

Table E.21 Breakdown of Direct Cost for Kurang River Improvement
on Short-term Project

ITEM NO.	BQ-ITEMS	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
SD	KURANG RIVER IMPROVEMENT				
SD1	KURANG RIVER IMPROVEMENT				
SD1.1	Clearing and Grubbing	m ²	82,000	16.91	1,387,000
SD1.2	Excavation and Embankment Works				
E1.2.1	Common Excavation	m ³	82,000	79.73	6,538,000
E1.2.2	Dike Embankment	m ³	82,000	122.85	10,074,000
SD1.3	Slope Protection (Sodding)	m ²	37,000	60.11	2,224,000
SD1.4	Drainage Outlet	place	30	4,383.78	132,000
SD1.5	Miscellaneous Works	L.S.			2,036,000
Sub-total					22,391,000
Direct Cost Total					22,391,000

Table E.22 Breakdown of Compensation Cost for Kurang River Improvement
on Short-term Project

Item No.	Items	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
SDC	KURANG RIVER IMPROVEMENT				
SDC1	LAND ACQUISITION				
SDC1.1	Residential Area A	m ²	0	11,000	0
SDC1.2	Residential Area B	m ²	0	5,500	0
SDC1.3	Residential Area C	m ²	0	3,000	0
SDC1.4	Agricultural Area A	m ²	0	2,000	0
SDC1.5	Agricultural Area B	m ²	0	1,600	0
SDC1.6	Bare Land A	m ²	0	2,000	0
SDC1.7	Bare Land B	m ²	0	1,600	0
SDC1.8	Forest	m ²	0	500	0
Sub-total					0
EC2	HOUSE EVACUATION				
SDC2.1	House Type A	house	0	8,000,000	0
SDC2.2	House Type B	house	0	3,000,000	0
SDC2.3	House Type C	house	110	100,000	11,000,000
SDC2.4	House Type D	house	0	50,000	0
SDC2.5	Apartment House Type A	house	0	200,000,000	0
SDC2.6	Apartment House Type B	house	0	50,000,000	0
Sub-total					11,000,000
Total					11,000,000

Table E.23 Breakdown of Direct Cost for Flood Diversion Channel on Long-term Project

Item No.	Items	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
LC	DIVERSION CHANNEL				
LC1	Diversion Channel (Bedarawali Kas - Tenawali Kas)				
LC1.1	Clearing and Grubbing	m ²	171,000	16.91	2,892,000
LC1.2	Fixed Weir				
LC1.2.1	Common Excavation	m ³	900	214.73	193,000
LC1.2.2	Reinforced Concrete	m ²	60	7,102.84	426,000
LC1.2.3	Mass Concrete	m ³	570	3,270.82	1,864,000
LC1.2.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
LC1.2.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
LC1.2.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	220	1,870.00	411,000
LC1.2.7	Cut-Off Concrete	m ²	250	3,270.80	818,000
LC1.2.8	Sodding	m ²	140	61.11	9,000
LC1.3	Diversion Weir				
LC1.3.1	Common Excavation	m ³	3,100	214.73	666,000
LC1.3.2	Reinforced Concrete	m ²	230	7,102.84	1,634,000
LC1.3.3	Mass Concrete	m ³	2,280	3,270.82	7,457,000
LC1.3.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
LC1.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
LC1.3.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	470	1,870.00	879,000
LC1.3.7	Cut-Off Concrete	m ²	540	3,270.80	1,766,000
LC1.3.8	Sodding	m ²	140	61.11	9,000
LC1.4	Diversion Channel (L=2,450m)				
LC1.4.1	Common Excavation	m ³	1,148,000	214.73	246,510,000
LC1.4.2	Dike Embankment	m ²	0	122.85	0
LC1.4.3	Revetment (Wet Stone Masonry)	m ²	0	1,670.01	0
LC1.4.4	Revetment (Wet Stone Pitching)	m ²	26,700	1,204.09	32,149,000
LC1.4.5	Sodding	m ²	49,500	61.11	3,025,000
LC1.4.6	Reinforced Concrete	m ²	18,840	7,102.84	133,818,000
LC1.4.7	Floor Concrete	m ²	15,000	4,670.71	70,061,000
LC1.4.8	Drainage Outlet	place	50	29,225.20	1,461,000
LC1.5	Bridge				
LC1.5.1	Bridge BT1 with Piers and Abutments	m ²	850	44,464.26	37,795,000
LC1.5.2	Bridge BT2 with Piers and Abutments	m ²	850	44,464.26	37,795,000
LC1.5.3	Bridge BT3 with Piers and Abutments	m ²	560	44,464.26	24,900,000
LC1.5.4	Bridge BT4 with Piers and Abutments	m ²	500	44,464.26	22,232,000
LC1.6	Miscellaneous Works	L.S.			63,199,000
Sub-total					695,191,000
LC2	Diversion Channel (Tenawali Kas - Saidpur Kas)				
LC2.1	Clearing and Grubbing	m ²	130,000	16.91	2,198,000
LC2.2	Hydraulic Drop (Tenawali Kas)			0.00	
LC2.2.1	Common Excavation	m ³	5,200	214.73	1,117,000
LC2.2.2	Mass Concrete	m ³	400	3,270.82	1,308,000
LC2.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	370	1,870.00	692,000
LC2.2.4	Revetment (Wet Stone Pitching)	m ²	2,960	1,204.09	3,564,000
LC2.3	Intake Weir (Tenawali Kas)				
LC2.3.1	Common Excavation	m ³	100	214.73	21,000
LC2.3.2	Reinforced Concrete	m ²	10	7,102.84	71,000
LC2.3.3	Mass Concrete	m ³	30	3,270.84	98,000
LC2.3.4	Revetment (Wet Stone Pitching)	m ²	680	1,204.09	819,000
LC2.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
LC2.4	Hydraulic Drop (Kanitawali Kas)				
LC2.4.1	Common Excavation	m ³	2,100	214.73	451,000
LC2.4.2	Mass Concrete	m ³	500	3,270.82	1,635,000
LC2.4.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	460	1,870.00	860,000
LC2.4.4	Revetment (Wet Stone Masonry)	m ²	970	1,670.01	1,620,000
LC2.5	Diversion Weir (Saidpur Kas)				
LC2.5.1	Common Excavation	m ³	4,100	214.73	880,000
LC2.5.2	Reinforced Concrete	m ²	250	7,102.84	1,776,000
LC2.5.3	Mass Concrete	m ³	2,500	3,270.82	8,177,000
LC2.5.4	Revetment (Wet Stone Masonry)	m ²	1,320	1,670.01	2,204,000
LC2.5.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	2	720,000.00	1,440,000
LC2.5.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	840	1,870.00	1,571,000
LC2.5.7	Aqueduct	m ²	150	53,421.00	8,013,000
LC2.6	Diversion Channel (L=2,150m)				
LC2.6.1	Common Excavation	m ³	443,000	214.73	95,125,000

