PROJECT NAME : GADENG
PROJECT ID : 2-008-29-57-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(140.0)	(115.3)	(126.2)	(138.5)	(109.0)	(121.4)	(135.8)	(102.8)	(116.6)	(132.7)
STORAGE DAM	165.47	134.66	146.92	165.47	127.34	141.84	165.47	119.66	137.21	165.47
SPILLWAY	23.02	21.23	21.96	23.02	20.77	21.67	23.02	20.29	21.39	23.02
DIVERSION TUNNEL	13.87	13.87	13.87	13.87	13.87	13.87	13.87	13.87	13.87	13.87
INTAKE (PRESSURE TYPE)	4.08	4.43	4.12	3.84	4.25	3.91	3.60	4.07	3.70	3.36
HEADRACE TUNNEL (PRESSURE)	2.44	2.41	2.40	2.39	2.35	2.34	2.33	2.29	2.28	2.27
SURGE TANK	2.20	2.19	2.16	2.13	2.11	2.08	2.05	2.04	2.00	1.97
PENSTOCK	6.97	5.87	6.39	6.97	5.66	6.24	6.91	5.45	6.09	6.83
(PRESSURE SHAFT)	(1.84)	(1.73)	(1.79)	(1.84)	(1.72)	(1.78)	(1.84)	(1.70)	(1.77)	(1.84)
(STEEL LINER)	(5.13)	(4.14)	(4.60)	(5.12)	(3.94)	(4.46)	(5.07)	(3.75)	(4.32)	(4.99)
POWERHOUSE BUILDING	9.51	8.30	8.80	9.36	7.91	8.48	9.12	7.52	8.16	8.88
(SUPER STRUCTURE)	(4.23)	(3.69)	(3.91)	(4.16)	(3.51)	(3.77)	(4.05)	(3.34)	(3.63)	(3.95)
(SUB STRUCTURE)	(5.28)	(4.61)	(4.89)	(5.20)	(4.39)	(4.71)	(5.07)	(4.18)	(4.54)	(4.93)
MISCELLANEOUS CIVIL WORK	11.38	9.65	10.33	11.35	9.21	10.02	11.32	8.76	9.73	11.28
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	31.04	28.21	29.32	30.52	27.09	28.37	29.76	25.97	27.42	28.97
ENGINEERING/ADMINISTRATION	28.79	26.50	27.43	28.73	25.87	26.98	28.65	25.20	26.56	28.56
CONTINGENCIES	59.75	51.46	54.74	59.53	49.29	53.16	59.22	47.02	51.68	58.90
S U B T O T A L	358.51	308.77	328.45	357.18	295.71	318.97	355.32	282.13	310.11	353.39
ACCESS ROAD (ROAD LENGTH 2.5 KM)										
CONSTRUCTION COST	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
ENGINEERING ADMINSITRATION	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
CONTINEGENCIES	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
S U B T O T A L	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 69.0 KM)										
TRANSMISSION LINE	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
ENGINEERING/ADMINISTRATION	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
CONTINGENCIES	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
S U B T O T A L	11.15	11.15	11.15	11.15	11.15	11.15	11.15	11.15	11.15	11.15
T O T A L	370.37	320.63	340.32	369.04	307.58	330.84	367.18	293.99	321.97	365.26
EVALUATION INDICES										
U S D / K W	2646.3	2782.0	2697.7	2663.6	2822.4	2725.4	2704.4	2860.6	2760.6	2751.9
U S D / K W H	1.611	1.665	1.623	1.608	1.667	1.620	1.614	1.666	1.621	1.623

PROJECT NAME : CASECNAN
PROJECT ID : 2-008-29-58-0
TYPE : RUN-OF-RIVER

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
POWER DEVELOPMENT (INST.CAP(MW))	(1.9)	(3.7)	(6.5)	(9.7)	(11.2)
DIVERSION DAM/WEIR	0.44	0.49	0.55	0.61	0.63
INTAKE (NON-PRESSURE TYPE)	0.14	0.23	0.33	0.43	0.48
HEADRACE TUNNEL (NON-PRES.)	3.70	4.11	5.49	6.96	7.60
HEAD TANK	0.12	0.19	0.27	0.34	0.37
PENSTOCK	0.48	0.57	0.71	0.86	0.92
(PRESSURE SHAFT)	(0.31)	(0.35)	(0.41)	(0.46)	(0.48)
(STEEL LINER)	(0.16)	(0.22)	(0.30)	(0.39)	(0.44)
POWERHOUSE BUILDING	0.10	0.20	0.50	0.92	1.06
(SUPER STRUCTURE)	(0.05)	(0.09)	(0.22)	(0.41)	(0.47)
(SUB STRUCTURE)	(0.06)	(0.11)	(0.28)	(0.51)	(0.59)
MISCELLANEOUS CIVIL WORK	0.25	0.29	0.39	0.51	0.55
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.76	1.41	2.33	3.33	3.80
ENGINEERING/ADMINISTRATION	0.75	0.94	1.32	1.74	1.93
CONTINGENCIES	1.35	1.68	2.38	3.14	3.47
S U B T O T A L	8.10	10.10	14.27	18.83	20.82
ACCESS ROAD (ROAD LENGTH 10.0 KM)					
CONSTRUCTION COST	2.20	2.20	2.20	2.20	2.20
ENGINEERING ADMINSITRATION	0.18	0.18	0.18	0.18	0.18
CONTINEGENCIES	0.48	0.48	0.48	0.48	0.48
S U B T O T A L	2.85	2.85	2.85	2.85	2.85
TRANSMISSION LINE SYSTEM (T/L LENGTH 66.0 KM)					
TRANSMISSION LINE	1.52	1.52	1.52	1.52	1.52
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.22	0.22	0.22	0.22	0.22
CONTINGENCIES	0.30	0.30	0.30	0.30	0.30
S U B T O T A L	2.31	2.31	2.31	2.31	2.31
T O T A L	13.26	15.27	19.43	24.00	25.98
EVALUATION INDICES					
U S D / K W	6940.5	4150.6	2995.0	2474.6	2309.8
U S D / K W H	1.132	1.035	1.004	1.035	1.054

PROJECT NAME : UPPER CASECNAN
PROJECT ID : 2-008-29-59-0
TYPE : RUN-OF-RIVER

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
POWER DEVELOPMENT (INST.CAP(MW))	(2.1)	(4.0)	(7.0)	(10.5)	(12.2)
DIVERSION DAM/WEIR	0.38	0.42	0.47	0.51	0.53
INTAKE (NON-PRESSURE TYPE)	0.13	0.21	0.30	0.39	0.43
HEADRACE TUNNEL (NON-PRES.)	4.45	4.60	6.00	7.67	8.37
HEAD TANK	0.11	0.18	0.25	0.31	0.34
PENSTOCK	0.50	0.57	0.72	0.87	0.94
(PRESSURE SHAFT)	(0.32)	(0.34)	(0.40)	(0.45)	(0.47)
(STEEL LINER)	(0.18)	(0.23)	(0.32)	(0.42)	(0.47)
POWERHOUSE BUILDING	0.10	0.20	0.50	0.92	1.06
(SUPER STRUCTURE)	(0.05)	(0.09)	(0.22)	(0.41)	(0.47)
(SUB STRUCTURE)	(0.06)	(0.11)	(0.28)	(0.51)	(0.59)
MISCELLANEOUS CIVIL WORK	0.28	0.31	0.41	0.53	0.58
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.74	1.37	2.25	3.23	3.69
ENGINEERING/ADMINISTRATION	0.84	0.98	1.36	1.80	1.99
CONTINGENCIES	1.51	1.77	2.45	3.25	3.59
S U B T O T A L	9.05	10.60	14.69	19.48	21.53
ACCESS ROAD (ROAD LENGTH 17.0 KM)					
CONSTRUCTION COST	3.74	3.74	3.74	3.74	3.74
ENGINEERING ADMINSITRATION	0.30	0.30	0.30	0.30	0.30
CONTINEGENCIES	0.81	0.81	0.81	0.81	0.81
S U B T O T A L	4.85	4.85	4.85	4.85	4.85
TRANSMISSION LINE SYSTEM (T/L LENGTH 57.6 KM)					
TRANSMISSION LINE	1.32	1.32	1.32	1.32	1.32
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.20	0.20	0.20	0.20	0.20
CONTINGENCIES	0.27	0.27	0.27	0.27	0.27
S U B T O T A L	2.06	2.06	2.06	2.06	2.06
T O T A L	15.96	17.51	21.60	26.39	28.44
EVALUATION INDICES					
U S D / K W	7618.0	4380.5	3100.6	2512.8	2335.3
U S D / K W H	1.243	1.093	1.040	1.052	1.067

