Improvement of Living Environment				
I-1 Mound protection			2,084,605	L=283 m
I-2 Raised hand tubewell			63,342	(7+8) nos.
11. Purba Para Direct cost (I+II+III+IV)			**2,147,947**	
II. Land acquisition for homestead raising			**277,500**	A=3,750 sq.m
Direct Cost Total (A)			**11,775,445**	
B. Land Acquisition			**662,300**	A=8,950 sq.m
C. Indirect Cost				
I. Administrative cost	(5.0%)	of Direct cost	588,772	
II. Engineering fee	(8.0%)	of Direct cost	942,036	
Total (I+II+III)			**1,530,808**	
D. Physical contingency	(10.0%)	of Direct cost	**1,177,545**	
E. Price contingency	(5.0%)	of above total	**757,305**	
Ground Total (A+B+C+D+E)			**15,903,402**	

Table E.6 Direct Construction Cost of Algar Char Gram in Para Wise

Unit: Taka

Description	Unit	Qty.	Unit cost	Amount	Remarks
1. Common					
I. Flood Proofing and Improvement of Living Environment					
I-1 Sheltering place by raising school groud				**816,575**	
I-1-1 Raising ground	LS	1	803,465	803,465	A=4,500 sq.m
I-1-2 Hand tubewell	no	3	4,370	13,110	
I-2 Approach road to sheltering place				**484,492**	
I-2-1 Approach road	m	503	864	434,363	
I-2-2 Culvert	no	3	16,710	50,129	
I-3 Flood warning and evacuation				**20,000**	
I-3-1 2-way wireless system	set		(450,000)	0	covered by the FFWC Pilot Project
I-3-2 Engine boat	no		(200,000)	0	covered by UZ office
I-3-3 Training on Flood warning and evacuation	LS	1	20,000	20,000	
Sub-total (I)				**1,321,067**	
II. Support Services for Livelihood Development					
II-1 Home gardening promotion with nurtition education	LS	1	20,000	20,000	
II-2 Poultry promotion	LS	1	20,000	20,000	
II-3 Skill training on hand weaving	LS	1	14,000	14,000	
II-4 Mulberry plantation and cocoon production	LS	1	20,000	20,000	
Sub-total (II)				**74,000**	
1.Common Direct cost Total(I+II)				**1,395,067**	
IV. Land Acquisition				**212,048**	
IV-1 Sheltering place by raising school groud	sq.m	4,275	34	145,350	
IV-2 Approach road to sheltering place	sq.m	1,962	34	66,698	
2. Mokbul bapari Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Homestaed raising	cu.m	1,425	105	**150,126**	11 H/H
I-2 Raised hand tubewell				**0**	
I-4-1 New hand tubewell	no			0	
I-4-2 Raising only	no			0	
2. Mokbul bapari Para Direct cost Total(I)				**150,126**	
II. Land Acquisition for homestead raising	sq.m	713	34	**24,225**	
4. Aklas member/ Samad fokir Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Homestaed raising	cu.m	3,250	105	**342,392**	22 H/H
I-2 Raised hand tubewell				**0**	
I-4-1 New hand tubewell	no			0	
I-4-2 Raising only	no			0	
4. Aklas member/ Samad fokir Para Direct cost Total(I)				**342,392**	
IV. Land Acquisition for homestead raising	sq.m	1,625	34	**55,250**	
5. Joynal member/ Hassan Khalifa Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Homestaed raising	cu.m	4,200	105	**442,476**	28 H/H
I-2 Raised hand tubewell				**0**	
I-4-1 New hand tubewell	no			0	
I-4-2 Raising only	no			0	
5. Joynal member/ Hassan Khalifa Para Direct cost Total(I)				**442,476**	
IV. Land Acquisition for homestead raising	sq.m	2,100	34	**71,400**	
6. Zolil dewani Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Homestaed raising	cu.m	0	105	**0**	
I-2 Raised hand tubewell				**2,622**	
I-4-1 New hand tubewell	no	0	3,800	0	
I-4-2 Raising only	no	3	874	2,622	
6. Zolil dewani Para Direct cost Total(I)				**2,622**	
IV. Land Acquisition for homestead raising	sq.m	**0**	34	**0**	
7. Maher munshi Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Homestaed raising	cu.m	0	105	**0**	
I-2 Raised hand tubewell				**5,548**	
I-4-1 New hand tubewell	no	1	3,800	3,800	
I-4-2 Raising only	no	2	874	1,748	
7. Maher munshi Para Direct cost Total(I)				**5,548**	
IV. Land Acquisition for homestead raising	sq.m	**0**	34	**0**	
Direct Construction Total				**2,338,232**	