Item No.	Items	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
LC2.6.2	Dike Embankment	m ³	47,000	122.85	5,774,000
LC2.6.3	Revetment (Wet Stone Masonry)	m ²	30,400	1,670.01	50,768,000
LC2.6.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
LC2.6.5	Sodding	m ²	17,700	61.11	1,082,000
LC2.6.6	Reinforced Concrete	m ³	0	7,102.84	0
LC2.6.7	Floor Concrete	m ²	21,390	4,670.71	99,906,000
LC2.6.8	Drainage Outlet	place	50	29,225.20	1,461,000
LC2.7	Bridge				
LC2.7.1	Bridge TS1 with Piers and Abutments	m ²	390	44,464.26	17,341,000
LC2.7.2	Bridge TS2 with Piers and Abutments	m ²	510	44,464.26	22,677,000
LC2.7.3	Bridge TS3 with Piers and Abutments	m ²	470	44,464.26	20,898,000
LC2.7.4	Bridge TS4 with Piers and Abutments	m ²	470	44,464.26	20,898,000
LC2.7.5	Bridge TS5 with Piers and Abutments	m ²	510	44,464.26	22,677,000
LC2.7.6	Bridge TS6 with Piers and Abutments	m ²	550	44,464.26	24,455,000
LC2.7.7	Bridge TS7 with Piers and Abutments	m ²	650	44,464.26	28,902,000
LC2.7.8	Bridge TS8 with Piers and Abutments	m ²	650	44,464.26	28,902,000
LC2.8	Miscellaneous Works	L.S.			48,010,000
Sub-total					528,111,000
LC3	Diversion Channel (Saidpur Kas - Kurang River)				
LC3.1	Clearing and Grubbing	m ²	466,000	16.91	7,880,000
LC3.2	Hydraulic Drop (Ojhri Kas 1)			0.00	
LC3.2.1	Common Excavation	m ³	3,800	214.73	816,000
LC3.2.2	Mass Concrete	m ³	500	3,270.82	1,635,000
LC3.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ²	440	1,870.00	823,000
LC3.2.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
LC3.3	Hydraulic Drop (Ojhri Kas 2)				
LC3.3.1	Common Excavation	m ³	4,400	214.73	945,000
LC3.3.2	Mass Concrete	m ³	600	3,270.82	1,962,000
LC3.3.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ²	500	1,870.00	935,000
LC3.3.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
LC3.4	Diversion Channel (L=5,126m)				
LC3.4.1	Common Excavation	m ³	2,430,000	214.73	521,794,000
LC3.4.2	Dike Embankment	m ³	84,000	122.85	10,319,000
LC3.4.3	Revetment (Wet Stone Masonry)	m ²	32,500	1,670.01	54,275,000
LC3.4.4	Revetment (Wet Stone Pitching)	m ²	74,800	1,204.09	90,066,000
LC3.4.5	Sodding	m ²	99,400	61.11	6,074,000
LC3.4.6	Reinforced Concrete	m ³	0	7,102.84	0
LC3.4.7	Floor Concrete	m ²	18,400	4,670.71	85,941,000
LC3.4.8	Drainage Outlet	place	110	29,225.20	3,215,000
LC3.5	Hydraulic Drop (Diversion Channel)				
LC3.5.1	Common Excavation	m ³	9,000	214.73	1,933,000
LC3.5.2	Mass Concrete	m ³	11,000	3,270.82	35,979,000
LC3.5.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ²	11,300	1,870.00	21,131,000
LC3.6	Bridge				
LC3.6.1	Bridge SK1 with Piers and Abutments	m ²	590	44,464.26	26,234,000
LC3.6.2	Bridge SK2 with Piers and Abutments	m ²	660	44,464.26	29,346,000
LC3.6.3	Bridge SK3 with Piers and Abutments	m ²	900	44,464.26	40,018,000
LC3.6.4	Bridge SK4 with Piers and Abutments	m ²	900	44,464.26	40,018,000
LC3.6.5	Bridge SK5 with Piers and Abutments	m ²	660	44,464.26	29,346,000
LC3.6.6	Bridge SK6 with Piers and Abutments	m ²	970	44,464.26	43,130,000
LC3.6.7	Bridge SK7 with Piers and Abutments	m ²	970	44,464.26	43,130,000
LC3.6.8	Bridge SK8 with Piers and Abutments	m ²	440	44,464.26	19,564,000
LC3.7	Miscellaneous Works	L.S.			112,243,000
Sub-total					1,234,676,000
Direct Cost Total					2,457,978,000

Table E.24 Breakdown of Compensation Cost for Flood Diversion Channel
on Long-term Project

ITEM NO.	BQ-ITEMS	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
LCC	DIVERSION CHANNEL				
LCC1	LAND ACQUISITION				
LCC1.1	Residential Area A	m ²	0	11,000	0
LCC1.2	Residential Area B	m ²	6,000	5,500	33,000,000
LCC1.3	Residential Area C	m ²	0	3,000	0
LCC1.4	Agricultural Area A	m ²	42,000	2,000	84,000,000
LCC1.5	Agricultural Area B	m ²	96,000	1,600	153,600,000
LCC1.6	Bare Land A	m ²	17,000	2,000	34,000,000
LCC1.7	Bare Land B	m ²	58,000	1,600	92,800,000
LCC1.8	Forest	m ²	129,000	500	64,500,000
Sub-total					461,900,000
LCC2	HOUSE EVACUATION				
LCC2.1	House Type A	house	0	8,000,000	0
LCC2.2	House Type B	house	0	3,000,000	0
LCC2.3	House Type C	house	0	100,000	0
LCC2.4	House Type D	house	20	50,000	1,000,000
LCC2.5	Apartment House Type A	house	0	200,000,000	0
LCC2.6	Apartment House Type B	house	0	50,000,000	0
Sub-total					1,000,000
Total					462,900,000

Table E.25 Breakdown of Direct Cost for Kurang River Improvement on Long-term Project

Item No.	Items	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
LD	KURANG RIVER IMPROVEMENT				
LD1	KURANG RIVER IMPROVEMENT				
LD1.1	Clearing and Grubbing	m ²	163,000	16.91	2,756,000
LD1.2	Excavation and Embankment Works				
LD1.2.1	Common Excavation	m ³	164,000	79.73	13,076,000
LD1.2.2	Dike Embankment	m ³	164,000	122.85	20,147,000
LD1.3	Slope Protection (Sodding)	m ²	74,000	60.11	4,448,000
LD1.4	Drainage Outlet	place	70	4,383.78	307,000
LD1.5	Miscellaneous Works	L.S.			4,073,000
Sub-total					44,807,000
Direct Cost Total					44,807,000

Table E.26 Breakdown of Compensation Cost for Kurang River Improvement on Long-term Project

Item No.	Items	Unit	Quantity	Unit Cost	Cost
				(Rs./unit)	(Rs.)
LDC	KURANG RIVER IMPROVEMENT				
LDC1	LAND ACQUISITION				
LDC1.1	Residential Area A	m ²	0	11,000	0
LDC1.2	Residential Area B	m ²	0	5,500	0
LDC1.3	Residential Area C	m ²	0	3,000	0
LDC1.4	Agricultural Area A	m ²	0	2,000	0
LDC1.5	Agricultural Area B	m ²	0	1,600	0
LDC1.6	Bare Land A	m ²	0	2,000	0
LDC1.7	Bare Land B	m ²	0	1,600	0
LDC1.8	Forest	m ²	0	500	0
Sub-total					0
LDC2	HOUSE EVACUATION				
LDC2.1	House Type A	house	0	8,000,000	0
LDC2.2	House Type B	house	0	3,000,000	0
LDC2.3	House Type C	house	220	100,000	22,000,000
LDC2.4	House Type D	house	0	50,000	0
LDC2.5	Apartment House Type A	house	0	200,000,000	0
LDC2.6	Apartment House Type B	house	0	50,000,000	0
Sub-total					0
Total					22,000,000

Table E.27 Project Cost for Flood Forecasting and Warning System

Item	Specification	Cost (Rupee)
I. Construction Cost		255,847,000
1. Direct Cost		225,814,000
1.1 Equipment Cost		185,308,000
1) PMD Master Control Station		36,140,000
2) Monitoring Station	3 stations (FFC, WASA, Jinnah Park)	37,860,000
3) Rawalpindi Warning Control Station		24,740,000
4) Rainfall Gauging Station	6 stations	11,280,000
5) Water Level Gauging Station	5 stations	13,800,000
6) Warning Post	10 posts	43,400,000
7) Repeater Station (Telemetry System)	1 station	2,740,000
8) Repeater Station (Wireless LAN)	2 stations	4,860,000
9) Spare Parts, Consumption Materials		6,992,000
10) Measurement Equipment		3,496,000
1.2 Installation Works		21,291,000
1.3 Civil Works		7,442,000
1.4 Materials		7,123,000
1.5 Miscellanies		4,650,000
2. Indirect Cost	10% of (Item I.1)	22,581,000
3. Contingency	3% of (Item I.1 and I.2)	7,452,000
II. Consultancy Service		25,585,000
1. Detailed Design, Construction Supervision	10% of (Item I.1 and I.2)	24,840,000
2. Contingency	3% of (Item II.1)	745,000
III. Administration Cost	1% of (Item I.1 and I.2)	2,484,000
SUB-TOTAL	Sub-total of (Item I, II, III)	283,916,000
IV. Duty and Tax	approx. 6% of (Item I + Item II)	17,964,000
TOTAL COST		301,880,000

Table E.28 (1/2) Breakdown of Direct Cost for Flood Forecasting and Warning System