PROJECT NAME : UPPER CASECNAN-2
PROJECT ID : 2-008-29-60-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(64.0)	(61.7)	(62.4)	(63.2)	(60.6)	(61.5)	(62.5)	(58.8)	(60.0)	(61.4)
STORAGE DAM	64.56	62.62	63.32	64.56	61.72	62.75	64.56	60.35	61.81	64.56
SPILLWAY	14.26	14.09	14.16	14.26	14.00	14.10	14.26	13.87	14.01	14.26
DIVERSION TUNNEL	6.23	6.23	6.23	6.23	6.23	6.23	6.23	6.23	6.23	6.23
INTAKE (PRESSURE TYPE)	1.54	1.49	1.42	1.35	1.47	1.37	1.28	1.43	1.31	1.19
HEADRACE TUNNEL (PRESSURE)	23.95	23.46	23.40	23.33	23.21	23.13	23.04	22.83	22.72	22.60
SURGE TANK	1.46	1.42	1.41	1.40	1.40	1.39	1.38	1.36	1.36	1.35
PENSTOCK	4.39	4.28	4.34	4.41	4.22	4.31	4.39	4.13	4.24	4.36
(PRESSURE SHAFT)	(1.12)	(1.11)	(1.12)	(1.13)	(1.11)	(1.12)	(1.13)	(1.10)	(1.11)	(1.13)
(STEEL LINER)	(3.27)	(3.17)	(3.22)	(3.28)	(3.11)	(3.19)	(3.26)	(3.03)	(3.13)	(3.23)
POWERHOUSE BUILDING	2.69	2.60	2.62	2.63	2.55	2.58	2.60	2.49	2.51	2.55
(SUPER STRUCTURE)	(1.19)	(1.15)	(1.16)	(1.17)	(1.14)	(1.14)	(1.16)	(1.11)	(1.12)	(1.13)
(SUB STRUCTURE)	(1.49)	(1.44)	(1.45)	(1.46)	(1.42)	(1.43)	(1.44)	(1.38)	(1.40)	(1.41)
MISCELLANEOUS CIVIL WORK	5.95	5.81	5.84	5.91	5.74	5.79	5.89	5.63	5.71	5.86
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	12.81	12.44	12.48	12.53	12.25	12.31	12.37	11.97	12.04	12.12
ENGINEERING/ADMINISTRATION	17.23	16.81	16.90	17.08	16.60	16.74	17.00	16.29	16.49	16.88
CONTINGENCIES	31.02	30.25	30.42	30.74	29.88	30.14	30.60	29.32	29.69	30.39
S U B T O T A L	186.11	181.50	182.55	184.45	179.28	180.84	183.62	175.91	178.14	182.36
ACCESS ROAD (ROAD LENGTH 12.0 KM)										
CONSTRUCTION COST	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64
ENGINEERING ADMINSITRATION	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
CONTINEGENCIES	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
S U B T O T A L	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42
TRANSMISSION LINE SYSTEM (T/L LENGTH 51.0 KM)										
TRANSMISSION LINE	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47
SWITCHYARD AND SUBSTATION	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
ENGINEERING/ADMINISTRATION	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
CONTINGENCIES	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
S U B T O T A L	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29
T O T A L	194.82	190.21	191.26	193.16	187.99	189.55	192.33	184.62	186.85	191.07
EVALUATION INDICES										
U S D / K W	3045.8	3083.4	3065.1	3057.7	3104.3	3082.6	3076.6	3137.2	3111.9	3112.3
U S D / K W H	1.294	1.299	1.291	1.287	1.302	1.292	1.289	1.306	1.295	1.295

PROJECT NAME : UPPER CASECNAN-3
PROJECT ID : 2-008-29-61-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(70.0)	(67.7)	(67.8)	(67.9)	(68.0)	(68.1)	(65.9)	(66.0)	(66.3)	(66.3)
STORAGE DAM	41.70	40.34	40.58	40.82	41.26	41.70	39.29	39.63	40.98	41.70
SPILLWAY	9.54	9.41	9.43	9.45	9.50	9.54	9.30	9.34	9.47	9.54
DIVERSION TUNNEL	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45
INTAKE (PRESSURE TYPE)	0.96	0.93	0.92	0.90	0.89	0.88	0.90	0.88	0.84	0.81
HEADRACE TUNNEL (PRESSURE)	29.08	28.50	28.48	28.45	28.43	28.40	28.03	27.99	27.91	27.82
SURGE TANK	1.13	1.10	1.10	1.10	1.10	1.10	1.08	1.08	1.07	1.07
PENSTOCK	14.81	14.44	14.45	14.47	14.49	14.51	14.14	14.17	14.23	14.23
(PRESSURE SHAFT)	(3.30)	(3.27)	(3.27)	(3.27)	(3.27)	(3.27)	(3.25)	(3.25)	(3.25)	(3.25)
(STEEL LINER)	(11.51)	(11.17)	(11.18)	(11.20)	(11.22)	(11.24)	(10.89)	(10.92)	(10.98)	(10.98)
POWERHOUSE BUILDING	2.52	2.44	2.44	2.44	2.45	2.45	2.38	2.38	2.38	2.38
(SUPER STRUCTURE)	(1.12)	(1.09)	(1.09)	(1.09)	(1.09)	(1.09)	(1.06)	(1.06)	(1.06)	(1.06)
(SUB STRUCTURE)	(1.40)	(1.36)	(1.36)	(1.36)	(1.36)	(1.36)	(1.32)	(1.32)	(1.32)	(1.32)
MISCELLANEOUS CIVIL WORK	5.26	5.13	5.14	5.16	5.18	5.20	5.03	5.05	5.12	5.15
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	11.27	10.97	10.97	10.97	10.97	10.97	10.72	10.72	10.72	10.70
ENGINEERING/ADMINISTRATION	15.22	14.84	14.87	14.90	14.96	15.03	14.54	14.59	14.77	14.86
CONTINGENCIES	27.39	26.71	26.77	26.83	26.94	27.05	26.17	26.25	26.59	26.74
S U B T O T A L	164.33	160.27	160.61	160.95	161.62	162.28	157.04	157.53	159.53	160.45
ACCESS ROAD (ROAD LENGTH 37.0 KM)										
CONSTRUCTION COST	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14	8.14
ENGINEERING ADMINSITRATION	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
CONTINEGENCIES	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
S U B T O T A L	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55
TRANSMISSION LINE SYSTEM (T/L LENGTH 48.0 KM)										
TRANSMISSION LINE	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26
SWITCHYARD AND SUBSTATION	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
ENGINEERING/ADMINISTRATION	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
CONTINGENCIES	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
S U B T O T A L	5.02	5.02	5.02	5.02	5.02	5.02	5.02	5.02	5.02	5.02
T O T A L	179.90	175.84	176.18	176.53	177.19	177.85	172.61	173.10	175.11	176.03
EVALUATION INDICES										
U S D / K W	2571.7	2597.4	2599.3	2601.4	2607.3	2613.3	2619.9	2622.5	2641.5	2656.1
U S D / K W H	1.088	1.090	1.091	1.091	1.094	1.096	1.092	1.093	1.100	1.105

PROJECT NAME : TABOAN
PROJECT ID : 2-032-00-01-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(47.9)	(39.7)	(44.6)	(50.3)	(38.2)	(43.6)	(50.2)	(36.1)	(42.0)	(49.4)
STORAGE DAM	53.35	41.43	45.96	53.35	39.17	44.25	53.35	36.64	42.56	53.35
SPILLWAY	13.03	11.74	12.25	13.03	11.47	12.07	13.03	11.16	11.86	13.03
DIVERSION TUNNEL	6.38	6.38	6.38	6.38	6.38	6.38	6.38	6.38	6.38	6.38
INTAKE (PRESSURE TYPE)	2.85	2.53	2.34	2.18	2.47	2.26	2.08	2.38	2.15	1.97
HEADRACE TUNNEL (PRESSURE)	2.30	2.19	2.17	2.16	2.16	2.15	2.14	2.12	2.11	2.09
SURGE TANK	1.52	1.42	1.40	1.38	1.39	1.37	1.36	1.36	1.34	1.32
PENSTOCK	0.95	0.85	0.97	1.09	0.84	0.96	1.11	0.81	0.95	1.11
(PRESSURE SHAFT)	(0.32)	(0.31)	(0.33)	(0.35)	(0.31)	(0.33)	(0.36)	(0.31)	(0.33)	(0.36)
(STEEL LINER)	(0.63)	(0.54)	(0.63)	(0.74)	(0.53)	(0.63)	(0.75)	(0.50)	(0.61)	(0.74)
POWERHOUSE BUILDING	2.83	2.44	2.63	2.84	2.36	2.58	2.82	2.26	2.49	2.77
(SUPER STRUCTURE)	(1.26)	(1.08)	(1.17)	(1.26)	(1.05)	(1.14)	(1.25)	(1.00)	(1.11)	(1.23)
(SUB STRUCTURE)	(1.57)	(1.36)	(1.46)	(1.58)	(1.31)	(1.43)	(1.57)	(1.25)	(1.38)	(1.54)
MISCELLANEOUS CIVIL WORK	4.16	3.45	3.70	4.12	3.31	3.60	4.11	3.16	3.49	4.10
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	15.64	13.93	14.61	15.38	13.58	14.37	15.25	13.09	13.96	14.95
ENGINEERING/ADMINISTRATION	12.88	10.79	11.55	12.74	10.39	11.25	12.70	9.92	10.91	12.63
CONTINGENCIES	23.18	19.43	20.79	22.93	18.71	20.25	22.87	17.86	19.64	22.74
S U B T O T A L	139.07	116.57	124.75	137.58	112.25	121.47	137.19	107.14	117.86	136.43
ACCESS ROAD (ROAD LENGTH 6.0 KM)										
CONSTRUCTION COST	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
ENGINEERING ADMINSITRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINEGENCIES	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
S U B T O T A L	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 68.0 KM)										
TRANSMISSION LINE	4.62	3.13	4.62	4.62	3.13	4.62	4.62	3.13	4.62	4.62
SWITCHYARD AND SUBSTATION	0.62	0.54	0.62	0.62	0.54	0.62	0.62	0.54	0.62	0.62
ENGINEERING/ADMINISTRATION	0.66	0.46	0.66	0.66	0.46	0.66	0.66	0.46	0.66	0.66
CONTINGENCIES	0.88	0.62	0.88	0.88	0.62	0.88	0.88	0.62	0.88	0.88
S U B T O T A L	6.78	4.75	6.78	6.78	4.75	6.78	6.78	4.75	6.78	6.78
T O T A L	147.56	123.03	133.25	146.08	118.70	129.97	145.69	113.60	126.36	144.93
EVALUATION INDICES										
U S D / K W	3081.0	3095.6	2990.8	2905.3	3110.4	2981.8	2902.3	3148.7	3006.3	2933.8
U S D / K W H	1.282	1.257	1.220	1.189	1.257	1.212	1.183	1.260	1.211	1.186