Table E.7 Direct Construction Cost of Gurai Gram in Para Wise

Unit: Taka (1/2)

Description	Unit	Qty.	Unit Cost	Amount	Remarks
Common					
I. Flood Proofing and Improvement of Living Environment				0	
I-1 Training on flood warning and evacuation	LS	1	20,000	**20,000**	
II. Support Services for Livelihood Development					
II-1 Poultry promotion	LS	1	22,000	22,000	
II-2 Home gardening promotion with nurtition education	LS	1	20,000	20,000	
II-3 Nursery development for social forestry	LS	1	14,000	14,000	
II-4 Technical training on fish culture utilizing borrow pit	LS	1	14,000	14,000	
II-5 Training on entrepreneurship & business management f	LS	1	26,000	26,000	
Sub-total (II)				**96,000**	
Common Direct cost (I+II)				**116,000**	
III. Land Acquisition				**0**	
1. Chila Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**720,328**	
I-1-1 Retaining wall by Brick masonry	m	115	5,672	652,239	
I-1-2 Earth filling	cu.m	800	85	68,089	
I-2 Raised hand tubewell				**8,050**	
I-2-1 New hand tubewell	no	1	8,050	8,050	
I-2-2 Raising only	no	0	874	0	
1. Chila Para Direct cost (I)				**728,378**	
II. Land Acquisition for homestead raising	sq.m	400	74	**29,600**	
2. Bania Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**1,421,931**	
I-1-1 Retaining wall by Brick masonry	m	230	5,672	1,304,477	
I-1-2 Earth filling	cu.m	1,380	85	117,454	
I-2 Raised hand tubewell				**33,948**	
I-2-1 New hand tubewell	no	4	8,050	32,200	
I-2-2 Raising only	no	2	874	1,748	
2. Bania Para Direct cost (I)				**1,455,879**	
II. Land Acquisition for homestead raising	sq.m	690	74	**51,060**	
4. Uttar Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**1,863,754**	
I-1-1 Retaining wall by Brick masonry	m	307	5,672	1,741,194	
I-1-2 Earth filling	cu.m	1,440	85	122,561	
I-2 Raised hand tubewell				**0**	
I-2-1 New hand tubewell	no	0	8,050	0	
I-2-2 Raising only	no	0	874	0	
4. Uttar Para Direct cost (I)				**1,863,754**	
II. Land Acquisition for homestead raising	sq.m	720	74	**53,280**	
5. Fakir Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**995,993**	
I-1-1 Retaining wall by Brick masonry	m	154	5,672	873,433	
I-1-2 Earth filling	cu.m	1,440	85	122,561	
I-2 Raised hand tubewell				**874**	
I-2-1 New hand tubewell	no	0	8,050	0	
I-2-2 Raising only	no	1	874	874	
5. Fakir Para Direct cost (I)				**996,867**	
II. Land Acquisition for homestead raising	sq.m	720	74	**53,280**	

Table E.7 Direct Construction Cost of Gurai Gram in Para Wise

(2/2)