Items	Supporting Equipment Included	Quantity (unit)	Unit Price (Rupees)	Cost (Rupees)
I.1 Equipment Cost				185,308,000
1) PMD Master Control Station				36,140,000
(1) Telemetry Supervisory Equipment		1	6,390,000	6,390,000
(2) Radio Equipment for 5.2 GHz Wireless LAN		2	350,000	700,000
(3) Radio Equipment for 400MHz		1	260,000	260,000
(4) Antenna System		1	520,000	520,000
(5) Printer		1	260,000	260,000
(6) PC type Operation Console		1	6,590,000	6,590,000
(7) Processing System (FFWS Server)		1	11,130,000	11,130,000
(8) Display System	Visual Display Unit Plasma Display Unit Web Server Client PC Laser Printer	1	6,000,000	6,000,000
(9) Uninterruptible Power Supply & Power Regulator	Uninterruptible Power Supply (UPS) Automatic Voltage Regulator (AVR) Insulated Transformer (IT)	1	4,010,000	4,010,000
(10) Air Conditioner		2	140,000	280,000
2) Monitoring Station (FFC, WASA, Jinnah Park)				37,860,000
(1) Radio Equipment for 5.2 GHz Wireless LAN		3	350,000	1,050,000
(2) Antenna System		3	170,000	510,000
(3) Display System	Visual Display Unit Plasma Display Unit Client PC Laser Printer	3	4,290,000	12,870,000
(4) Uninterruptible Power Supply & Power Regulator	Uninterruptible Power Supply (UPS) Automatic Voltage Regulator (AVR) Insulated Transformer (IT)	3	3,670,000	11,010,000
(5) Emergency Power Supply (Engine Generator)		3	3,860,000	11,580,000
(6) Air Conditioner		6	140,000	840,000
3) Rawalpindi Warning Control Station				24,740,000
(1) Warning Supervisory/Control System	Warning Supervisory/Control System Operation Console Serial Printer	1	4,730,000	4,730,000
(2) Radio Equipment for 5.2 GHz Wireless LAN		1	350,000	350,000
(3) Radio Equipment for 400MHz		1	260,000	260,000
(4) Antenna System		1	350,000	350,000
(5) Printer		1	260,000	260,000
(6) PC type Operation Console		1	6,640,000	6,640,000
(7) Display System	Visual Display Unit Plasma Display Unit Client PC	1	4,000,000	4,000,000
(8) Uninterruptible Power Supply & Power Regulator	Uninterruptible Power Supply (UPS) Automatic Voltage Regulator (AVR) Insulated Transformer (IT)	1	4,010,000	4,010,000
(9) Emergency Power Supply (Engine Generator)		1	3,860,000	3,860,000
(10) Air Conditioner		2	140,000	280,000
4) Rainfall Gauging Station				11,280,000
(1) Remote Terminal Unit (RTU)		6	740,000	4,440,000
(2) Radio Equipment for 400MHz		6	260,000	1,560,000
(3) Antenna System		6	120,000	720,000
(4) Sensor Rainfall Gauge with Data Memory Pack		6	410,000	2,460,000
(5) Uninterruptible Power Supply & Power Regulator	Photovoltaic Panel Charge Controller Storage Battery	6	350,000	2,100,000

Table E.28 (2/2) Breakdown of Direct Cost for Flood Forecasting and Warning System

Items	Supporting Equipment Included	Quantity (unit)	Unit Price (Rupees)	Cost (Rupees)
5) Water Level Gauging Station				13,800,000
(1) Remote Terminal Unit (RTU)		5	740,000	3,700,000
(2) Radio Equipment for 400MHz		5	260,000	1,300,000
(3) Antenna System		5	120,000	600,000
(4) Sensor Water Level Gauge with Data Memory Pack		5	990,000	4,950,000
(5) Uninterruptible Power Supply & Power Regulator	Photovoltaic Panel Charge Controller Storage Battery	5	650,000	3,250,000
6) Warning Post				43,400,000
(1) Warning Equipment		10	1,710,000	17,100,000
(2) Siren Equipment	Siren Control Board Motor Siren	10	700,000	7,000,000
(3) Audio Amplifier		10	520,000	5,200,000
(4) Loud Speaker and Sound Collector	Loud Speaker Speaker Junction Box	10	290,000	2,900,000
(5) Radio Equipment for 400MHz		10	260,000	2,600,000
(6) Antenna System		10	120,000	1,200,000
(7) Uninterruptible Power Supply & Power Regulator	DC Power Supply Insulated Transformer (IT)	10	740,000	7,400,000
7) Repeater Station (Telemetry System)				2,740,000
(1) Repeater Equipment		1	1,420,000	1,420,000
(2) Radio Equipment for 400MHz		2	260,000	520,000
(3) Antenna System		1	370,000	370,000
(4) Power Supply		1	430,000	430,000
8) Repeater Station (Wireless LAN)				4,860,000
(1) Radio Equipment for 5.2 GHz Wireless LAN		4	350,000	1,400,000
(2) Antenna System		2	350,000	700,000
(3) Uninterruptible Power Supply & Power Regulator		2	1,380,000	2,760,000
9) Spare Parts, Consumption Materials	4% of total equipment cost			6,992,000
10) Measurement Equipment	2% of total equipment cost			3,496,000
1.2 Installation Works				21,291,000
(1) PMD Master Control Station		1	1,235,000	1,235,000
(2) Monitoring Station (FFC, WASA, Jinnah Park)		3	600,000	1,800,000
(3) Rawalpindi Warning Control Station		1	1,606,000	1,606,000
(4) Rainfall Gauging Station		6	600,000	3,600,000
(5) Water Level Gauging Station		5	750,000	3,750,000
(6) Warning Post		10	750,000	7,500,000
(7) V-V Repeater Station		1	600,000	600,000
(8) Wireless LAN Repeater Station		2	600,000	1,200,000
1.3 Civil Works				7,442,000
(1) Rainfall Gauging House		2	400,000	800,000
(2) Water Level Gauging House (Well type)		5	490,000	2,450,000
(3) Warning Station House		6	350,000	2,100,000
(4) Repeater Station House		2	350,000	700,000
(5) Foundation Works for Tower and Gauge		29	48,000	1,392,000
1.4 Materials				7,123,000
(1) Antenna Mast (Panza Mast) 10m		23	58,000	1,334,000
(2) Telephone Pole		5	48,000	240,000
(3) Lightning Protection and Earthing		23	73,000	1,679,000
(4) Fence		16	170,000	2,720,000
(5) Miscellanies Materials		23	50,000	1,150,000
1.5 Miscellanies				4,650,000
(1) Site Survey (Propagation Test)		1	1,750,000	1,750,000
(2) Equipment Adjustment and Test		1	1,750,000	1,750,000
(3) Acceptance Test		1	1,150,000	1,150,000
Direct Cost Total				225,814,000

Table E.29 Annual Operation and Maintenance Cost upon Completion of Urgent Project

Item	Quantity	Unit	Total
(1) Machine Operation Cost	1	lot	695,549
(2) Machine Maintenance Cost	1	lot	1,403,800
(3) Cost for Administrative and Logistic Support	1	lot	542,400
(4) Cost for Repair of the Structures and Office Running Cost	1	lot	459,630
(5) Others	5 % of above items		155,069
Total			3,256,447

E.29-1 Unit Price Cost of the Machines for the Maintenance Work

Item	Cost per hour (Rs)	Cost per day	Cost per month
Backhoe 0.45m ³	323.66	2,589.30	64,732
DT 10ton	350.41	2,803.32	70,083
Water Tank Truck	350.41	2,803.32	70,083

E.29-2 Annual Cost of Machine Operation

Item	Q'ty	Work hours (Month)	Total Operation Cost (Rs.)
Backhoe 0.45m ³	1	1	64,732
DT 10ton	2	1	140,166
Water Tank Truck	1	7	490,651
Total			695,549

E.29-3 Annual Cost of Machine Maintenance

Items	Quantity	Basic price for estimating cost of servicing and repair	Standard tenure of use (Year)	Rate of servicing and repair, administration during standard tenure of use (%)	Repair Cost per Unit (Rs.)	Total (Rs.)
1. Repair Cost						
Backhoe 0.45m ³	1	6,400,000	7.2	45	400,000	400,000
DT10 ton	2	4,300,000	8.1	60	319,000	638,000
Water Tank Truck	1	2,500,000	9	50	139,000	139,000
Sub-Total						1,177,000
2. Other expenses		Re./MD		Re./MM		Salary
Safekeeping	3	210		6,300		226,800
Ground Total (1.+2.)						1,403,800

E.29-4 Annual Cost of Administrative and Logistic Staff required to Execution of Urgent Project
(Provisional Plan)

TASK FORCE (FFC)				
Overall Administration for the Flood Mitigation Project of Lai Nullah				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	
Chief Engineer	0.05	25,000	15,000	
Financial Officer	0.05	20,000	12,000	
Legal Officer	0.05	14,000	8,400	
Planning, Design Engineer	0.05	14,000	8,400	
SV and O&M Engineer	0.05	14,000	8,400	
Logistics Personnel	0.05	10,000	6,000	
Technical Staff	0.18	8,700	18,792	
Administration Staff	1.00	8,000	96,000	
Sub-total				172,992

Structural Plan				
CDA				
Upstream of Lai Nullah, Community Pond, Floodway				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	
Section Chief/Civil Engineer	1.0	15,000	180,000	
Civil Engineer	0.0	12,000	0	
Mechanical Engineer	0.2	9,000	21,600	
Electrical Engineer	0.2	9,000	21,600	
Staff	2.0	3,000	72,000	
Sub-total			295,200	
RDA/TMA				
Downstream of Lai Nullah				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	
Section Chief/Civil Engineer	0.5	15,000	90,000	
Civil Engineer	0.0	12,000	0	
Staff	2.0	3,000	72,000	
Sub-total			162,000	