PROJECT NAME : DIKATAYAN
PROJECT ID : 2-039-00-01-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(117.5)	(82.5)	(97.2)	(116.4)	(72.2)	(88.9)	(111.0)	(63.7)	(81.2)	(104.6)
STORAGE DAM	123.31	83.79	95.94	123.31	72.67	87.22	123.31	62.26	80.54	123.31
SPILLWAY	17.70	15.07	15.95	17.70	14.19	15.34	17.70	13.30	14.82	17.70
DIVERSION TUNNEL	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
INTAKE (PRESSURE TYPE)	3.43	3.91	3.45	3.08	3.58	3.11	2.74	3.21	2.72	2.38
HEADRACE TUNNEL (PRESSURE)	4.13	4.05	4.03	4.01	3.85	3.15	3.13	3.00	2.98	2.95
SURGE TANK	2.14	2.12	2.08	2.05	1.97	1.69	1.86	1.78	1.74	1.71
PENSTOCK	5.14	3.80	4.42	5.19	3.52	3.53	4.35	2.68	3.33	4.20
(PRESSURE SHAFT)	(1.47)	(1.32)	(1.41)	(1.49)	(1.29)	(0.85)	(0.91)	(0.78)	(0.84)	(0.90)
(STEEL LINER)	(3.67)	(2.48)	(3.01)	(3.70)	(2.22)	(2.68)	(3.44)	(1.90)	(2.49)	(3.30)
POWERHOUSE BUILDING	8.02	6.28	6.99	7.87	5.61	4.55	5.26	3.56	4.18	4.93
(SUPER STRUCTURE)	(3.57)	(2.79)	(3.11)	(3.50)	(2.50)	(2.02)	(2.34)	(1.58)	(1.86)	(2.19)
(SUB STRUCTURE)	(4.46)	(3.49)	(3.89)	(4.37)	(3.12)	(2.53)	(2.92)	(1.98)	(2.32)	(2.74)
MISCELLANEOUS CIVIL WORK	8.59	6.35	7.04	8.56	5.67	6.34	8.32	4.89	5.92	8.26
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	26.71	22.50	24.16	26.12	20.54	22.48	24.74	18.77	20.85	23.25
ENGINEERING/ADMINISTRATION	25.03	19.48	21.51	24.95	17.45	19.45	24.53	15.18	18.14	24.35
CONTINGENCIES	46.44	35.07	38.72	46.17	31.41	35.01	44.79	27.33	32.64	44.21
S U B T O T A L	278.65	210.42	232.31	277.01	188.46	210.07	268.71	163.96	195.87	265.24
ACCESS ROAD (ROAD LENGTH 10.0 KM)										
CONSTRUCTION COST	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
ENGINEERING ADMINSITRATION	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
CONTINEGENCIES	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
S U B T O T A L	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85
TRANSMISSION LINE SYSTEM (T/L LENGTH 27.0 KM)										
TRANSMISSION LINE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.84	3.00	3.00
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.62	0.96	0.96
ENGINEERING/ADMINISTRATION	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.31	0.49	0.49
CONTINGENCIES	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.41	0.67	0.67
S U B T O T A L	5.12	5.12	5.12	5.12	5.12	5.12	5.12	3.18	5.12	5.12
T O T A L	286.62	218.39	240.29	284.98	196.43	218.04	276.68	169.99	203.84	273.21
EVALUATION INDICES										
U S D / K W	2439.8	2648.8	2472.4	2448.6	2721.6	2453.1	2492.4	2668.9	2508.9	2611.2
U S D / K W H	1.493	1.576	1.488	1.482	1.574	1.441	1.473	1.499	1.435	1.502

PROJECT NAME : PALANAN
PROJECT ID : 2-047-00-01-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(23.4)	(19.3)	(20.2)	(21.1)	(17.1)	(18.4)	(19.7)	(13.5)	(15.2)	(16.8)
STORAGE DAM	12.60	11.11	11.86	12.60	10.13	11.41	12.60	8.64	10.53	12.60
SPILLWAY	9.22	8.60	9.01	9.22	8.53	8.89	9.22	8.07	8.64	9.22
DIVERSION TUNNEL	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24
INTAKE (PRESSURE TYPE)	1.47	1.25	1.22	1.19	1.13	1.10	1.06	0.92	0.88	0.84
HEADRACE TUNNEL (PRESSURE)	1.90	1.72	1.72	1.72	1.62	1.62	1.61	1.44	1.43	1.42
SURGE TANK	1.05	0.92	0.92	0.91	0.85	0.85	0.84	0.72	0.71	0.71
PENSTOCK	0.61	0.55	0.57	0.59	0.52	0.54	0.57	0.46	0.49	0.53
(PRESSURE SHAFT)	(0.27)	(0.26)	(0.27)	(0.27)	(0.26)	(0.26)	(0.27)	(0.24)	(0.25)	(0.26)
(STEEL LINER)	(0.34)	(0.29)	(0.30)	(0.32)	(0.26)	(0.28)	(0.30)	(0.22)	(0.24)	(0.27)
POWERHOUSE BUILDING	1.54	1.30	1.34	1.37	1.17	1.22	1.28	0.94	1.01	1.08
(SUPER STRUCTURE)	(0.69)	(0.58)	(0.59)	(0.61)	(0.52)	(0.54)	(0.57)	(0.42)	(0.45)	(0.48)
(SUB STRUCTURE)	(0.86)	(0.72)	(0.74)	(0.76)	(0.65)	(0.68)	(0.71)	(0.52)	(0.56)	(0.60)
MISCELLANEOUS CIVIL WORK	1.78	1.64	1.69	1.74	1.56	1.64	1.72	1.42	1.55	1.68
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	9.52	8.21	8.38	8.53	7.51	7.75	7.96	6.25	6.56	6.85
ENGINEERING/ADMINISTRATION	5.87	5.34	5.49	5.64	5.03	5.28	5.51	4.51	4.88	5.27
CONTINGENCIES	10.56	9.62	9.89	10.15	9.06	9.51	9.92	8.12	8.79	9.49
S U B T O T A L	63.36	57.72	59.32	60.91	54.36	57.04	59.54	48.73	52.73	56.94
ACCESS ROAD (ROAD LENGTH 27.0 KM)										
CONSTRUCTION COST	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94
ENGINEERING ADMINSITRATION	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
CONTINEGENCIES	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
S U B T O T A L	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70
TRANSMISSION LINE SYSTEM (T/L LENGTH 68.0 KM)										
TRANSMISSION LINE	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
CONTINGENCIES	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
S U B T O T A L	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
T O T A L	73.43	67.79	69.39	70.98	64.43	67.11	69.61	58.80	62.80	67.02
EVALUATION INDICES										
U S D / K W	3143.9	3514.1	3436.2	3364.9	3758.5	3640.6	3537.6	4349.1	4138.3	3984.6
U S D / K W H	1.691	1.781	1.746	1.715	1.836	1.785	1.740	1.959	1.873	1.809

PROJECT NAME : MALUPA
PROJECT ID : 3-013-00-01-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(14.2)	(11.5)	(15.2)	(11.0)	(11.9)	(12.9)	(13.9)	(15.1)	(10.4)	(14.8)
STORAGE DAM	275.53	220.25	275.53	208.96	218.38	231.90	250.28	275.53	197.98	275.53
SPILLWAY	14.78	13.31	14.78	13.00	13.26	13.64	14.14	14.78	12.68	14.78
DIVERSION TUNNEL	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
INTAKE (PRESSURE TYPE)	1.03	0.89	0.67	0.87	0.81	0.74	0.69	0.63	0.83	0.58
HEADRACE TUNNEL (PRESSURE)	1.45	1.35	1.34	1.33	1.33	1.33	1.32	1.31	1.30	1.28
SURGE TANK	0.42	0.38	0.37	0.37	0.37	0.37	0.37	0.36	0.36	0.35
PENSTOCK	1.14	1.05	1.25	1.03	1.08	1.13	1.19	1.25	1.01	1.24
(PRESSURE SHAFT)	(0.56)	(0.55)	(0.59)	(0.55)	(0.56)	(0.57)	(0.58)	(0.60)	(0.54)	(0.59)
(STEEL LINER)	(0.58)	(0.50)	(0.66)	(0.48)	(0.52)	(0.56)	(0.61)	(0.66)	(0.47)	(0.65)
POWERHOUSE BUILDING	0.77	0.65	0.77	0.62	0.66	0.69	0.73	0.76	0.59	0.74
(SUPER STRUCTURE)	(0.34)	(0.29)	(0.34)	(0.28)	(0.29)	(0.31)	(0.32)	(0.34)	(0.26)	(0.33)
(SUB STRUCTURE)	(0.43)	(0.36)	(0.43)	(0.35)	(0.36)	(0.38)	(0.40)	(0.42)	(0.33)	(0.41)
MISCELLANEOUS CIVIL WORK	15.38	12.52	15.36	11.93	12.42	13.12	14.06	15.36	11.36	15.35
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	4.64	4.04	4.54	3.93	4.06	4.20	4.34	4.48	3.77	4.37
ENGINEERING/ADMINISTRATION	31.90	28.62	31.87	27.91	28.50	29.33	30.42	31.86	27.20	31.85
CONTINGENCIES	71.91	59.11	71.80	56.49	58.67	61.79	66.01	71.77	53.92	71.72
S U B T O T A L	431.45	354.68	430.78	338.94	352.04	370.75	396.04	430.60	323.50	430.30
ACCESS ROAD (ROAD LENGTH 18.0 KM)										
CONSTRUCTION COST	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96	3.96
ENGINEERING ADMINSITRATION	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
CONTINEGENCIES	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
S U B T O T A L	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13
TRANSMISSION LINE SYSTEM (T/L LENGTH 52.0 KM)										
TRANSMISSION LINE	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
CONTINGENCIES	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
S U B T O T A L	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
T O T A L	438.48	361.71	437.81	345.97	359.07	377.78	403.07	437.63	330.53	437.33
EVALUATION INDICES										
U S D / K W	30811.1	31356.7	28825.6	31396.4	30157.5	29330.1	28952.1	29047.3	31816.0	29646.9
U S D / K W H	6.369	6.313	5.888	6.287	6.075	5.935	5.878	5.908	6.313	5.986