Description	Unit	Qty.	Unit Cost	Amount	Remarks
6. Jal Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**1,687,391**	
I-1-1 Retaining wall by Brick masonry	m	266	5,672	1,508,656	
I-1-2 Earth filling	cu.m	2,100	85	178,734	
I-2 Raised hand tubewell				**32,200**	
I-2-1 New hand tubewell	no	4	8,050	32,200	
I-2-2 Raising only	no	0	874	0	
6. Jal Para Direct cost (I)				**1,719,591**	
II. Land Acquisition for homestead raising	sq.m	1,050	74	**77,700**	
7. Kuna Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**1,298,872**	
I-1-1 Retaining wall by Brick masonry	m	202	5,672	1,145,671	
I-1-2 Earth filling	cu.m	1,800	85	153,201	
I-2 Raised hand tubewell				**8,740**	
I-2-1 New hand tubewell	no	0	8,050	0	
I-2-2 Raising only	no	10	874	8,740	
7. Kuna Para Direct cost (I)				**1,307,612**	
II. Land Acquisition for homestead raising	sq.m	900	74	**66,600**	
10. Dakhin Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**1,410,023**	
I-1-1 Retaining wall by Brick masonry	m	227	5,672	1,287,462	
I-1-2 Earth filling	cu.m	1,440	85	122,561	
I-2 Raised hand tubewell				**29,394**	
I-2-1 New hand tubewell	no	3	8,050	24,150	
I-2-2 Raising only	no	6	874	5,244	
10. Dakhin Para Direct cost (I)				**1,439,417**	
II. Land Acquisition for homestead raising	sq.m	720	74	**53,280**	
11. Purba Para					
I. Flood Proofing and Improvement of Living Environment					
I-1 Mound protection				**2,084,605**	
I-1-1 Retaining wall by Brick masonry	m	255	5,672	1,446,268	
I-1-2 Earth filling	cu.m	7,500	85	638,336	
I-2 Raised hand tubewell				**63,342**	
I-2-1 New hand tubewell	no	7	8,050	56,350	
I-2-2 Raising only	no	8	874	6,992	
11. Purba Para Direct cost (I)				**2,147,947**	
II. Land Acquisition for homestead raising	sq.m	3,750	74	**277,500**	
Direct Construction Total				**11,775,445**	

Table E.8 Construction Cost Breakdown (1/5)

1-1. Revetment by Brick Chips in Gabion with Vegetaition (H=2.8 m) **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	3.100	29	91	
Backfill	cu.m	4.800	56	268	
Brick gabion	sq.m	6.500	1,059	6,886	t=0.30 m
Brick wall	cu.m	0.530	1,311	695	with masonry work
Concrete 1:3:6	cu.m	0.054	728	39	incl.homework
Flat brick	cu.m	0.054	978	53	
Filter sand	cu.m	0.600	237	142	
Geotextile	sq.m	7.100	124	878	
Anckor	set	3.000	71	213	
Top anchor	set	1.000	224	224	
Hijol/ Koroch vegetation	sq.m	3.000	230	690	
Total				**10,180**	

1-2. Revetment by Brick Chips in Gabion with Vegetaition (H=2.0 m) **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	2.300	29	67	
Backfill	cu.m	3.200	56	179	
Brick gabion	sq.m	5.000	1,059	5,297	t=0.30 m
Brick wall	cu.m	0.530	1,311	695	with masonry work
Concrete 1:3:6	cu.m	0.053	728	39	incl.homework
Flat brick	cu.m	0.053	978	51	
Filter sand	cu.m	0.300	237	71	
Geotextile	sq.m	5.500	124	680	
Anckor	set	2.000	71	142	
Top anchor	set	1.000	224	224	Reinforced bar 1.5 kg
Hijol/ Koroch vegetation	sq.m	3.000	230	690	
Total				**8,136**	

Table E.8 Construction Cost Breakdown (2/5)

2-1. Revetment by CC. Blocks (H=3.0 m) **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	1.100	29	32	
Backfill	cu.m	4.500	56	251	
Concrete block	sq.m	8.850	625	5,528	40x40x15cm
Geotextile	sq.m	9.900	124	1,224	100+7.5 labour charge
Filter sand	cu.m	0.890	237	211	t=10 cm
Brick wall	cu.m	0.060	1,311	79	with masonry work
Brick base	cu.m	0.120	978	117	t=15 cm
Total				**7,442**	