Non-structural Plan				
PMD				
Flood Forecasting and Warning System				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	
Section Chief	1.0	15,000	180,000	
Electronic Engineer	1.0	12,000	144,000	
Meteorologist	2.0	9,000	216,000	
Staff	2.0	3,000	72,000	
Sub-total			612,000	

Total Cost for Structural Plan
Rs. 542,000
=(85,000+295,000+162,000)

Total Cost for Non-structural Plan
Rs. 700,000
=(88,000+612,000)

Table E.30 Annual Operation and Maintenance Cost upon Completion of Short-term and Long-term Project

Item	Quantity	Unit	Total
1 . Annual O&M cost upon Completion of Urgent Project excluding others	1	lot	3,101,379
2 . Annual O&M upon Completion of Short-term Project			
(1) Machine Operation Cost	1	lot	310,332
(2) Machine Maintenance Cost	1	lot	0
(3) Cost for Administrative and Logistic Support	1	lot	618,000
(4) Cost for Repair of the Structures and Office Running Cost	1	lot	526,047
(5) Cost of 1.	1	lot	3,101,379
(6) Others	5 % of above items		227,788
Total. 2			4,783,545
3. Annual O&M cost upon Completion of Long-term Project			
(1) Machine Operation Cost	1	lot	310,332
(2) Machine Maintenance Cost	1	lot	0
(3) Cost for Administrative and Logistic Support	1	lot	618,000
(4) Cost for Repair of the Structures and Office Running Cost	1	lot	1,087,709
(5) Cost of 1.	1	lot	3,101,379
(6) Others	5 % of above items		255,871
Total 3.			5,373,290

E.30-1 Annual Machine Operation Cost

Item	Quantity	Work hours	Total Operation Cost (Rs.)
DT 10ton	2	2 Month	280,332
4 WD Car	1	12 days	30,000
Total			310,332

E.30-2 Annual Cost of Administrative and Logistic Staff required to Execution of Long-term Project
(Provisional Plan)

TASK FORCE (FFC)				
Overall Administration for the Flood Mitigation Project of Lai Nullah				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	Yearly Cost (Rs.)
Chief Engineer	0.1	25,000	30,000	
Financial Officer	0.1	20,000	24,000	
Legal Officer	0.1	14,000	16,800	
Planning, Design Engineer	0.1	14,000	16,800	
S/V and O&M Engineer	0.1	14,000	16,800	
Logistics Personnel	0.1	10,000	12,000	
Technical Staff	0.2	8,700	20,880	
Administration Staff	1.0	8,000	96,000	
Sub-total				233,280

Structural Plan				
CDA				
Upstream of Lai Nullah, Community Pond, Floodway				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	Yearly Cost (Rs.)
Section Chief/Civil Engineer	1.0	15,000	180,000	
Civil Engineer	2.0	12,000	288,000	
Mechanical Engineer	0.2	9,000	21,600	
Electrical Engineer	0.2	9,000	21,600	
Staff	3.0	3,000	108,000	
Sub-total				619,200

RDA/TMA				
Downstream of Lai Nullah				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	Yearly Cost (Rs.)
Section Chief/Civil Engineer	1.0	15,000	180,000	
Civil Engineer	1.0	12,000	144,000	
Staff	2.0	3,000	72,000	
Sub-total				396,000

Total Cost for Structural Plan
 = (145,000 + 619,000 + 396,000)
Rs. 1,160,000

Non-structural Plan				
PMD				
Flood Forecasting and Warning System				
Description	Yearly Quantity (man-year)	Unit Cost (Rs./month)	Yearly Cost (Rs.)	Yearly Cost (Rs.)
Section Chief	1.0	15,000	180,000	
Electronic Engineer	1.0	12,000	144,000	
Meteorologist	2.0	9,000	216,000	
Staff	2.0	3,000	72,000	
Sub-total				612,000

Total Cost for Non-structural Plan
 = (88,000 + 612,000)
Rs. 700,000

Table E.31 Estimated Annual Budget of Task Force (FFC) during Operation and Maintenance for Long-term Project

Description	Unit	Yearly Quantity	Unit Cost (Rs./month)	Yearly Cost (Rs.)
1. Salary for Staff				
- Chief Engineer	man-year	0.1	25,000	30,000
- Financial Officer	man-year	0.1	20,000	24,000
- Legal Officer	man-year	0.1	14,000	16,800
- Planning, Design Engineer	man-year	0.1	14,000	16,800
- S/V and O&M Engineer	man-year	0.1	14,000	16,800
- Logistics Personnel	man-year	0.1	10,000	12,000
- Technical Staff	man-year	0.2	8,700	20,880
- Administration Staff	man-year	1.0	8,000	96,000
Sub-total				233,000
2. Office Consumable and Running Cost				
- Electricity/Water/Gas	month	12	10,000	120,000
- Communication	month	12	5,000	60,000
- Office Consumable	month	12	10,000	120,000
- Miscellaneous	L.S.			15,000
Sub-total				315,000
3. Operation and Maintenance Cost for Car				
- Fuel and others	month	12	5,000	60,000
- Maintenance of Parts	month	12	2,000	24,000
Sub-total				84,000
4. Training and Seminar	L.S.			68,000
TOTAL				700,000

Table E.32 List of Equipment during Implementation as well as Operation and Maintenance

during Project Implementation

Item	TASK FORCE (FFC)	CDA	RDA/TMA	PMD
	Overall Administration for the Flood Mitigation Project of Lai Nullah	Community Pond, Floodway	Downstream of Lai Nullah	Flood Forecasting and Warning System
I. Office Furniture				
1 Working Desk w/ Chair	6 set	6 set	4 set	6 set
2 Meeting Desk w/ Chair	1 set	0 set	0 set	1 set
3 Drafting Table w/ Chair	0 set	0 set	0 set	0 set
4 File Cabinet	3 set	2 set	2 set	2 set
5 Drawing Cabinet	2 set	1 set	1 set	1 set
6 Steel Cupboard	1 set	1 set	1 set	1 set
7 Bookshelf	2 set	2 set	2 set	2 set
8 White Board (900mmx1800mm)	1 set	1 set	1 set	1 set
II. Office Equipment				
1 Personal Computer (Desktop)	1 set	2 set	1 set	2 set
2 Emergency Power Source (UPS)	1 set	1 set	1 set	1 set
3 Laser Printer (A4, A3 size)	1 set	1 set	1 set	1 set
4 Photocopy Machine w/ accessories	1 set	1 set	1 set	1 set
5 Telephone/Facsimile	1 set	1 set	1 set	1 set
6 Digital Camera	1 set	1 set	1 set	1 set

during Operation and Maintenance

Item	TASK FORCE (FFC)	CDA	RDA/TMA	PMD
	Overall Administration for the Flood Mitigation Project of Lai Nullah	Upstream of Lai Nullah, Community Pond, Floodway	Downstream of Lai Nullah	Flood Forecasting and Warning System
I. Office Furniture				
1 Working Desk w/ Chair	6 set	6 set	4 set	6 set
2 Meeting Desk w/ Chair	1 set	0 set	0 set	1 set
3 Drafting Table w/ Chair	0 set	0 set	0 set	0 set
4 File Cabinet	3 set	2 set	2 set	2 set
5 Drawing Cabinet	2 set	1 set	1 set	1 set
6 Steel Cupboard	1 set	1 set	1 set	1 set
7 Bookshelf	2 set	2 set	2 set	2 set
8 White Board (900mmx1800mm)	1 set	1 set	1 set	1 set
II. Office Equipment				
1 Personal Computer (Desktop)	1 set	2 set	1 set	2 set
2 Emergency Power Source (UPS)	1 set	1 set	1 set	1 set
3 Laser Printer (A4, A3 size)	1 set	1 set	1 set	1 set
4 Photocopy Machine w/ accessories	1 set	1 set	1 set	1 set
5 Telephone/Facsimile	1 set	1 set	1 set	1 set
6 Digital Camera	1 set	1 set	1 set	1 set
III. Maintenance Equipment				
1 Backhoe 0.45 m3	0 set	1 set	0 set	0 set
2 Dump Truck 10 ton	0 set	2 set	1 set	0 set
3 Water Tank Truck	0 set	1 set	0 set	0 set
4 4 WD Car	0 set	1 set	0 set	0 set
5 Patrol Car	0 set	0 set	1 set	1 set
6 Grass Cutter	0 set	3 set	3 set	0 set