PROJECT NAME : UMIRAY-3
PROJECT ID : 3-023-00-01-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(153.7)	(80.0)	(110.4)	(144.2)	(64.7)	(98.2)	(135.1)	(46.0)	(79.3)	(115.6)
STORAGE DAM	208.92	88.86	133.94	208.92	67.32	118.75	208.92	47.32	102.20	208.92
SPILLWAY	16.69	11.91	14.02	16.69	10.65	13.36	16.69	9.21	12.59	16.69
DIVERSION TUNNEL	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36
INTAKE (PRESSURE TYPE)	4.61	4.46	4.01	3.61	3.92	3.47	3.09	3.14	2.72	2.40
HEADRACE TUNNEL (PRESSURE)	11.54	10.65	10.62	10.57	10.02	9.98	9.92	8.87	8.83	8.75
SURGE TANK	3.60	3.24	3.21	3.18	2.98	2.95	2.92	2.52	2.50	2.46
PENSTOCK	12.52	8.26	10.01	12.03	7.40	9.30	11.49	6.23	8.10	10.25
(PRESSURE SHAFT)	(3.20)	(2.97)	(3.07)	(3.15)	(2.91)	(3.01)	(3.10)	(2.78)	(2.88)	(2.96)
(STEEL LINER)	(9.31)	(5.29)	(6.94)	(8.87)	(4.49)	(6.29)	(8.39)	(3.45)	(5.22)	(7.29)
POWERHOUSE BUILDING	10.81	6.74	8.34	9.95	5.69	7.50	9.25	4.28	6.14	7.86
(SUPER STRUCTURE)	(4.81)	(2.99)	(3.71)	(4.42)	(2.53)	(3.33)	(4.11)	(1.90)	(2.73)	(3.49)
(SUB STRUCTURE)	(6.01)	(3.74)	(4.63)	(5.53)	(3.16)	(4.17)	(5.14)	(2.38)	(3.41)	(4.37)
MISCELLANEOUS CIVIL WORK	14.20	7.47	9.98	14.01	6.17	9.03	13.88	4.85	7.92	13.63
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	35.41	25.09	28.95	32.56	21.96	26.43	30.39	17.44	22.21	26.18
ENGINEERING/ADMINISTRATION	32.21	22.75	26.96	31.86	18.93	25.59	31.60	14.90	23.57	31.11
CONTINGENCIES	73.17	40.96	53.08	71.75	34.08	48.35	70.70	26.82	42.43	68.72
S U B T O T A L	439.03	245.74	318.47	430.47	204.45	290.08	424.20	160.94	254.56	412.34
ACCESS ROAD (ROAD LENGTH 20.0 KM)										
CONSTRUCTION COST	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
ENGINEERING ADMINSITRATION	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
CONTINEGENCIES	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
S U B T O T A L	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70
TRANSMISSION LINE SYSTEM (T/L LENGTH 52.0 KM)										
TRANSMISSION LINE	5.77	5.77	5.77	5.77	3.54	5.77	5.77	3.54	5.77	5.77
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.62	0.96	0.96	0.62	0.96	0.96
ENGINEERING/ADMINISTRATION	0.84	0.84	0.84	0.84	0.52	0.84	0.84	0.52	0.84	0.84
CONTINGENCIES	1.14	1.14	1.14	1.14	0.70	1.14	1.14	0.70	1.14	1.14
S U B T O T A L	8.71	8.71	8.71	8.71	5.38	8.71	8.71	5.38	8.71	8.71
T O T A L	453.44	260.15	332.88	444.88	215.53	304.49	438.61	172.01	268.97	426.75
EVALUATION INDICES										
U S D / K W	2949.8	3253.6	3016.4	3085.5	3330.6	3099.7	3246.8	3740.7	3393.2	3692.9
U S D / K W H	1.283	1.351	1.265	1.298	1.342	1.267	1.332	1.414	1.312	1.433

PROJECT NAME : UPPER UMIRAY
PROJECT ID : 3-023-00-02-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(215.3)	(174.5)	(193.7)	(216.1)	(169.0)	(190.1)	(215.8)	(163.5)	(186.4)	(215.1)
STORAGE DAM	170.28	146.15	154.11	170.28	140.78	150.14	170.28	135.64	145.99	170.28
SPILLWAY	20.35	18.97	19.44	20.35	18.65	19.20	20.35	18.33	18.96	20.35
DIVERSION TUNNEL	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84	10.84
INTAKE (PRESSURE TYPE)	5.24	6.12	5.54	4.97	5.99	5.34	4.72	5.86	5.15	4.48
HEADRACE TUNNEL (PRESSURE)	5.22	5.19	5.18	5.16	5.14	5.12	5.10	5.08	5.06	5.04
SURGE TANK	3.15	3.19	3.14	3.10	3.14	3.09	3.04	3.09	3.03	2.98
PENSTOCK	7.61	5.87	6.74	7.74	5.74	6.69	7.82	5.61	6.64	7.88
(PRESSURE SHAFT)	(1.57)	(1.39)	(1.49)	(1.59)	(1.38)	(1.50)	(1.60)	(1.38)	(1.50)	(1.62)
(STEEL LINER)	(6.04)	(4.48)	(5.25)	(6.15)	(4.36)	(5.20)	(6.22)	(4.23)	(5.14)	(6.27)
POWERHOUSE BUILDING	13.76	11.94	12.78	13.72	11.62	12.56	13.64	11.31	12.32	13.53
(SUPER STRUCTURE)	(6.12)	(5.30)	(5.68)	(6.10)	(5.16)	(5.58)	(6.06)	(5.03)	(5.48)	(6.01)
(SUB STRUCTURE)	(7.65)	(6.63)	(7.10)	(7.62)	(6.46)	(6.98)	(7.58)	(6.28)	(6.85)	(7.51)
MISCELLANEOUS CIVIL WORK	11.82	10.41	10.89	11.81	10.09	10.65	11.79	9.79	10.40	11.77
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	42.12	38.20	39.98	41.90	37.39	39.36	41.56	36.57	38.73	41.18
ENGINEERING/ADMINISTRATION	29.92	28.04	28.72	29.90	27.61	28.39	29.85	27.18	28.06	29.81
CONTINGENCIES	64.06	56.99	59.47	63.95	55.40	58.28	63.80	53.86	57.04	63.63
S U B T O T A L	384.37	341.91	356.83	383.72	332.37	349.67	382.78	323.16	342.21	381.76
ACCESS ROAD (ROAD LENGTH 38.5 KM)										
CONSTRUCTION COST	8.47	8.47	8.47	8.47	8.47	8.47	8.47	8.47	8.47	8.47
ENGINEERING ADMINSITRATION	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
CONTINEGENCIES	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
S U B T O T A L	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98
TRANSMISSION LINE SYSTEM (T/L LENGTH 41.0 KM)										
TRANSMISSION LINE	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
ENGINEERING/ADMINISTRATION	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
CONTINGENCIES	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
S U B T O T A L	7.13	7.13	7.13	7.13	7.13	7.13	7.13	7.13	7.13	7.13
T O T A L	402.48	360.02	374.93	401.82	350.48	367.77	400.89	341.26	360.32	399.87
EVALUATION INDICES										
U S D / K W	1869.0	2062.9	1936.1	1859.4	2074.3	1934.2	1857.5	2087.4	1933.2	1859.3
U S D / K W H	1.235	1.354	1.273	1.224	1.354	1.266	1.217	1.355	1.259	1.213

PROJECT NAME : CATMON
PROJECT ID : 3-025-01-01-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1 (4.6)	2 (4.2)	3 (4.4)	4 (4.6)	5 (3.9)	6 (4.2)	7 (4.6)	8 (3.5)	9 (3.9)	10 (4.4)
POWER DEVELOPMENT (INST.CAP(MW))										
STORAGE DAM	27.69	25.29	26.38	27.69	23.03	24.93	27.69	20.81	23.35	27.69
SPILLWAY	10.54	10.16	10.33	10.54	9.79	10.10	10.54	9.40	9.85	10.54
DIVERSION TUNNEL	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85
INTAKE (PRESSURE TYPE)	0.44	0.41	0.40	0.38	0.39	0.36	0.33	0.36	0.32	0.29
HEADRACE TUNNEL (PRESSURE)	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
SURGE TANK	0.18	0.17	0.17	0.17	0.16	0.16	0.16	0.15	0.15	0.15
PENSTOCK	0.33	0.32	0.33	0.34	0.31	0.33	0.34	0.30	0.32	0.34
(PRESSURE SHAFT)	(0.20)	(0.20)	(0.20)	(0.21)	(0.20)	(0.20)	(0.21)	(0.19)	(0.20)	(0.21)
(STEEL LINER)	(0.12)	(0.12)	(0.12)	(0.13)	(0.11)	(0.12)	(0.13)	(0.11)	(0.12)	(0.13)
POWERHOUSE BUILDING	0.28	0.26	0.27	0.28	0.24	0.25	0.27	0.22	0.24	0.26
(SUPER STRUCTURE)	(0.12)	(0.12)	(0.12)	(0.12)	(0.11)	(0.11)	(0.12)	(0.10)	(0.11)	(0.11)
(SUB STRUCTURE)	(0.16)	(0.14)	(0.15)	(0.15)	(0.13)	(0.14)	(0.15)	(0.12)	(0.13)	(0.14)
MISCELLANEOUS CIVIL WORK	2.30	2.16	2.23	2.30	2.03	2.14	2.30	1.89	2.04	2.30
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	1.97	1.86	1.89	1.93	1.75	1.80	1.86	1.63	1.70	1.78
ENGINEERING/ADMINISTRATION	6.30	5.91	6.08	6.28	5.54	5.84	6.27	5.18	5.58	6.25
CONTINGENCIES	11.33	10.64	10.94	11.31	9.98	10.51	11.28	9.32	10.04	11.24
S U B T O T A L	67.99	63.83	65.66	67.84	59.86	63.07	67.67	55.90	60.23	67.47
ACCESS ROAD (ROAD LENGTH 33.0 KM)										
CONSTRUCTION COST	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26
ENGINEERING ADMINSITRATION	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
CONTINEGENCIES	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57
S U B T O T A L	9.41	9.41	9.41	9.41	9.41	9.41	9.41	9.41	9.41	9.41
TRANSMISSION LINE SYSTEM (T/L LENGTH 34.0 KM)										
TRANSMISSION LINE	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
CONTINGENCIES	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
S U B T O T A L	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
T O T A L	78.76	74.60	76.43	78.61	70.63	73.84	78.44	66.67	71.00	78.24
EVALUATION INDICES										
U S D / K W	17069.1	17587.5	17239.3	16951.1	18157.9	17553.1	17211.4	18937.5	18074.5	17791.7
U S D / K W H	3.325	3.381	3.324	3.277	3.440	3.344	3.290	3.526	3.391	3.348