2-2. Revetment by CC. Blocks (H=2.0 m) **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	1.100	29	32	
Backfill	cu.m	2.760	56	154	
Concrete block	sq.m	6.300	625	3,935	40x40x15cm
Geotextile	sq.m	7.250	124	896	100+7.5 labour charge
Filter sand	cu.m	0.630	237	149	t=10 cm
Brick wall	cu.m	0.060	1,311	79	with masonry work
Brick base	cu.m	0.120	978	117	t=15 cm
Total				**5,363**	

3-1. Retaining Wall by RCC (H=3.0 m) **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	4.600	29	135	
Backfill	cu.m	7.900	56	441	
R.C.C. 1:2:4(crushed stone)	cu.m	2.320	5,281	12,253	incl.reinforce, homewor
Filter sand	cu.m	0.160	237	38	
Brick base	cu.m	0.230	978	225	
Weep hole	unit	2.000	13	27	
Total				**13,118**	

3-2. Retaining Wall by RCC (H=2.0 m) **(per 1.0 m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	3.000	29	88	
Backfill	cu.m	4.400	56	246	
R.C.C. 1:2:4(crushed stone)	cu.m	1.380	5,281	7,288	incl.reinforce, homewor
Filter sand	cu.m	0.080	237	19	
Brick base	sq.m	2.600	978	2,542	
Weep hole	unit	1.000	13	13	
Total				**10,196**	

4-1. Retaining Wall by Brick Masonry (H=3.0 m) **(per 3.0 m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	10.710	29	314	
Backfill	cu.m	14.040	56	784	
Brick woks	cu.m	9.370	1,311	12,286	with masonry work
Concrete 1:3:6	cu.m	4.950	728	3,604	incl.homework
Weep hole	set	2.000	13	27	
Total (per 3.0 m length)				17,015	
Total (per meter)				**5,672**	

Table E.8 Construction Cost Breakdown (3/5)

4-2. Retaining Wall by Brick Masonry (H=1.75 m) **(per 3.0 m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	7.200	29	211	
Backfill	cu.m	7.130	56	398	
Brick works	cu.m	5.860	1,311	7,684	with masonry works
Concrete 1:3:6	cu.m	1.800	728	1,311	incl.homework
Weep hole	set	1.000	13	13	
Total (3.0 m length)				9,617	
Total per meter				**3,206**	

5-1. Wave Protection by RCC Wall (H=4.0 m) **(per 3.0 m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	6.300	29	185	
Backfill	cu.m	3.350	56	187	
R.C.C. 1:2:4(crushed stone)	cu.m	3.140	5,281	16,584	incl.reinforce, homewor
Total (3.0 m length)				16,955	
Total per meter				**5,652**	

5-2. Wave Protection by RCC Wall (H=3.0 m) **(per 3.0 m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	5.700	29	167	
Backfill	cu.m	2.850	56	159	
R.C.C. 1:2:4(crushed stone)	cu.m	2.680	5,281	14,154	incl.reinforce, homewor
Total (3.0 m length)				14,480	
Total per meter				**4,197**	

6. Unit Cost of Brick Masonry

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Brick bats	cu.m	1.000	978	978	material
Brick works	cu.m	1.000	334	334	masonry work
Total				**1,311**	

7. Unit Cost of Brick Gabion Mattless **(per sq.m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Wire mesh	sq.m.	2.400	247	663	2.00 x 120%
Brick chips	cu.m.	0.300	1,093	328	
Settlement for brick gabion	L.S.	1.000	69	69	(Wire mesh)x10%
Total				**1,059**	

8. Unit Cost of Weep Hole **(per sq.m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Bambou pipe	m	0.350	20	7	
Sand bag	1bag	1.000	4	4	
Plug sand	L.S.	0.012	206	2	
Total				**13**	

9. Unit Cost of Anchor **(per set)**

Concrete 1:3:6	cum	0.016	4,444	71	

10.Unit Cost of Eartfilling **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Embankment	cu.m	1.000	56	56	
Excavation	cu.m	1.000	29	29	
Total				**85**	