Table E.33 (1/2) Alternative Routes for Flood Diversion Channel (Route 1)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C	DIVERSION CHANNEL (Route 1)				
C1	Diversion Channel (Bedarawali Kas - Tenawali Kas)				
C1.1	Clearing and Grubbing	m ²	127,000	16.91	2,148,000
C1.2	Fixed Weir				
C1.2.1	Common Excavation	m ³	700	214.73	150,000
C1.2.2	Reinforced Concrete	m ³	50	7,102.84	355,000
C1.2.3	Mass Concrete	m ³	410	3,270.82	1,341,000
C1.2.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.2.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.2.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	160	1,870.00	299,000
C1.2.7	Cut-Off Concrete	m ³	180	3,270.80	589,000
C1.2.8	Sodding	m ²	140	61.11	9,000
C1.3	Diversion Weir				
C1.3.1	Common Excavation	m ³	3,700	214.73	795,000
C1.3.2	Reinforced Concrete	m ³	280	7,102.84	1,989,000
C1.3.3	Mass Concrete	m ³	2,720	3,270.82	8,897,000
C1.3.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.3.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	560	1,870.00	1,047,000
C1.3.7	Cut-Off Concrete	m ³	640	3,270.80	2,093,000
C1.3.8	Sodding	m ²	140	61.11	9,000
C1.4	Diversion Channel (L=1,700m)				
C1.4.1	Common Excavation	m ³	1,191,000	214.73	255,743,000
C1.4.2	Dike Embankment	m ³	0	122.85	0
C1.4.3	Revetment (Wet Stone Masonry)	m ²	0	1,670.01	0
C1.4.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
C1.4.5	Sodding	m ²	53,000	61.11	3,239,000
C1.4.6	Reinforced Concrete	m ³	30,350	7,102.84	215,571,000
C1.4.7	Floor Concrete	m ³	10,850	4,670.71	50,677,000
C1.4.8	Drainage Outlet	place	40	29,225.20	1,169,000
C1.5	Bridge				
C1.5.1	Bridge BT1 with Piers and Abutments	m ²	840	44,464.26	37,350,000
C1.5.2	Bridge BT2 with Piers and Abutments	m ²	840	44,464.26	37,350,000
C1.5.3	Bridge BT3 with Piers and Abutments	m ²	0	44,464.26	0
C1.5.4	Bridge BT4 with Piers and Abutments	m ²	0	44,464.26	0
C1.6	Miscellaneous Works	L.S.			62,404,000
Sub-total					686,446,000
C2	Diversion Channel (Tenawali Kas - Saidpur Kas)				
C2.1	Clearing and Grubbing	m ²	215,000	16.91	3,636,000
C2.2	Hydraulic Drop (Tenawali Kas)			0.00	
C2.2.1	Common Excavation	m ³	5,200	214.73	1,117,000
C2.2.2	Mass Concrete	m ³	400	3,270.82	1,308,000
C2.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	370	1,870.00	692,000
C2.2.4	Revetment (Wet Stone Pitching)	m ²	2,960	1,204.09	3,564,000
C2.3	Intake Weir (Tenawali Kas)				
C2.3.1	Common Excavation	m ³	100	214.73	21,000
C2.3.2	Reinforced Concrete	m ³	10	7,102.84	71,000
C2.3.3	Mass Concrete	m ³	30	3,270.84	98,000
C2.3.4	Revetment (Wet Stone Pitching)	m ²	680	1,204.09	819,000
C2.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C2.4	Hydraulic Drop (Kanitawali Kas)				
C2.4.1	Common Excavation	m ³	2,100	214.73	451,000
C2.4.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C2.4.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	460	1,870.00	860,000
C2.4.4	Revetment (Wet Stone Masonry)	m ²	970	1,670.01	1,620,000
C2.5	Diversion Weir (Saidpur Kas)				
C2.5.1	Common Excavation	m ³	4,100	214.73	880,000
C2.5.2	Reinforced Concrete	m ³	250	7,102.84	1,776,000
C2.5.3	Mass Concrete	m ³	2,500	3,270.82	8,177,000
C2.5.4	Revetment (Wet Stone Masonry)	m ²	1,320	1,670.01	2,204,000
C2.5.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	2	720,000.00	1,440,000
C2.5.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	840	1,870.00	1,571,000
C2.5.7	Aqueduct	m ²	0	53,421.00	0
C2.6	Diversion Channel (L=2,400m)				
C2.6.1	Common Excavation	m ³	2,486,000	214.73	533,819,000
C2.6.2	Dike Embankment	m ³	0	122.85	0
C2.6.3	Revetment (Wet Stone Masonry)	m ²	34,300	1,670.01	57,281,000
C2.6.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
C2.6.5	Sodding	m ²	84,900	61.11	5,188,000
C2.6.6	Reinforced Concrete	m ³	0	7,102.84	0
C2.6.7	Floor Concrete	m ³	24,710	4,670.71	115,413,000
C2.6.8	Drainage Outlet	place	50	29,225.20	1,461,000
C2.7	Bridge				
C2.7.1	Bridge TS1 with Piers and Abutments	m ²	640	44,464.26	28,457,000
C2.7.2	Bridge TS2 with Piers and Abutments	m ²	840	44,464.26	37,350,000
C2.7.3	Bridge TS3 with Piers and Abutments	m ²	710	44,464.26	31,570,000
C2.7.4	Bridge TS4 with Piers and Abutments	m ²	790	44,464.26	35,127,000
C2.7.5	Bridge TS5 with Piers and Abutments	m ²	0	44,464.26	0
C2.7.6	Bridge TS6 with Piers and Abutments	m ²	0	44,464.26	0
C2.7.7	Bridge TS7 with Piers and Abutments	m ²	0	44,464.26	0
C2.7.8	Bridge TS8 with Piers and Abutments	m ²	0	44,464.26	0
C2.8	Miscellaneous Works	L.S.			87,833,000
Sub-total					966,159,000

Table E.33 (2/2) Alternative Routes for Flood Diversion Channel (Route 1)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C3	Diversion Channel (Saidpur Kas - Kurang River)				
C3.1	Clearing and Grubbing	m ²	564,000	16.91	9,537,000
C3.2	Hydraulic Drop (Ojhri Kas 1)			0.00	
C3.2.1	Common Excavation	m ³	3,800	214.73	816,000
C3.2.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C3.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	440	1,870.00	823,000
C3.2.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.3	Hydraulic Drop (Ojhri Kas 2)				
C3.3.1	Common Excavation	m ³	4,400	214.73	945,000
C3.3.2	Mass Concrete	m ³	600	3,270.82	1,962,000
C3.3.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	500	1,870.00	935,000
C3.3.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.4	Diversion Channel (L=6,055m)				
C3.4.1	Common Excavation	m ³	4,194,000	214.73	900,578,000
C3.4.2	Dike Embankment	m ³	70,000	122.85	8,600,000
C3.4.3	Revetment (Wet Stone Masonry)	m ²	47,500	1,670.01	79,325,000
C3.4.4	Revetment (Wet Stone Pitching)	m ²	76,600	1,204.09	92,233,000
C3.4.5	Sodding	m ²	157,300	61.11	9,613,000
C3.4.6	Reinforced Concrete	m ³	0	7,102.84	0
C3.4.7	Floor Concrete	m ³	28,100	4,670.71	131,247,000
C3.4.8	Drainage Outlet	place	130	29,225.20	3,799,000
C3.5	Hydraulic Drop (Diversion Channel)				
C3.5.1	Common Excavation	m ³	9,000	214.73	1,933,000
C3.5.2	Mass Concrete	m ³	11,000	3,270.82	35,979,000
C3.5.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	11,300	1,870.00	21,131,000
C3.6	Bridge				
C3.6.1	Bridge SK1 with Piers and Abutments	m ²	0	44,464.26	0
C3.6.2	Bridge SK2 with Piers and Abutments	m ²	0	44,464.26	0
C3.6.3	Bridge SK3 with Piers and Abutments	m ²	1,030	44,464.26	45,798,000
C3.6.4	Bridge SK4 with Piers and Abutments	m ²	1,030	44,464.26	45,798,000
C3.6.5	Bridge SK5 with Piers and Abutments	m ²	750	44,464.26	33,348,000
C3.6.6	Bridge SK6 with Piers and Abutments	m ²	990	44,464.26	44,020,000
C3.6.7	Bridge SK7 with Piers and Abutments	m ²	990	44,464.26	44,020,000
C3.6.8	Bridge SK8 with Piers and Abutments	m ²	450	44,464.26	20,009,000
C3.7	Miscellaneous Works	L.S.			154,001,000
Sub-total					1,694,009,000
Direct Cost Total					3,346,614,000
Indirect Cost					827,952,304
Construction Cost	including 5% of physical contingency				4,383,294,619