PROJECT NAME : BALINTINGON
PROJECT ID : 3-025-02-02-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(7.3)	(5.6)	(6.4)	(7.2)	(5.3)	(6.2)	(7.2)	(5.0)	(6.1)	(7.1)
STORAGE DAM	45.10	34.21	38.58	45.10	31.88	37.61	45.10	29.58	36.56	45.10
SPILLWAY	10.51	9.38	9.87	10.51	9.12	9.76	10.51	8.86	9.64	10.51
DIVERSION TUNNEL	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58
INTAKE (PRESSURE TYPE)	0.53	0.57	0.52	0.48	0.55	0.50	0.45	0.53	0.48	0.42
HEADRACE TUNNEL (PRESSURE)	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
SURGE TANK	0.27	0.26	0.26	0.26	0.26	0.26	0.25	0.25	0.25	0.25
PENSTOCK	0.44	0.39	0.42	0.45	0.38	0.42	0.45	0.38	0.41	0.45
(PRESSURE SHAFT)	(0.26)	(0.24)	(0.25)	(0.26)	(0.24)	(0.25)	(0.26)	(0.24)	(0.25)	(0.26)
(STEEL LINER)	(0.19)	(0.15)	(0.17)	(0.19)	(0.14)	(0.17)	(0.19)	(0.14)	(0.16)	(0.19)
POWERHOUSE BUILDING	0.43	0.36	0.39	0.42	0.34	0.38	0.42	0.33	0.37	0.41
(SUPER STRUCTURE)	(0.19)	(0.16)	(0.17)	(0.19)	(0.15)	(0.17)	(0.19)	(0.15)	(0.17)	(0.18)
(SUB STRUCTURE)	(0.24)	(0.20)	(0.22)	(0.24)	(0.19)	(0.21)	(0.23)	(0.18)	(0.21)	(0.23)
MISCELLANEOUS CIVIL WORK	3.29	2.69	2.93	3.29	2.55	2.87	3.29	2.42	2.81	3.28
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	2.88	2.53	2.68	2.82	2.45	2.63	2.79	2.37	2.57	2.75
ENGINEERING/ADMINISTRATION	9.00	7.37	8.02	8.98	7.01	7.87	8.97	6.66	7.71	8.96
CONTINGENCIES	16.20	13.26	14.44	16.17	12.62	14.17	16.15	11.98	13.87	16.14
S U B T O T A L	97.20	79.54	86.66	97.03	75.69	85.00	96.92	71.90	83.22	96.82
ACCESS ROAD (ROAD LENGTH 22.0 KM)										
CONSTRUCTION COST	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
ENGINEERING ADMINSITRATION	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
CONTINEGENCIES	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
S U B T O T A L	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27
TRANSMISSION LINE SYSTEM (T/L LENGTH 33.0 KM)										
TRANSMISSION LINE	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
CONTINGENCIES	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
S U B T O T A L	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
T O T A L	104.80	87.15	94.26	104.63	83.30	92.61	104.53	79.51	90.82	104.42
EVALUATION INDICES										
U S D / K W	14445.8	15586.9	14792.6	14500.4	15669.7	14845.2	14562.1	15752.6	14908.3	14661.0
U S D / K W H	2.987	3.168	3.026	2.977	3.168	3.024	2.977	3.168	3.024	2.984

PROJECT NAME : PAPAYA
PROJECT ID : 3-025-02-03-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(2.4)	(2.2)	(2.3)	(2.4)	(2.1)	(2.2)	(2.4)	(1.9)	(2.1)	(2.3)
STORAGE DAM	25.53	23.32	24.35	25.53	22.04	23.46	25.53	20.14	21.94	25.53
SPILLWAY	8.27	7.98	8.11	8.27	7.82	8.00	8.27	7.58	7.81	8.27
DIVERSION TUNNEL	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
INTAKE (PRESSURE TYPE)	0.29	0.27	0.25	0.22	0.26	0.23	0.20	0.24	0.21	0.18
HEADRACE TUNNEL (PRESSURE)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
SURGE TANK	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09
PENSTOCK	0.46	0.45	0.46	0.47	0.44	0.46	0.47	0.43	0.45	0.47
(PRESSURE SHAFT)	(0.31)	(0.30)	(0.31)	(0.31)	(0.30)	(0.30)	(0.31)	(0.30)	(0.30)	(0.31)
(STEEL LINER)	(0.15)	(0.15)	(0.15)	(0.16)	(0.14)	(0.15)	(0.16)	(0.14)	(0.15)	(0.16)
POWERHOUSE BUILDING	0.15	0.14	0.15	0.15	0.14	0.14	0.15	0.13	0.14	0.14
(SUPER STRUCTURE)	(0.07)	(0.06)	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)
(SUB STRUCTURE)	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)
MISCELLANEOUS CIVIL WORK	1.99	1.87	1.92	1.99	1.79	1.87	1.99	1.68	1.79	1.99
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	1.19	1.12	1.14	1.16	1.08	1.11	1.14	1.03	1.07	1.10
ENGINEERING/ADMINISTRATION	5.38	5.04	5.19	5.37	4.84	5.05	5.36	4.55	4.82	5.35
CONTINGENCIES	9.68	9.07	9.35	9.66	8.72	9.10	9.65	8.19	8.67	9.64
S U B T O T A L	58.11	54.43	56.10	57.98	52.30	54.59	57.91	49.14	52.05	57.81
ACCESS ROAD (ROAD LENGTH 22.0 KM)										
CONSTRUCTION COST	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
ENGINEERING ADMINSITRATION	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
CONTINEGENCIES	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
S U B T O T A L	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27
TRANSMISSION LINE SYSTEM (T/L LENGTH 36.0 KM)										
TRANSMISSION LINE	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
CONTINGENCIES	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
S U B T O T A L	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
T O T A L	65.80	62.12	63.79	65.68	59.99	62.28	65.61	56.83	59.74	65.50
EVALUATION INDICES										
U S D / K W	27850.0	28681.7	27796.4	27209.8	29056.7	27906.9	27365.8	29642.4	28190.6	27967.0
U S D / K W H	5.813	5.913	5.742	5.622	5.952	5.733	5.619	6.011	5.740	5.689

PROJECT NAME : LUBINGAN
PROJECT ID : 3-025-03-04-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(20.1)	(8.8)	(11.9)	(16.0)	(6.9)	(10.2)	(14.2)	(3.6)	(6.1)	(8.8)
STORAGE DAM	254.60	88.86	140.23	254.60	65.37	123.46	254.60	39.42	107.24	254.60
SPILLWAY	22.53	14.62	17.74	22.53	13.11	16.86	22.53	10.74	15.96	22.53
DIVERSION TUNNEL	9.97	9.97	9.97	9.97	9.97	9.97	9.97	9.97	9.97	9.97
INTAKE (PRESSURE TYPE)	0.76	0.54	0.41	0.35	0.43	0.31	0.26	0.23	0.15	0.13
HEADRACE TUNNEL (PRESSURE)	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
SURGE TANK	0.29	0.21	0.21	0.21	0.19	0.18	0.18	0.12	0.12	0.11
PENSTOCK	0.88	0.53	0.68	0.87	0.49	0.64	0.83	0.39	0.51	0.66
(PRESSURE SHAFT)	(0.36)	(0.29)	(0.33)	(0.37)	(0.28)	(0.32)	(0.36)	(0.24)	(0.28)	(0.32)
(STEEL LINER)	(0.52)	(0.25)	(0.35)	(0.50)	(0.21)	(0.32)	(0.46)	(0.15)	(0.23)	(0.34)
POWERHOUSE BUILDING	0.86	0.45	0.55	0.66	0.37	0.47	0.58	0.20	0.28	0.36
(SUPER STRUCTURE)	(0.38)	(0.20)	(0.24)	(0.29)	(0.16)	(0.21)	(0.26)	(0.09)	(0.13)	(0.16)
(SUB STRUCTURE)	(0.48)	(0.25)	(0.30)	(0.37)	(0.20)	(0.26)	(0.32)	(0.11)	(0.16)	(0.20)
MISCELLANEOUS CIVIL WORK	14.55	5.82	8.54	14.51	4.55	7.65	14.50	3.11	6.76	14.47
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	4.67	2.79	3.18	3.61	2.36	2.79	3.22	1.43	1.78	2.07
ENGINEERING/ADMINISTRATION	30.98	15.63	22.82	30.89	12.24	20.42	30.86	8.33	17.98	30.76
CONTINGENCIES	68.23	28.13	41.08	67.85	22.02	36.76	67.71	15.00	32.36	67.34
S U B T O T A L	409.36	168.80	246.46	407.09	132.14	220.56	406.28	89.98	194.17	404.04
ACCESS ROAD (ROAD LENGTH 6.0 KM)										
CONSTRUCTION COST	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
ENGINEERING ADMINSITRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINEGENCIES	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
S U B T O T A L	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 58.0 KM)										
TRANSMISSION LINE	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
CONTINGENCIES	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
S U B T O T A L	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
T O T A L	413.15	172.59	250.24	410.87	135.93	224.35	410.07	93.76	197.95	407.83
EVALUATION INDICES										
U S D / K W	20575.8	19592.5	20963.2	25692.9	19605.1	22066.3	28909.9	25792.3	32494.8	46449.5
U S D / K W H	4.241	3.656	3.978	4.893	3.521	4.037	5.294	4.530	5.707	8.158

PROJECT NAME : GUMAIN
PROJECT ID : 3-027-00-01-0
TYPE : RESERVOIR

****
*** SUMMARY TABLE OF COST ESTIMATE ***
****

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(2.2)	(1.9)	(2.0)	(2.1)	(1.7)	(1.9)	(2.1)	(1.6)	(1.8)	(2.0)
STORAGE DAM	39.51	33.64	36.59	39.51	30.10	34.24	39.51	26.75	32.02	39.51
SPILLWAY	9.43	8.81	9.12	9.43	8.42	8.87	9.43	8.01	8.64	9.43
DIVERSION TUNNEL	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28
INTAKE (PRESSURE TYPE)	0.22	0.20	0.19	0.19	0.18	0.17	0.17	0.17	0.16	0.15
HEADRACE TUNNEL (PRESSURE)	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
SURGE TANK	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
PENSTOCK	0.31	0.30	0.31	0.32	0.30	0.31	0.32	0.29	0.31	0.32
(PRESSURE SHAFT)	(0.21)	(0.20)	(0.21)	(0.21)	(0.20)	(0.20)	(0.21)	(0.20)	(0.20)	(0.21)
(STEEL LINER)	(0.11)	(0.10)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.10)	(0.10)	(0.11)
POWERHOUSE BUILDING	0.13	0.12	0.12	0.13	0.11	0.12	0.12	0.10	0.11	0.12
(SUPER STRUCTURE)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
(SUB STRUCTURE)	(0.07)	(0.06)	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)
MISCELLANEOUS CIVIL WORK	2.79	2.46	2.62	2.79	2.26	2.49	2.78	2.07	2.37	2.78
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.99	0.90	0.93	0.95	0.86	0.89	0.92	0.80	0.84	0.89
ENGINEERING/ADMINISTRATION	7.44	6.57	7.00	7.43	6.05	6.65	7.42	5.54	6.32	7.42
CONTINGENCIES	13.39	11.83	12.60	13.38	10.88	11.98	13.36	9.97	11.38	13.35
S U B T O T A L	80.35	70.98	75.63	80.25	65.29	71.87	80.18	59.84	68.28	80.10
ACCESS ROAD (ROAD LENGTH 6.0 KM)										
CONSTRUCTION COST	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
ENGINEERING ADMINSITRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINEGENCIES	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
S U B T O T A L	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 21.0 KM)										
TRANSMISSION LINE	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
CONTINGENCIES	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
S U B T O T A L	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
T O T A L	83.04	73.67	78.31	82.94	67.98	74.55	82.87	62.52	70.97	82.78
EVALUATION INDICES										
U S D / K W	38511.0	38881.9	38971.0	39041.7	39067.3	39181.4	39760.2	39698.3	39757.8	40942.2
U S D / K W H	8.028	7.991	8.019	8.043	7.954	7.994	8.122	7.985	8.019	8.269