Table E.8 Construction Cost Breakdown (4/5)

10. Approach road to School **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Brick pavement	sq.m	0.140	198	28	
Striping(excavation)	cu.m	1.500	29	44	
Embankment(backfill)	cu.m	7.800	56	435	
Plantation and turfing	sq.m	10.000	13	127	
Road side tree	m	1.000	230	230	
Total				**864**	

11. Culvert **(per no.)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation		108.000	29	3,163	
Brick works		21.600	334	7,209	with masonry work
R.C.C. 1:2:4 (crushed stone)		1.200	5,281	6,338	incl.reinforced, homework
Back filling		0.000	56	0	incl.in road
Total				**16,710**	

12. Unit Cost of Brick Pavement **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Brick chips	cu.m	0.055	1,093	60	t=0.05x1.0x110%
Brick chips works	sq.m	1.000	138	138	
Total				**198**	

13. Fish Pond **(per pond)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation	cu.m	6,160.000	29	180,429	
Plantation	sq.m	300.000	230	69,000	
Brick pavement	cu.m		1,230	0	
Soil cement	cu.m				
Total				**249,429**	

Table E.8 Construction Cost Breakdown (5/5)

14. Dry yard, Parboiling and Milling Plant **(per plant)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Excavation(Striping)	cu.m	180.000	29	5,272	15x80x0.15m
Filter sand	cu.m	60.000	237	14,228	15x80x0.05m
R.C.C. 1:2:4 (Brick chips)	cu.m	120.000	4,444	533,307	15x80x0.10m
Milling, Store house,	sq.m	140.000	805	112,700	10x7m x 2 house
Parboiling house	sq.m	70.000	575	40,250	10x7m x 1 house
Milling	no	1.000	138,000	138,000	
Parboiling plant	set	1.000	92,000	92,000	
Tubewell	no	2.000	8,050	16,100	
Total				**951,857**	

15. Sheltering Place by School Raising

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Embankment	cu.m	8,550.000	56	477,270	
Excavation	cu.m	8,550.000	29	250,434	
Plantation and turing	m	270.000	281	75,762	
Total				**803,465**	

16. Plantation and Turfing **(per m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Plantation	sq.m	1.000	230	230	
Turfing	m	4.000	13	51	
Total				**281**	

17. Homestead Raising **(per cu.m)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Embankment	cu.m	1.000	56	56	
Excavation	cu.m	1.000	29	29	
turing	m	0.400	51	20	
Total				**105**	

18. Training on Flood Warning and Evacuation **(per H/H)**

Description	Unit	Quantity	Unit price (Tk.)	Amount (Tk.)	Remarks
Food for Training	H/H	1.000	1,000	1,000	
Teacher				0	
Total				**1,000**	