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
CC	DIVERSION CHANNEL (Route 1)				
CC1	LAND ACQUISITION				
CC1.1	Residential Area A	m ²	0	11,000	0
CC1.2	Residential Area B	m ²	5,700	5,500	31,350,000
CC1.3	Residential Area C	m ²	0	3,000	0
CC1.4	Agricultural Area A	m ²	0	2,000	0
CC1.5	Agricultural Area B	m ²	91,000	1,600	145,600,000
CC1.6	Bare Land A	m ²	0	2,000	0
CC1.7	Bare Land B	m ²	55,000	1,600	88,000,000
CC1.8	Forest	m ²	166,000	500	83,000,000
Sub-total					347,950,000
CC2	HOUSE EVACUATION				
CC2.1	House Type A	house	0	8,000,000	0
CC2.2	House Type B	house	0	3,000,000	0
CC2.3	House Type C	house	0	100,000	0
CC2.4	House Type D	house	19	50,000	950,000
CC2.5	Apartment House Type A	house	0	200,000,000	0
CC2.6	Apartment House Type B	house	0	50,000,000	0
Sub-total					950,000
Total	including 5% of physical contingency				366,345,000

Table E.34 (1/2) Alternative Routes for Flood Diversion Channel (Route 2)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C	DIVERSION CHANNEL (Route 2)				
C1	Diversion Channel (Bedarawali Kas - Tenawali Kas)				
C1.1	Clearing and Grubbing	m ²	171,000	16.91	2,892,000
C1.2	Fixed Weir				
C1.2.1	Common Excavation	m ³	900	214.73	193,000
C1.2.2	Reinforced Concrete	m ³	60	7,102.84	426,000
C1.2.3	Mass Concrete	m ³	570	3,270.82	1,864,000
C1.2.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.2.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.2.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	220	1,870.00	411,000
C1.2.7	Cut-Off Concrete	m ³	250	3,270.80	818,000
C1.2.8	Sodding	m ²	140	61.11	9,000
C1.3	Diversion Weir				
C1.3.1	Common Excavation	m ³	3,100	214.73	666,000
C1.3.2	Reinforced Concrete	m ³	230	7,102.84	1,634,000
C1.3.3	Mass Concrete	m ³	2,280	3,270.82	7,457,000
C1.3.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.3.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	470	1,870.00	879,000
C1.3.7	Cut-Off Concrete	m ³	540	3,270.80	1,766,000
C1.3.8	Sodding	m ²	140	61.11	9,000
C1.4	Diversion Channel (L=2,450m)				
C1.4.1	Common Excavation	m ³	1,148,000	214.73	246,510,000
C1.4.2	Dike Embankment	m ³	0	122.85	0
C1.4.3	Revetment (Wet Stone Masonry)	m ²	0	1,670.01	0
C1.4.4	Revetment (Wet Stone Pitching)	m ²	26,700	1,204.09	32,149,000
C1.4.5	Sodding	m ²	49,500	61.11	3,025,000
C1.4.6	Reinforced Concrete	m ³	18,840	7,102.84	133,818,000
C1.4.7	Floor Concrete	m ³	15,000	4,670.71	70,061,000
C1.4.8	Drainage Outlet	place	50	29,225.20	1,461,000
C1.5	Bridge				
C1.5.1	Bridge BT1 with Piers and Abutments	m ²	850	44,464.26	37,795,000
C1.5.2	Bridge BT2 with Piers and Abutments	m ²	850	44,464.26	37,795,000
C1.5.3	Bridge BT3 with Piers and Abutments	m ²	560	44,464.26	24,900,000
C1.5.4	Bridge BT4 with Piers and Abutments	m ²	500	44,464.26	22,232,000
C1.6	Miscellaneous Works	L.S.			63,199,000
Sub-total					695,191,000
C2	Diversion Channel (Tenawali Kas - Saidpur Kas)				
C2.1	Clearing and Grubbing	m ²	130,000	16.91	2,198,000
C2.2	Hydraulic Drop (Tenawali Kas)				
C2.2.1	Common Excavation	m ³	5,200	214.73	1,117,000
C2.2.2	Mass Concrete	m ³	400	3,270.82	1,308,000
C2.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	370	1,870.00	692,000
C2.2.4	Revetment (Wet Stone Pitching)	m ²	2,960	1,204.09	3,564,000
C2.3	Intake Weir (Tenawali Kas)				
C2.3.1	Common Excavation	m ³	100	214.73	21,000
C2.3.2	Reinforced Concrete	m ³	10	7,102.84	71,000
C2.3.3	Mass Concrete	m ³	30	3,270.84	98,000
C2.3.4	Revetment (Wet Stone Pitching)	m ²	680	1,204.09	819,000
C2.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C2.4	Hydraulic Drop (Kanitawali Kas)				
C2.4.1	Common Excavation	m ³	2,100	214.73	451,000
C2.4.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C2.4.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	460	1,870.00	860,000
C2.4.4	Revetment (Wet Stone Masonry)	m ²	970	1,670.01	1,620,000
C2.5	Diversion Weir (Saidpur Kas)				
C2.5.1	Common Excavation	m ³	4,100	214.73	880,000
C2.5.2	Reinforced Concrete	m ³	250	7,102.84	1,776,000
C2.5.3	Mass Concrete	m ³	2,500	3,270.82	8,177,000
C2.5.4	Revetment (Wet Stone Masonry)	m ²	1,320	1,670.01	2,204,000
C2.5.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	2	720,000.00	1,440,000
C2.5.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	840	1,870.00	1,571,000
C2.5.7	Aqueduct	m ²	150	53,421.00	8,013,000
C2.6	Diversion Channel (L=2,150m)				
C2.6.1	Common Excavation	m ³	443,000	214.73	95,125,000
C2.6.2	Dike Embankment	m ³	47,000	122.85	5,774,000
C2.6.3	Revetment (Wet Stone Masonry)	m ²	30,400	1,670.01	50,768,000
C2.6.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
C2.6.5	Sodding	m ²	17,700	61.11	1,082,000
C2.6.6	Reinforced Concrete	m ³	0	7,102.84	0
C2.6.7	Floor Concrete	m ³	21,390	4,670.71	99,906,000
C2.6.8	Drainage Outlet	place	50	29,225.20	1,461,000
C2.7	Bridge				
C2.7.1	Bridge TS1 with Piers and Abutments	m ²	390	44,464.26	17,341,000
C2.7.2	Bridge TS2 with Piers and Abutments	m ²	510	44,464.26	22,677,000
C2.7.3	Bridge TS3 with Piers and Abutments	m ²	470	44,464.26	20,898,000
C2.7.4	Bridge TS4 with Piers and Abutments	m ²	470	44,464.26	20,898,000
C2.7.5	Bridge TS5 with Piers and Abutments	m ²	510	44,464.26	22,677,000
C2.7.6	Bridge TS6 with Piers and Abutments	m ²	550	44,464.26	24,455,000
C2.7.7	Bridge TS7 with Piers and Abutments	m ²	650	44,464.26	28,902,000
C2.7.8	Bridge TS8 with Piers and Abutments	m ²	650	44,464.26	28,902,000
C2.8	Miscellaneous Works	L.S.			48,010,000
Sub-total					528,111,000

Table E.34 (2/2) Alternative Routes for Flood Diversion Channel (Route 2)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C3	Diversion Channel (Saidpur Kas - Kurang River)				
C3.1	Clearing and Grubbing	m ²	466,000	16.91	7,880,000
C3.2	Hydraulic Drop (Ojhri Kas 1)			0.00	
C3.2.1	Common Excavation	m ³	3,800	214.73	816,000
C3.2.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C3.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	440	1,870.00	823,000
C3.2.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.3	Hydraulic Drop (Ojhri Kas 2)				
C3.3.1	Common Excavation	m ³	4,400	214.73	945,000
C3.3.2	Mass Concrete	m ³	600	3,270.82	1,962,000
C3.3.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	500	1,870.00	935,000
C3.3.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.4	Diversion Channel (L=5,126m)				
C3.4.1	Common Excavation	m ³	2,430,000	214.73	521,794,000
C3.4.2	Dike Embankment	m ³	84,000	122.85	10,319,000
C3.4.3	Revetment (Wet Stone Masonry)	m ²	32,500	1,670.01	54,275,000
C3.4.4	Revetment (Wet Stone Pitching)	m ²	74,800	1,204.09	90,066,000
C3.4.5	Sodding	m ²	99,400	61.11	6,074,000
C3.4.6	Reinforced Concrete	m ³	0	7,102.84	0
C3.4.7	Floor Concrete	m ³	18,400	4,670.71	85,941,000
C3.4.8	Drainage Outlet	place	110	29,225.20	3,215,000
C3.5	Hydraulic Drop (Diversion Channel)				
C3.5.1	Common Excavation	m ³	9,000	214.73	1,933,000
C3.5.2	Mass Concrete	m ³	11,000	3,270.82	35,979,000
C3.5.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	11,300	1,870.00	21,131,000
C3.6	Bridge				
C3.6.1	Bridge SK1 with Piers and Abutments	m ²	590	44,464.26	26,234,000
C3.6.2	Bridge SK2 with Piers and Abutments	m ²	660	44,464.26	29,346,000
C3.6.3	Bridge SK3 with Piers and Abutments	m ²	900	44,464.26	40,018,000
C3.6.4	Bridge SK4 with Piers and Abutments	m ²	900	44,464.26	40,018,000
C3.6.5	Bridge SK5 with Piers and Abutments	m ²	660	44,464.26	29,346,000
C3.6.6	Bridge SK6 with Piers and Abutments	m ²	970	44,464.26	43,130,000
C3.6.7	Bridge SK7 with Piers and Abutments	m ²	970	44,464.26	43,130,000
C3.6.8	Bridge SK8 with Piers and Abutments	m ²	440	44,464.26	19,564,000
C3.7	Miscellaneous Works	L.S.			112,243,000
Sub-total					1,234,676,000
Direct Cost Total					2,457,978,000
Indirect Cost					608,103,757
Construction Cost	including 5% of physical contingency				3,219,385,845