PROJECT NAME : PILA
PROJECT ID : 3-077-00-02-0
TYPE : RESERVOIR

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*** SUMMARY TABLE OF COST ESTIMATE ***
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(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(5.8)	(4.7)	(5.2)	(5.8)	(4.4)	(5.0)	(5.6)	(4.1)	(4.7)	(5.4)
STORAGE DAM	147.22	121.01	131.82	147.22	115.78	127.67	147.22	109.42	123.51	147.22
SPILLWAY	11.03	10.10	10.49	11.03	9.90	10.35	11.03	9.65	10.20	11.03
DIVERSION TUNNEL	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
INTAKE (PRESSURE TYPE)	0.39	0.44	0.40	0.36	0.42	0.38	0.33	0.40	0.35	0.31
HEADRACE TUNNEL (PRESSURE)	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
SURGE TANK	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.14
PENSTOCK	0.79	0.72	0.75	0.79	0.70	0.74	0.78	0.69	0.73	0.77
(PRESSURE SHAFT)	(0.46)	(0.44)	(0.45)	(0.46)	(0.43)	(0.45)	(0.46)	(0.43)	(0.44)	(0.46)
(STEEL LINER)	(0.33)	(0.28)	(0.30)	(0.33)	(0.27)	(0.29)	(0.32)	(0.26)	(0.29)	(0.32)
POWERHOUSE BUILDING	0.32	0.27	0.29	0.31	0.26	0.28	0.30	0.24	0.27	0.29
(SUPER STRUCTURE)	(0.14)	(0.12)	(0.13)	(0.14)	(0.12)	(0.12)	(0.14)	(0.11)	(0.12)	(0.13)
(SUB STRUCTURE)	(0.18)	(0.15)	(0.16)	(0.17)	(0.14)	(0.16)	(0.17)	(0.14)	(0.15)	(0.16)
MISCELLANEOUS CIVIL WORK	8.33	6.97	7.53	8.33	6.69	7.31	8.32	6.36	7.09	8.32
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	2.12	1.90	1.99	2.08	1.82	1.92	2.02	1.73	1.83	1.94
ENGINEERING/ADMINISTRATION	22.12	18.53	20.01	22.11	17.80	19.43	22.10	16.91	18.84	22.08
CONTINGENCIES	39.82	33.35	36.02	39.80	32.03	34.97	39.78	30.44	33.92	39.75
S U B T O T A L	238.94	200.09	216.09	238.82	192.19	209.83	238.67	182.62	203.52	238.50
ACCESS ROAD (ROAD LENGTH 10.0 KM)										
CONSTRUCTION COST	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
ENGINEERING ADMINSITRATION	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
CONTINEGENCIES	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
S U B T O T A L	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85
TRANSMISSION LINE SYSTEM (T/L LENGTH 42.0 KM)										
TRANSMISSION LINE	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
CONTINGENCIES	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
S U B T O T A L	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
T O T A L	243.39	204.54	220.54	243.27	196.64	214.28	243.12	187.07	207.97	242.95
EVALUATION INDICES										
U S D / K W	41604.6	43637.7	42370.0	42116.3	44587.2	43059.3	43219.7	45506.1	43956.4	44614.9
U S D / K W H	8.847	9.168	8.936	8.902	9.272	8.998	9.056	9.354	9.091	9.254

PROJECT NAME : SAN NICOLAS
PROJECT ID : 3-077-00-03-0
TYPE : RESERVOIR

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* SUMMARY TABLE OF COST ESTIMATE *
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(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(21.7)	(14.4)	(17.3)	(20.8)	(13.2)	(16.4)	(20.1)	(12.1)	(15.4)	(19.3)
STORAGE DAM	187.36	117.00	143.03	187.36	107.85	137.17	187.36	98.40	130.40	187.36
SPILLWAY	18.72	15.40	16.74	18.72	14.88	16.45	18.72	14.34	16.11	18.72
DIVERSION TUNNEL	11.81	11.81	11.81	11.81	11.61	11.81	11.81	11.81	11.81	11.81
INTAKE (PRESSURE TYPE)	0.91	0.99	0.88	0.79	0.93	0.82	0.73	0.87	0.75	0.67
HEADRACE TUNNEL (PRESSURE)	1.52	1.45	1.45	1.44	1.41	1.40	1.40	1.36	1.36	1.35
SURGE TANK	0.47	0.45	0.44	0.44	0.43	0.43	0.42	0.41	0.41	0.40
PENSTOCK	1.77	1.40	1.56	1.74	1.35	1.52	1.71	1.30	1.48	1.68
(PRESSURE SHAFT)	(0.75)	(0.69)	(0.72)	(0.75)	(0.69)	(0.71)	(0.74)	(0.68)	(0.71)	(0.73)
(STEEL LINER)	(1.02)	(0.71)	(0.84)	(0.99)	(0.67)	(0.81)	(0.97)	(0.63)	(0.77)	(0.95)
POWERHOUSE BUILDING	1.07	0.80	0.90	1.02	0.74	0.85	0.98	0.69	0.81	0.94
(SUPER STRUCTURE)	(0.48)	(0.35)	(0.40)	(0.45)	(0.33)	(0.38)	(0.43)	(0.31)	(0.36)	(0.42)
(SUB STRUCTURE)	(0.59)	(0.44)	(0.50)	(0.56)	(0.41)	(0.47)	(0.54)	(0.38)	(0.45)	(0.52)
MISCELLANEOUS CIVIL WORK	11.18	7.46	8.84	11.17	6.97	8.52	11.16	6.46	8.16	11.15
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	6.01	4.86	5.27	5.71	4.59	5.04	5.51	4.32	4.80	5.30
ENGINEERING/ADMINISTRATION	27.10	20.20	23.86	27.06	18.87	23.00	27.04	17.50	22.01	27.01
CONTINGENCIES	53.58	36.36	42.96	53.45	33.97	41.40	53.36	31.50	39.62	53.28
S U B T O T A L	321.50	218.18	257.74	320.70	203.79	248.42	320.19	188.97	237.71	319.66
ACCESS ROAD (ROAD LENGTH 2.0 KM)										
CONSTRUCTION COST	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
ENGINEERING ADMINSITRATION	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
CONTINEGENCIES	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
S U B T O T A L	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
TRANSMISSION LINE SYSTEM (T/L LENGTH 25.0 KM)										
TRANSMISSION LINE	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINGENCIES	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
S U B T O T A L	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
T O T A L	323.17	219.84	259.40	322.36	205.46	250.08	321.85	190.63	239.37	321.32
EVALUATION INDICES										
U S D / K W	14902.8	15306.2	15009.5	15524.2	15524.1	15282.0	16027.3	15700.2	15531.8	16607.2
U S D / K W H	3.164	3.169	3.129	3.248	3.177	3.153	3.321	3.173	3.170	3.404

PROJECT NAME : TABU
PROJECT ID : 3-077-00-04-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 6
POWER DEVELOPMENT (INST.CAP(MW))	(67.4)	(36.9)	(38.7)	(40.4)	(42.3)	(44.1)
STORAGE DAM	32.55	21.28	23.81	26.40	29.49	32.55
SPILLWAY	19.73	16.77	17.51	18.21	18.99	19.73
DIVERSION TUNNEL	18.01	18.01	18.01	18.01	18.01	18.01
INTAKE (PRESSURE TYPE)	2.04	0.99	0.97	0.95	0.94	0.92
HEADRACE TUNNEL (PRESSURE)	13.98	9.96	9.94	9.92	9.91	9.89
SURGE TANK	2.11	1.34	1.33	1.33	1.33	1.32
PENSTOCK	2.23	1.50	1.56	1.61	1.66	1.72
(PRESSURE SHAFT)	(0.62)	(0.54)	(0.55)	(0.56)	(0.56)	(0.57)
(STEEL LINER)	(1.62)	(0.96)	(1.01)	(1.05)	(1.10)	(1.15)
POWERHOUSE BUILDING	3.44	1.97	2.03	2.09	2.15	2.21
(SUPER STRUCTURE)	(1.53)	(0.87)	(0.90)	(0.93)	(0.95)	(0.98)
(SUB STRUCTURE)	(1.91)	(1.09)	(1.13)	(1.16)	(1.19)	(1.23)
MISCELLANEOUS CIVIL WORK	4.70	3.59	3.76	3.93	4.12	4.32
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	17.44	10.75	10.97	11.18	11.39	11.60
ENGINEERING/ADMINISTRATION	14.53	10.77	11.24	11.70	12.25	12.78
CONTINGENCIES	26.15	19.39	20.23	21.06	22.05	23.01
S U B T O T A L	156.93	116.32	121.35	126.39	132.29	138.07
ACCESS ROAD (ROAD LENGTH 6.0 KM)						
CONSTRUCTION COST	1.32	1.32	1.32	1.32	1.32	1.32
ENGINEERING ADMINSITRATION	0.11	0.11	0.11	0.11	0.11	0.11
CONTINEGENCIES	0.29	0.29	0.29	0.29	0.29	0.29
S U B T O T A L	1.71	1.71	1.71	1.71	1.71	1.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 27.0 KM)						
TRANSMISSION LINE	1.84	1.24	1.24	1.84	1.84	1.84
SWITCHYARD AND SUBSTATION	0.62	0.54	0.54	0.62	0.62	0.62
ENGINEERING/ADMINISTRATION	0.31	0.22	0.22	0.31	0.31	0.31
CONTINGENCIES	0.41	0.30	0.30	0.41	0.41	0.41
S U B T O T A L	3.18	2.31	2.31	3.18	3.18	3.18
T O T A L	161.82	120.33	125.37	131.27	137.18	142.96
EVALUATION INDICES						
U S D / K W	2402.4	3258.7	3238.8	3248.0	3244.9	3245.0
U S D / K W H	0.782	1.117	1.111	1.116	1.114	1.115