Table E.9 Unit Construction Cost

Escalation rate		15%		Unit cost	
Description	Unit	Unit cost (Tk.)	Remarks	in 2002 (Tk.)	
Unskilled labour	no	70.0	per day	60.00	
Skilled labour	no	86.3	per day	75.00	
Head mason	no	160.0	per day	140.00	
Ordinal mason	no	140.0	per day	120.00	
Excavation	cu.m	29.3		25.47	
Embankment/Backfill	cu.m	55.8		48.54	
Brick bats	cu.m	977.5		850.00	
Brick chips	cu.m	1,092.5		950.00	
Brick works	cu.m	333.7		290.20	
Brick chips work	sq.m	137.8	for pavement	119.83	
Concrete block	sq.m	624.6	40x40x15cm	543.11	
R.C.C. 1:2:4(crushed stone)	cu.m	5,281.4	incl.reinforce, homework	4,592.56	
R.C.C. 1:2:4(brick chips)	cu.m	4,444.2	incl.reinforce, homework	3,864.54	
Concrete 1:3:6	cu.m	728.1	incl.homework	633.17	
Filter sand	cu.m	237.1		206.21	
Geotextile	sq.m	123.6		107.50	
Anckor	set	71.1		61.85	
Top anchor	set	224.3		195.00	
Wire mesh	sq.m	247.1		214.85	
Settlement for brick gabion	LS	69.0	(Wire mesh)x10%	60.00	
Bamboo pipe	m	8.1		7.00	
Sand bag	bag	4.6		4.00	
Plug sand	LS	2.8		2.47	
Turffing	sq.m	12.7		11.00	Tk.4+7(material+work)
Hijol/ Koroch vegetation	sq.m	230.0		200.00	
Tubewell	no	1,150.0		1,000.00	
GI pipe (50 mm)	m	287.5		250.00	
Hand pump for Char(D=30m	no	4,370.0	incl.construction	3,800.00	based on questionnaire
Hand raising only	no	874.0			1/5 of new construction
Hand pump for Haor(D=75m	no	8,050.0	incl.construction	7,000.00	based on questionnaire
House for store	no	805.0		700.00	
House for Parboiling plant	no	575.0		500.00	
Parboiling plant	set	92,000.0		80,000.00	
Milling	set	138,000.0		120,000.00	
2-way wireless radio	set	450,000.0			
Engine boat	no	200,000.0			
Land acquisition					
1)Char homestead area	sq.m	34.0			
2)Haor homestaed area	sq.m	250.0			
3)Char farmland	sq.m	34.0			
4)Haor farmland	sq.m	74.0			
Training on warning	H/H	1,000.0			

Sources: STANDARD SPECIFICATIONS & SCHEDULE OF RATES October 2000
(Mymensingh Region)

Table E.10 Summary of Annual Maintenance Cost for Algar Char and Gurai Gram

1. Algar Char Gram

	Description	Unit	Qty.	Unit M. Cost	Amount	Remarks
I. Flood Proofing and Improvement of Living Environment						
I-1	Sheltering place by raising school groud	LS	1	28,248	28,248	
I-2	Approach road to sheltering place	LS	1	20,262	20,262	
I-3	Flood warning and evacuation	LS	1	0	0	
I-4	Homestaed raising	H/H	61	877	53,473	
I-5	Raised hand tubewell	no	6	219	1,311	
OM Cost Total					**103,294**	

2. Gurai Gram

	Description	Unit	Qty.	Unit M. Cost	Amount	Remarks
I. Flood Proofing and Improvement of Living Environment						
I-1	Mound protection	m	1,756	121	211,627	
I-4	Raised hand tubewell	no	46	403	18,515	
OM Cost Total					**230,142**	

Table E.11 Annual Maintenance Cost of Algar Char Gram

	Description	Unit	Qty.	Unit M. Cost	Amount	Remarks
1.	**Common OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**48,510**	
I-1	Sheltering place by raising school groud	LS	1	28,248	28,248	
I-2	Approach road to sheltering place	LS	1	20,262	20,262	
I-3	Flood warning and evacuation	LS	1	0	0	
2.	**Mokbul bapari Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**9,643**	
I-1	Homestaed raising	H/H	11	877	9,643	
I-2	Raised hand tubewell	no	0	219	0	
4.	**Aklas member/ Samad fokir Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**19,285**	
I-1	Homestaed raising	H/H	22	877	19,285	
I-2	Raised hand tubewell	no	0	219	0	
5.	**Joynal member/ Hassan Khalifa Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**24,545**	
I-1	Homestaed raising	H/H	28	877	24,545	
I-2	Raised hand tubewell	no	0	219	0	
6.	**Zolil dewani ParaOM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**656**	
I-1	Homestaed raising	H/H	0	877	0	
I-2	Raised hand tubewell	no	3	219	656	
7.	**Maher munshi Para**					
	I. Flood Proofing and Improvement of Living Environment				**656**	
I-1	Homestaed raising	H/H	0	877	0	
I-2	Raised hand tubewell	no	3	219	656	
OM Cost Total					**103,294**	