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
CC	DIVERSION CHANNEL (Route 2)				
CC1	LAND ACQUISITION				
CC1.1	Residential Area A	m ²	0	11,000	0
CC1.2	Residential Area B	m ²	6,000	5,500	33,000,000
CC1.3	Residential Area C	m ²	0	3,000	0
CC1.4	Agricultural Area A	m ²	42,000	2,000	84,000,000
CC1.5	Agricultural Area B	m ²	96,000	1,600	153,600,000
CC1.6	Bare Land A	m ²	17,000	2,000	34,000,000
CC1.7	Bare Land B	m ²	58,000	1,600	92,800,000
CC1.8	Forest	m ²	129,000	500	64,500,000
Sub-total					461,900,000
CC2	HOUSE EVACUATION				
CC2.1	House Type A	house	0	8,000,000	0
CC2.2	House Type B	house	0	3,000,000	0
CC2.3	House Type C	house	0	100,000	0
CC2.4	House Type D	house	20	50,000	1,000,000
CC2.5	Apartment House Type A	house	0	200,000,000	0
CC2.6	Apartment House Type B	house	0	50,000,000	0
Sub-total					1,000,000
Total	including 5% of physical contingency				486,045,000

Table E.35 (1/2) Alternative Routes for Flood Diversion Channel (Route 3)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C	DIVERSION CHANNEL (Route 3)				
C1	Diversion Channel (Bedarawali Kas - Tenawali Kas)				
C1.1	Clearing and Grubbing	m ²	23,000	16.91	389,000
C1.2	Fixed Weir				
C1.2.1	Common Excavation	m ³	700	214.73	150,000
C1.2.2	Reinforced Concrete	m ³	50	7,102.84	355,000
C1.2.3	Mass Concrete	m ³	410	3,270.82	1,341,000
C1.2.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.2.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.2.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	160	1,870.00	299,000
C1.2.7	Cut-Off Concrete	m ³	180	3,270.80	589,000
C1.2.8	Sodding	m ²	140	61.11	9,000
C1.3	Diversion Weir				
C1.3.1	Common Excavation	m ³	1,900	214.73	408,000
C1.3.2	Reinforced Concrete	m ³	140	7,102.84	994,000
C1.3.3	Mass Concrete	m ³	1,360	3,270.82	4,448,000
C1.3.4	Revetment (Wet Stone Pitching)	m ²	740	1,204.09	891,000
C1.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C1.3.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	280	1,870.00	524,000
C1.3.7	Cut-Off Concrete	m ³	320	3,270.80	1,047,000
C1.3.8	Sodding	m ²	140	61.11	9,000
C1.4	Diversion Channel (L=750m)				
C1.4.1	Common Excavation	m ³	76,000	214.73	16,319,000
C1.4.2	Dike Embankment	m ³	16,000	122.85	1,966,000
C1.4.3	Revetment (Wet Stone Masonry)	m ²	0	1,670.01	0
C1.4.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
C1.4.5	Sodding	m ²	0	61.11	0
C1.4.6	Reinforced Concrete	m ³	17,010	7,102.84	120,819,000
C1.4.7	Floor Concrete	place	3,220	4,670.71	15,040,000
C1.4.8	Drainage Outlet	place	20	29,225.20	585,000
C1.5	Bridge				
C1.5.1	Bridge BT1 with Piers and Abutments	m ²	330	44,464.26	14,673,000
C1.5.2	Bridge BT2 with Piers and Abutments	m ²	0	44,464.26	0
C1.5.3	Bridge BT3 with Piers and Abutments	m ²	0	44,464.26	0
C1.5.4	Bridge BT4 with Piers and Abutments	m ²	0	44,464.26	0
C1.6	Miscellaneous Works	L.S.			18,319,000
Sub-total					201,505,000
C2	Diversion Channel (Tenawali Kas - Saidpur Kas)				
C2.1	Clearing and Grubbing	m ²	99,000	16.91	1,674,000
C2.2	Hydraulic Drop (Tenawali Kas)				
C2.2.1	Common Excavation	m ³	5,200	214.73	1,117,000
C2.2.2	Mass Concrete	m ³	400	3,270.82	1,308,000
C2.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	370	1,870.00	692,000
C2.2.4	Revetment (Wet Stone Pitching)	m ²	2,960	1,204.09	3,564,000
C2.3	Intake Weir (Tenawali Kas)				
C2.3.1	Common Excavation	m ³	100	214.73	21,000
C2.3.2	Reinforced Concrete	m ³	10	7,102.84	71,000
C2.3.3	Mass Concrete	m ³	30	3,270.84	98,000
C2.3.4	Revetment (Wet Stone Pitching)	m ²	680	1,204.09	819,000
C2.3.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	1	720,000.00	720,000
C2.4	Hydraulic Drop (Kanitawali Kas)				
C2.4.1	Common Excavation	m ³	2,100	214.73	451,000
C2.4.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C2.4.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	460	1,870.00	860,000
C2.4.4	Revetment (Wet Stone Masonry)	m ²	970	1,670.01	1,620,000
C2.5	Diversion Weir (Saidpur Kas)				
C2.5.1	Common Excavation	m ³	4,100	214.73	880,000
C2.5.2	Reinforced Concrete	m ³	250	7,102.84	1,776,000
C2.5.3	Mass Concrete	m ³	2,500	3,270.82	8,177,000
C2.5.4	Revetment (Wet Stone Masonry)	m ²	1,320	1,670.01	2,204,000
C2.5.5	Slide Gate H 1.0m x B 1.0m (Manual Control)	gate	2	720,000.00	1,440,000
C2.5.6	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	840	1,870.00	1,571,000
C2.5.7	Aqueduct	m ²	390	53,421.00	20,834,000
C2.6	Diversion Channel (L=1,500m)				
C2.6.1	Common Excavation	m ³	601,000	214.73	129,053,000
C2.6.2	Dike Embankment	m ³	0	122.85	0
C2.6.3	Revetment (Wet Stone Masonry)	m ²	24,000	1,670.01	40,080,000
C2.6.4	Revetment (Wet Stone Pitching)	m ²	0	1,204.09	0
C2.6.5	Sodding	m ²	13,600	61.11	831,000
C2.6.6	Reinforced Concrete	m ³	0	7,102.84	0
C2.6.7	Floor Concrete	place	14,920	4,670.71	69,687,000
C2.6.8	Drainage Outlet	place	30	29,225.20	877,000
C2.7	Relocation of Existing Road	m	3,400	9,740.00	33,116,000
C2.8	Bridge				
C2.8.1	Bridge TS1 with Piers and Abutments	m ²	530	44,464.26	23,566,000
C2.8.2	Bridge TS2 with Piers and Abutments	m ²	690	44,464.26	30,680,000
C2.8.3	Bridge TS3 with Piers and Abutments	m ²	630	44,464.26	28,012,000
C2.8.4	Bridge TS4 with Piers and Abutments	m ²	630	44,464.26	28,012,000
C2.8.5	Bridge TS5 with Piers and Abutments	m ²	690	44,464.26	30,680,000
C2.8.6	Bridge TS6 with Piers and Abutments	m ²	0	44,464.26	0
C2.8.7	Bridge TS7 with Piers and Abutments	m ²	0	44,464.26	0
C2.8.8	Bridge TS8 with Piers and Abutments	m ²	0	44,464.26	0
C2.9	Miscellaneous Works	L.S.			46,613,000
Sub-total					512,739,000

Table E.35 (2/2) Alternative Routes for Flood Diversion Channel (Route 3)