PROJECT NAME : AGNO-1
PROJECT ID : 3-077-00-05-0
TYPE : RUN-OF-RIVER

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6
POWER DEVELOPMENT (INST.CAP(MW))	(0.7)	(1.7)	(2.9)	(4.6)	(7.3)	(8.9)
DIVERSION DAM/WEIR :	0.38	0.44	0.49	0.54	0.62	0.66
INTAKE (NON-PRESSURE TYPE) :	0.11	0.20	0.28	0.39	0.54	0.61
HEADRACE TUNNEL (NON-PRES.):	1.51	1.55	1.97	2.59	3.40	3.81
HEAD TANK :	0.10	0.17	0.24	0.31	0.41	0.46
PENSTOCK :	0.33	0.37	0.44	0.53	0.65	0.72
(PRESSURE SHAFT) :	(0.24)	(0.26)	(0.30)	(0.34)	(0.39)	(0.41)
(STEEL LINER) :	(0.09)	(0.12)	(0.15)	(0.19)	(0.26)	(0.31)
POWERHOUSE BUILDING :	0.05	0.16	0.27	0.53	1.08	1.45
(SUPER STRUCTURE) :	(0.02)	(0.07)	(0.12)	(0.23)	(0.48)	(0.64)
(SUB STRUCTURE) :	(0.03)	(0.09)	(0.15)	(0.29)	(0.60)	(0.80)
MISCELLANEOUS CIVIL WORK :	0.12	0.15	0.18	0.24	0.33	0.39
CONSTRUCTION FACILITIES :	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT :	0.40	0.93	1.46	2.22	3.37	4.01
ENGINEERING/ADMINISTRATION :	0.37	0.50	0.67	0.92	1.30	1.51
CONTINGENCIES :	0.67	0.90	1.20	1.66	2.34	2.72
S U B T O T A L :	4.04	5.39	7.20	9.93	14.04	16.35
ACCESS ROAD (ROAD LENGTH 9.0 KM)						
CONSTRUCTION COST :	1.98	1.98	1.98	1.98	1.98	1.98
ENGINEERING ADMINSITRATION :	0.16	0.16	0.16	0.16	0.16	0.16
CONTINEGENCIES :	0.43	0.43	0.43	0.43	0.43	0.43
S U B T O T A L :	2.57	2.57	2.57	2.57	2.57	2.57
TRANSMISSION LINE SYSTEM (T/L LENGTH 26.0 KM)						
TRANSMISSION LINE :	0.60	0.60	0.60	0.60	0.60	0.60
SWITCHYARD AND SUBSTATION :	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION :	0.11	0.11	0.11	0.11	0.11	0.11
CONTINGENCIES :	0.15	0.15	0.15	0.15	0.15	0.15
S U B T O T A L :	1.12	1.12	1.12	1.12	1.12	1.12
T O T A L :	7.73	9.08	10.89	13.62	17.73	20.04
EVALUATION INDICES						
U S D / K W :	11150.2	5248.2	3813.5	2965.8	2417.3	2239.3
U S D / K W H :	1.827	1.472	1.373	1.336	1.358	1.387

PROJECT NAME : AGNO-2
PROJECT ID : 3-077-00-06-0
TYPE : RUN-OF-RIVER

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 6
POWER DEVELOPMENT (INST.CAP(MW))	(1.6)	(4.1)	(6.6)	(10.5)	(16.7)	(20.3)
DIVERSION DAM/WEIR	0.34	0.39	0.42	0.47	0.53	0.56
INTAKE (NON-PRESSURE TYPE)	0.10	0.17	0.24	0.32	0.44	0.51
HEADRACE TUNNEL (NON-PRES.)	5.20	5.20	5.97	7.60	9.99	11.21
HEAD TANK	0.08	0.15	0.20	0.26	0.35	0.39
PENSTOCK	0.88	1.00	1.19	1.48	1.90	2.13
(PRESSURE SHAFT)	(0.58)	(0.58)	(0.64)	(0.74)	(0.85)	(0.90)
(STEEL LINER)	(0.30)	(0.42)	(0.55)	(0.75)	(1.05)	(1.23)
POWERHOUSE BUILDING	0.07	0.27	0.43	0.84	1.71	2.28
(SUPER STRUCTURE)	(0.03)	(0.12)	(0.19)	(0.37)	(0.76)	(1.01)
(SUB STRUCTURE)	(0.04)	(0.15)	(0.24)	(0.47)	(0.95)	(1.27)
MISCELLANEOUS CIVIL WORK	0.33	0.36	0.42	0.55	0.75	0.85
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.52	1.23	1.88	2.86	4.31	5.13
ENGINEERING/ADMINISTRATION	0.94	1.10	1.34	1.80	2.50	2.88
CONTINGENCIES	1.69	1.97	2.42	3.24	4.50	5.19
S U B T O T A L	10.17	11.84	14.52	19.42	26.97	31.13
ACCESS ROAD (ROAD LENGTH 4.3 KM)						
CONSTRUCTION COST	0.95	0.95	0.95	0.95	0.95	0.95
ENGINEERING ADMINSITRATION	0.08	0.08	0.08	0.08	0.08	0.08
CONTINEGENCIES	0.20	0.20	0.20	0.20	0.20	0.20
S U B T O T A L	1.23	1.23	1.23	1.23	1.23	1.23
TRANSMISSION LINE SYSTEM (T/L LENGTH 27.6 KM)						
TRANSMISSION LINE	0.63	0.63	0.63	0.63	0.63	0.63
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.11	0.11	0.11	0.11	0.11	0.11
CONTINGENCIES	0.15	0.15	0.15	0.15	0.15	0.15
S U B T O T A L	1.17	1.17	1.17	1.17	1.17	1.17
T O T A L	12.56	14.23	16.91	21.82	29.37	33.53
EVALUATION INDICES						
U S D / K W	7614.5	3430.7	2568.2	2070.9	1760.2	1654.2
U S D / K W H	1.249	0.965	0.928	0.937	0.993	1.029

PROJECT NAME : AGNO-3
PROJECT ID : 3-077-00-07-0
TYPE : RUN-OF-RIVER

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6
POWER DEVELOPMENT (INST.CAP(MW))	(1.5)	(3.6)	(5.9)	(9.3)	(14.8)	(18.0)
DIVERSION DAM/WEIR	0.61	0.67	0.71	0.75	0.82	0.85
INTAKE (NON-PRESSURE TYPE)	0.08	0.14	0.19	0.26	0.35	0.40
HEADRACE TUNNEL (NON-PRES.)	4.74	4.74	4.74	5.78	7.47	8.38
HEAD TANK	0.07	0.12	0.16	0.22	0.29	0.32
PENSTOCK	0.81	0.92	1.01	1.24	1.58	1.76
(PRESSURE SHAFT)	(0.54)	(0.54)	(0.54)	(0.61)	(0.70)	(0.74)
(STEEL LINER)	(0.27)	(0.38)	(0.48)	(0.63)	(0.88)	(1.02)
POWERHOUSE BUILDING	0.06	0.23	0.36	0.69	1.42	1.89
(SUPER STRUCTURE)	(0.03)	(0.10)	(0.16)	(0.31)	(0.63)	(0.84)
(SUB STRUCTURE)	(0.03)	(0.13)	(0.20)	(0.39)	(0.79)	(1.05)
MISCELLANEOUS CIVIL WORK	0.32	0.34	0.36	0.45	0.60	0.68
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.42	1.01	1.55	2.33	3.52	4.19
ENGINEERING/ADMINISTRATION	0.89	1.02	1.14	1.46	2.01	2.31
CONTINGENCIES	1.60	1.84	2.04	2.64	3.61	4.16
SUB TOTAL	9.62	11.03	12.26	15.82	21.65	24.95
ACCESS ROAD (ROAD LENGTH 0. KM)						
CONSTRUCTION COST	0.	0.	0.	0.	0.	0.
ENGINEERING ADMINSITRATION	0.	0.	0.	0.	0.	0.
CONTINEGENCIES	0.	0.	0.	0.	0.	0.
SUB TOTAL	0.	0.	0.	0.	0.	0.
TRANSMISSION LINE SYSTEM (T/L LENGTH 32.0 KM)						
TRANSMISSION LINE	0.74	0.74	0.74	0.74	0.74	0.74
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.13	0.13	0.13	0.13	0.13	0.13
CONTINGENCIES	0.17	0.17	0.17	0.17	0.17	0.17
SUB TOTAL	1.30	1.30	1.30	1.30	1.30	1.30
TOTAL	10.92	12.33	13.56	17.12	22.96	26.25
EVALUATION INDICES						
USD / KW	7516.7	3261.6	2289.6	1836.9	1546.9	1456.7
USD / KWH	1.232	0.916	0.826	0.829	0.671	0.904