Table E.12 Annual Maintenance Cost of Gurai Gram

	Description	Unit	Qty.	Unit M. Cost	Amount	Remarks
1.	**Chila Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**14,262**	
I-1	Mound protection	m	115	121	13,859	
I-4	Raised hand tubewell	no	1	403	403	
2.	**Bania Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**30,134**	
I-1	Mound protection	m	230	121	27,719	
I-4	Raised hand tubewell	no	6	403	2,415	
4.	**Uttar Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**36,999**	
I-1	Mound protection	m	307	121	36,999	
I-4	Raised hand tubewell	no	0	403	0	
5.	**Fakir Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**18,962**	
I-1	Mound protection	m	154	121	18,560	
I-4	Raised hand tubewell	no	1	403	403	
6.	**Jal Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**33,667**	
I-1	Mound protection	m	266	121	32,057	
I-4	Raised hand tubewell	no	4	403	1,610	
7.	**Kuna Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**28,369**	
I-1	Mound protection	m	202	121	24,344	
I-4	Raised hand tubewell	no	10	403	4,025	
10.	**Dakhin Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**30,980**	
I-1	Mound protection	m	227	121	27,357	
I-4	Raised hand tubewell	no	9	403	3,623	
11.	**Purba Para OM Cost**					
	I. Flood Proofing and Improvement of Living Environment				**36,769**	
I-1	Mound protection	m	255	121	30,732	
I-4	Raised hand tubewell	no	15	403	6,038	
OM Cost Total					**230,142**	

Table E.13 Unit Maintenannce Cost for Algar Char Gram

Annual Maintenance Work for Approch Road to Sheltering place **(for all) (per 0.5 km)** **Unit: Taka**

	Description		Unit	Qty.	Unit Cost	Amount	Remarks
I. Routine maintenance work (per 500m)							
I-1	One group of Length-person system	(per month)	m-day	220	70	15,400	10 workers x 22 days/month
	Annual cost per one group	(per 20 km)	month	11	15,400	**169,400**	11 months/ year
I-2	Equipment for 10 workers						
1)	Basket		no	4	100	400	
2)	Shovel		no	4	200	800	
3)	Pick axe		no	1	150	150	
4)	Hand rammer		no	2	300	600	
	Sub-total					1,950	
	Total maintenance cost per 20 km					171,350	Annual cost per 20 km
	Annual maintenannce per 0.5 km (I)					**4,284**	**Annual cost per 0.5 km**
II. Periodic maintenance work after flood season							
	One group of length-person system		month	1.0	15,400	15,400	1 month x 1 group/year
	Annual maintenance cost (II)					**5,133**	**once a 3 years**
III. Emergency maintenance work after 20 years-frequency flood							
	Two groups of length-person system		month		15,400	0	2 months x 2 group/20-years
	Annual maintenance cost (III)					**0**	**Once a 20-years**
IV.	**Care taker for plantation**		month	12	500	**6,000**	**for 0.5 km**
V. Material	(1% of construction cost)		ls	1	484,492	**4,845**	**Annual**
Total Annual Maintenance Cost						**20,262**	**(per 0.5 km: for all)**

Annual Maintenance Work for Homestead Raising **(per H/H: 100 sq.m)** **Unit: Taka**

	Description		Unit	Qty.	Unit Cost	Amount	Remarks
I. Periodic maintenance work after flood season							
I-1	One group of Length-person system	(per month)	m-day	110	70	7,700	5 workers x 22 days/month
	Annual cost per one group	(per H/H)	month	0.2	7,700	**1,540**	**1 week/ year**
						513	**once a 3 years**
I-2	Equipment for 5 workers						
1)	Basket		no	2	100	200	
2)	Shovel		no	2	200	400	
3)	Pick axe		no	1	150	150	
4)	Hand rammer		no	1	300	300	
	Sub-total (per 5 years)					1,050	**for 5 year**
	Sub-total (Annual)					**210**	**Annual**
	Annual maintenance cost (I)					**723**	**Annual cost per H/H**
II. Emergency maintenance work after 20 years-frequency flood							
II-1	One group of length-person system		month		15,400	0	2 weeks x 1 group/20-years
	Annual maintenance cost (II)					**0**	**Once a 20-years**
III. Material	(1% of construction cost)		ls	1	15,328	**153**	Ave. height 1.5m x 100sq.m
Total Annual Maintenance Cost						**877**	**(per H/H)**