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
C3	Diversion Channel (Saidpur Kas - Kurang River)				
C3.1	Clearing and Grubbing	m ²	421,000	16.91	7,119,000
C3.2	Hydraulic Drop (Ojhri Kas 1)			0.00	
C3.2.1	Common Excavation	m ³	3,800	214.73	816,000
C3.2.2	Mass Concrete	m ³	500	3,270.82	1,635,000
C3.2.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	440	1,870.00	823,000
C3.2.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.3	Hydraulic Drop (Ojhri Kas 2)				
C3.3.1	Common Excavation	m ³	4,400	214.73	945,000
C3.3.2	Mass Concrete	m ³	600	3,270.82	1,962,000
C3.3.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	500	1,870.00	935,000
C3.3.4	Revetment (Wet Stone Pitching)	m ²	2,460	1,204.09	2,962,000
C3.4	Diversion Channel (L=3,983m)				
C3.4.1	Common Excavation	m ³	4,362,000	214.73	936,652,000
C3.4.2	Dike Embankment	m ³	0	122.85	0
C3.4.3	Revetment (Wet Stone Masonry)	m ²	36,500	1,670.01	60,955,000
C3.4.4	Revetment (Wet Stone Pitching)	m ²	45,300	1,204.09	54,545,000
C3.4.5	Sodding	m ²	139,600	61.11	8,531,000
C3.4.6	Reinforced Concrete	m ³	0	7,102.84	0
C3.4.7	Floor Concrete	place	20,810	4,670.71	97,197,000
C3.4.8	Drainage Outlet	place	80	29,225.20	2,338,000
C3.5	Hydraulic Drop (Diversion Channel)				
C3.5.1	Common Excavation	m ³	9,000	214.73	1,933,000
C3.5.2	Mass Concrete	m ³	11,000	3,270.82	35,979,000
C3.5.3	Gabion Mattress W 1.0m x B 1.5m x T 0.5m	m ³	11,300	1,870.00	21,131,000
C3.6	Bridge				
C3.6.1	Bridge SK1 with Piers and Abutments	m ²	1,560	44,464.26	69,364,000
C3.6.2	Bridge SK2 with Piers and Abutments	m ²	1,560	44,464.26	69,364,000
C3.6.3	Bridge SK3 with Piers and Abutments	m ²	1,100	44,464.26	48,911,000
C3.6.4	Bridge SK4 with Piers and Abutments	m ²	1,100	44,464.26	48,911,000
C3.6.5	Bridge SK5 with Piers and Abutments	m ²	800	44,464.26	35,571,000
C3.6.6	Bridge SK6 with Piers and Abutments	m ²	1,240	44,464.26	55,136,000
C3.6.7	Bridge SK7 with Piers and Abutments	m ²	1,240	44,464.26	55,136,000
C3.6.8	Bridge SK8 with Piers and Abutments	m ²	560	44,464.26	24,900,000
C3.7	Miscellaneous Works	L.S.			164,671,000
Sub-total					1,811,384,000
Direct Cost Total					2,525,628,000
Indirect Cost					624,840,367
Construction Cost	including 5% of physical contingency				3,307,991,785

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	UNIT COST	COST
				(Rs./unit)	(Rs.)
CC	DIVERSION CHANNEL (Route 3)				
CC1	LAND ACQUISITION				
CC1.1	Residential Area A	m ²	38,000	11,000	418,000,000
CC1.2	Residential Area B	m ²	3,900	5,500	21,450,000
CC1.3	Residential Area C	m ²	0	3,000	0
CC1.4	Agricultural Area A	m ²	0	2,000	0
CC1.5	Agricultural Area B	m ²	110,000	1,600	176,000,000
CC1.6	Bare Land A	m ²	226,000	2,000	452,000,000
CC1.7	Bare Land B	m ²	66,000	1,600	105,600,000
CC1.8	Forest	m ²	0	500	0
Sub-total					1,173,050,000
CC2	HOUSE EVACUATION				
CC2.1	House Type A	house	33	8,000,000	264,000,000
CC2.2	House Type B	house	32	3,000,000	96,000,000
CC2.3	House Type C	house	0	100,000	0
CC2.4	House Type D	house	13	50,000	650,000
CC2.5	Apartment House Type A	house	0	200,000,000	0
CC2.6	Apartment House Type B	house	11	50,000,000	550,000,000
Sub-total					910,650,000
Total	including 5% of physical contingency				2,187,885,000

Table E.36 Project Cost of Alternative Flood Mitigation Schemes for Long-term Project

Item	Community Pond (1,000 Rs.)	Flood Mitigation Dam (1,000 Rs.)	River Improvement (Deepning) (1,000 Rs.)	Flood Diversion								Supplementary to On-going River Improvement (1,000 Rs.)
				Alternative 1 (1,000 Rs.)	Alternative 2 (1,000 Rs.)	Alternative 3 (1,000 Rs.)	Alternative 4 (1,000 Rs.)	Alternative 5 (1,000 Rs.)	Alternative 6 (1,000 Rs.)	Alternative 7 (1,000 Rs.)	Alternative 8 (1,000 Rs.)	
I. Construction Cost	723,182	730,453	1,629,207	3,147,246	3,658,523	3,339,735	3,585,920	3,878,192	4,228,755	3,791,243	5,008,874	726,654
I.1 Direct Cost	502,449	476,476	1,067,933	1,907,270	2,216,716	2,023,772	2,172,774	2,349,669	2,502,785	2,297,044	3,034,006	469,930
I.2 Indirect Cost	124,306	117,880	264,207	471,859	548,416	500,681	537,544	581,308	619,189	568,289	750,613	116,261
I.2.1 Temporary Works: 5% of I.1	25,122	23,824	53,397	95,364	110,836	101,189	108,639	117,483	125,139	114,852	151,700	23,497
I.2.2 Site Expense: 10% of I.1 and I.2.1	52,757	50,030	112,133	200,263	232,755	212,496	228,141	246,715	262,792	241,190	318,571	49,343
I.2.3 Overhead: 8% of I.1, I.2.1 and I.2.2	46,426	44,026	98,677	176,232	204,825	186,997	200,764	217,109	231,257	212,247	280,342	43,422
I.3 Physical Contingency: 5% of I.1. and I.2.	31,338	29,718	66,607	118,956	138,257	126,223	135,516	146,549	156,099	143,267	189,231	29,310
I.4 Price Contingency: 4%/year	65,089	106,379	230,460	649,161	755,134	689,059	740,086	800,666	950,683	782,644	1,035,024	111,153
II. Compensation Cost	0	1,914,375	28,392	523,564	582,557	544,100	570,261	601,000	618,970	593,544	663,394	17,472
II.1 Compensation Cost	0	1,620,000	26,000	402,000	447,100	417,700	437,700	461,200	484,900	455,500	508,900	16,000
II.2 Physical Contingency: 5% of II.1	0	81,000	1,300	20,100	22,355	20,885	21,885	23,060	24,245	22,775	25,445	800
II.3 Price Contingency: 4%/year	0	213,375	1,092	101,464	113,102	105,515	110,676	116,740	109,825	115,269	129,049	672
III. Consultancy Service	70,522	70,567	159,824	311,968	362,660	331,053	355,462	384,440	414,965	375,819	496,544	71,277
III.1 Engineering Service: 10% of I.1 And I.2	62,675	59,436	133,214	237,913	276,513	252,445	271,032	293,098	312,197	286,533	378,462	58,619
III.2 Physical Contingency: 5% of III.1	3,134	2,972	6,661	11,896	13,826	12,622	13,552	14,655	15,610	14,327	18,923	2,931
III.3 Price Contingency: 4%/year	4,713	8,160	19,949	62,160	72,321	65,985	70,878	76,687	87,158	74,959	99,159	9,727
IV. Administration Cost	6,887	25,189	15,787	34,960	40,391	36,989	40,217	42,659	46,169	41,760	54,022	7,087
IV.1 Administration Cost: 1% of I.1, I.2 and II.1	6,268	22,144	13,581	27,811	32,122	29,422	31,480	33,922	36,069	33,208	42,935	6,022
IV.2 Price Contingency: 4%/year	620	3,045	2,205	7,149	8,269	7,567	8,737	8,737	10,100	8,552	11,086	1,065
Sub Total	800,591	2,740,584	1,833,210	4,017,738	4,644,131	4,251,877	4,551,861	4,906,291	5,308,860	4,802,366	6,222,834	822,490
V. Tax: 6.4% of I. and III.	50,662	51,129	114,193	220,801	256,671	234,306	251,578	272,083	296,408	265,983	351,410	50,932
Total	851,253	2,791,713	1,947,403	4,238,539	4,900,802	4,486,182	4,803,438	5,178,374	5,605,268	5,068,349	6,574,244	873,421