Annual Maintenance Work for Sheltering Plase (School) **(per school: 4,500 sq.m)** **Unit: Taka**

	Description		Unit	Qty.	Unit Cost	Amount	Remarks
I. Periodic maintenance work after flood season							
I-1	One group of Length-person system	(per month)	m-day	220	70	15,400	10 workers x 22 days/month
	Annual cost per one group	(per H/H)	month	1.0	15,400	**15,400**	**1 month x 1 group/ year**
						5,133	**once a 3-years**
I-2	Equipment for 5 workers						
1)	Basket		no	4	100	400	
2)	Shovel (Kodar)		no	4	200	800	
3)	Pick axe		no	1	150	150	
4)	Hand rammer		no	2	300	600	
	Sub-total (per 5 years)					1,950	**for 5 years**
	Sub-total (Annual)					**390**	**Annual**
	Annual maintenance cost (I)					**5,523**	**Annual**
II. Emergency maintenance work after 20 years-frequency flood							
II-1	Two group of length-person system		month		15,400	0	2 month x 2 group/20-years
	Annual maintenance cost (II)					**0**	**Once a 20-years**
III.	**Care taker for plantation**		month	12	500	**6,000**	**for 0.5 km**
IV. Material							
III-1	Raising	(1% of construction cost)	ls	1	803,465	**8,035**	4,500sq.m
III-2	Tubewell	(5% of construction cost)	ls	1	13,110	**656**	3 nos.
	Sub-total (Annual)					**8,690**	
Total Annual Maintenance Cost						**28,248**	**(per School)**

Annual Maintenance Work for Hand Tubewell (School) **(per tubewell)** **Unit: Taka**

	Description		Unit	Qty.	Unit Cost	Amount	Remarks
I. Material							
	Tubewell	(5% of construction cost)	ls	1	4,370	**219**	per no.
Total Annual Maintenance Cost						**219**	**(per tubewell)**

Component of Length-person system (one group)	Unit	Person	Unit Cost	(per day) Amount
1. Earth excavator by Shovel (Kodar)	m-day	2	70	140
2. Earth carrier by banboo basket	m-day	4	70	280
3. Earth levellor by Shovel (Kodar) and glass cutter by Pick	m-day	2	70	140
4. Earth compacter Hand rammer	m-day	2	70	140
Total	m-day	**10**		**700**

Table E.14 Unit Maintenannce Cost for Gurai Gram

Annual Maintenance Work for Retaining Wall **(per 100 m)** **Unit: Taka**

Description	Unit	Qty.	Unit Cost	Amount	Remarks
I. Periodic maintenance work after flood season	month	0.5	12,760	**6,380**	0.5 month x 1 group
II. Emergency maintenance work after 20 years-frequency fl	month		12,760	**0**	1 month x 1group
III. Material					
Wall (1% of construction cost)	ls	1	567,164	**5,672**	per 100 m
Total Annual Maintenance Cost				**12,052**	**(per 100m)**

(per 100m/day)

Component of Brick masonry repairing group (one group)	Unit	Person	Unit Cost	Amount	
I-1 Masonry skilled labour	m-day	1	160	160	10 workers x 22 days/month
Asst. masonry skilled labour	m-day	2	140	280	**1 month x 1 group/ year**
Unskilled labour	m-day	2	70	140	
Sub-total (per 100m/ day)				**580**	**(per day)**
100m/day				**12,760**	**(per month)**

Annual Maintenance Work for Hand Tubewell (School) **(per Tubewell)** **Unit: Taka**

Description	Unit	Qty.	Unit Cost	Amount	Remarks
I. Material					
Tubewell (5% of construction cost)	ls	1	8,050	**403**	per no.
Total Annual Maintenance Cost				**403**	**(per Tubewell)**