PROJECT NAME : CAMILING-1
PROJECT ID : 3-077-01-08-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(9.9)	(7.9)	(8.8)	(9.8)	(7.4)	(8.5)	(9.6)	(6.9)	(8.1)	(9.3)
STORAGE DAM	183.58	147.54	161.34	183.58	138.75	156.87	183.58	130.00	151.91	183.58
SPILLWAY	13.53	12.38	12.86	13.53	12.08	12.70	13.53	11.78	12.53	13.53
DIVERSION TUNNEL	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72
INTAKE (PRESSURE TYPE)	0.63	0.69	0.64	0.59	0.66	0.60	0.54	0.62	0.56	0.50
HEADRACE TUNNEL (PRESSURE)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
SURGE TANK	0.32	0.32	0.32	0.31	0.31	0.30	0.30	0.29	0.29	0.29
PENSTOCK	2.01	1.85	1.92	2.00	1.81	1.89	1.98	1.76	1.85	1.95
(PRESSURE SHAFT)	(1.09)	(1.06)	(1.07)	(1.08)	(1.05)	(1.06)	(1.07)	(1.04)	(1.05)	(1.06)
(STEEL LINER)	(0.93)	(0.79)	(0.85)	(0.92)	(0.76)	(0.83)	(0.91)	(0.73)	(0.80)	(0.89)
POWERHOUSE BUILDING	0.55	0.47	0.51	0.54	0.45	0.49	0.53	0.42	0.46	0.51
(SUPER STRUCTURE)	(0.25)	(0.21)	(0.23)	(0.24)	(0.20)	(0.22)	(0.23)	(0.19)	(0.21)	(0.23)
(SUB STRUCTURE)	(0.31)	(0.26)	(0.28)	(0.30)	(0.25)	(0.27)	(0.29)	(0.23)	(0.26)	(0.28)
MISCELLANEOUS CIVIL WORK	10.63	8.76	9.48	10.63	8.30	9.24	10.62	7.84	8.98	10.62
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	3.50	3.14	3.28	3.44	2.99	3.17	3.34	2.84	3.04	3.23
ENGINEERING/ADMINISTRATION	26.25	23.39	24.71	26.24	22.16	24.38	26.23	20.94	23.95	26.22
CONTINGENCIES	50.60	42.10	45.40	50.57	39.89	44.32	50.52	37.70	43.11	50.48
SUB TOTAL	303.57	252.61	272.43	303.40	239.36	265.92	303.14	226.18	258.64	302.86
ACCESS ROAD (ROAD LENGTH 6.0 KM)										
CONSTRUCTION COST	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
ENGINEERING ADMINSITRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINEGENCIES	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
SUB TOTAL	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
TRANSMISSION LINE SYSTEM (T/L LENGTH 25.0 KM)										
TRANSMISSION LINE	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
CONTINGENCIES	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
SUB TOTAL	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
TOTAL	306.37	255.42	275.23	306.20	242.17	268.73	305.95	228.98	261.44	305.66
EVALUATION INDICES										
USD / KW	30898.7	32208.3	31215.1	31178.6	32566.5	31732.1	31838.5	33007.9	32385.0	32767.1
USD / KWH	6.564	6.758	6.576	6.584	6.764	6.624	6.665	6.775	6.690	6.790

PROJECT NAME : CAMILING-2
PROJECT ID : 3-077-01-09-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(8.1)	(6.6)	(7.2)	(8.0)	(6.2)	(6.9)	(7.8)	(5.8)	(6.6)	(7.5)
STORAGE DAM	67.00	53.26	59.03	67.00	50.49	56.97	67.00	47.39	54.95	67.00
SPILLWAY	12.59	11.50	11.96	12.59	11.25	11.80	12.59	10.97	11.65	12.59
DIVERSION TUNNEL	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77
INTAKE (PRESSURE TYPE)	0.50	0.55	0.51	0.47	0.52	0.48	0.44	0.49	0.45	0.40
HEADRACE TUNNEL (PRESSURE)	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
SURGE TANK	0.22	0.22	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.19
PENSTOCK	1.20	1.11	1.15	1.20	1.09	1.13	1.19	1.06	1.11	1.17
(PRESSURE SHAFT)	(0.67)	(0.65)	(0.66)	(0.67)	(0.65)	(0.66)	(0.67)	(0.64)	(0.65)	(0.66)
(STEEL LINER)	(0.53)	(0.46)	(0.49)	(0.53)	(0.44)	(0.48)	(0.52)	(0.42)	(0.46)	(0.51)
POWERHOUSE BUILDING	0.44	0.39	0.41	0.44	0.36	0.39	0.42	0.34	0.37	0.41
(SUPER STRUCTURE)	(0.20)	(0.17)	(0.18)	(0.19)	(0.16)	(0.17)	(0.19)	(0.15)	(0.17)	(0.18)
(SUB STRUCTURE)	(0.25)	(0.21)	(0.23)	(0.24)	(0.20)	(0.22)	(0.23)	(0.19)	(0.21)	(0.23)
MISCELLANEOUS CIVIL WORK	4.47	3.72	4.03	4.47	3.57	3.92	4.46	3.39	3.81	4.46
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	2.86	2.59	2.69	2.81	2.47	2.59	2.72	2.35	2.48	2.63
ENGINEERING/ADMINISTRATION	12.09	10.09	10.93	12.07	9.67	10.61	12.05	9.20	10.30	12.03
CONTINGENCIES	21.76	18.17	19.67	21.73	17.41	19.10	21.70	16.56	18.54	21.66
S U B T O T A L	130.56	108.99	118.01	130.41	104.45	114.62	130.19	99.36	111.26	129.96
ACCESS ROAD (ROAD LENGTH 12.0 KM)										
CONSTRUCTION COST	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64
ENGINEERING ADMINSITRATION	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
CONTINEGENCIES	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
S U B T O T A L	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42
TRANSMISSION LINE SYSTEM (T/L LENGTH 29.0 KM)										
TRANSMISSION LINE	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
CONTINGENCIES	0.16	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
S U B T O T A L	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
T O T A L	135.19	113.63	122.64	135.04	109.08	119.25	134.83	103.99	115.89	134.59
EVALUATION INDICES										
U S D / K W	16717.7	17237.6	16940.5	16930.2	17610.8	17232.2	17359.6	18005.8	17605.3	17900.0
U S D / K W H	3.554	3.625	3.573	3.577	3.667	3.601	3.636	3.707	3.641	3.711

PROJECT NAME : PAMPANG
PROJECT ID : 3-077-04-10-0
TYPE : RUN-OF-RIVER

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1 (1.0)	CASE 2 (2.6)	CASE 3 (4.1)	CASE 4 (6.3)	CASE 5 (10.0)	CASE 6 (12.3)
POWER DEVELOPMENT (INST.CAP(MW))						
DIVERSION DAM/WEIR	0.31	0.34	0.37	0.40	0.44	0.46
INTAKE (NON-PRESSURE TYPE)	0.08	0.13	0.17	0.23	0.32	0.36
HEADRACE TUNNEL (NON-PRES.)	3.31	3.31	3.31	3.74	4.65	5.31
HEAD TANK	0.06	0.11	0.15	0.20	0.26	0.29
PENSTOCK	0.53	0.58	0.62	0.73	0.90	1.00
(PRESSURE SHAFT)	(0.36)	(0.36)	(0.36)	(0.40)	(0.46)	(0.48)
(STEEL LINER)	(0.17)	(0.22)	(0.26)	(0.33)	(0.45)	(0.52)
POWERHOUSE BUILDING	0.04	0.17	0.27	0.51	1.04	1.38
(SUPER STRUCTURE)	(0.02)	(0.07)	(0.12)	(0.23)	(0.46)	(0.62)
(SUB STRUCTURE)	(0.02)	(0.09)	(0.15)	(0.28)	(0.58)	(0.77)
MISCELLANEOUS CIVIL WORK	0.22	0.23	0.24	0.29	0.38	0.44
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	0.33	0.79	1.22	1.82	2.75	3.28
ENGINEERING/ADMINISTRATION	0.61	0.71	0.79	0.99	1.34	1.57
CONTINGENCIES	1.10	1.27	1.43	1.78	2.42	2.82
S U B T O T A L	6.58	7.64	8.57	10.69	14.50	16.93
ACCESS ROAD (ROAD LENGTH 22.0 KM)						
CONSTRUCTION COST	4.84	4.84	4.84	4.84	4.84	4.84
ENGINEERING ADMINSITRATION	0.39	0.39	0.39	0.39	0.39	0.39
CONTINEGENCIES	1.05	1.05	1.05	1.05	1.05	1.05
S U B T O T A L	6.27	6.27	6.27	6.27	6.27	6.27
TRANSMISSION LINE SYSTEM (T/L LENGTH 35.0 KM)						
TRANSMISSION LINE	0.80	0.80	0.80	0.80	0.80	0.80
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.13	0.13	0.13	0.13	0.13	0.13
CONTINGENCIES	0.18	0.18	0.18	0.18	0.18	0.18
S U B T O T A L	1.39	1.39	1.39	1.39	1.39	1.39
T O T A L	14.24	15.30	16.24	18.35	22.16	24.59
EVALUATION INDICES						
U S D / K W	14562.5	5960.7	3971.2	2893.3	2208.9	2007.0
U S D / K W H	2.388	1.677	1.436	1.309	1.246	1.249

PROJECT NAME : KANAN
PROJECT ID : 4-007-00-01-0
TYPE : RESERVOIR

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* SUMMARY TABLE OF COST ESTIMATE *
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(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(193.7)	(182.9)	(195.9)	(211.3)	(174.5)	(192.0)	(213.9)	(163.3)	(185.2)	(211.8)
STORAGE DAM	218.22	199.48	205.15	218.22	185.20	194.22	218.22	168.28	183.15	218.22
SPILLWAY	24.68	23.87	24.11	24.68	23.25	23.64	24.68	22.44	23.16	24.68
DIVERSION TUNNEL	20.12	20.12	20.12	20.12	20.12	20.12	20.12	20.12	20.12	20.12
INTAKE (PRESSURE TYPE)	6.20	6.04	5.59	5.14	5.85	5.25	4.66	5.59	4.90	4.21
HEADRACE TUNNEL (PRESSURE)	8.63	8.51	8.50	8.48	8.39	8.37	8.34	8.20	8.18	8.13
SURGE TANK	3.47	3.41	3.38	3.35	3.34	3.30	3.26	3.23	3.19	3.14
PENSTOCK	6.93	6.63	7.30	8.06	6.42	7.30	8.35	6.12	7.18	8.45
(PRESSURE SHAFT)	(1.52)	(1.51)	(1.59)	(1.67)	(1.50)	(1.61)	(1.71)	(1.49)	(1.61)	(1.73)
(STEEL LINER)	(5.41)	(5.12)	(5.71)	(6.39)	(4.91)	(5.69)	(6.65)	(4.63)	(5.57)	(6.72)
POWERHOUSE BUILDING	12.68	12.13	12.69	13.34	11.68	12.43	13.34	11.05	12.00	13.10
(SUPER STRUCTURE)	(5.64)	(5.39)	(5.64)	(5.93)	(5.19)	(5.53)	(5.93)	(4.91)	(5.34)	(5.82)
(SUB STRUCTURE)	(7.04)	(6.74)	(7.05)	(7.41)	(6.49)	(6.91)	(7.41)	(6.14)	(6.67)	(7.28)
MISCELLANEOUS CIVIL WORK	15.05	14.01	14.34	15.07	13.21	13.73	15.05	12.25	13.09	15.00
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	39.56	38.23	39.40	40.72	37.09	38.67	40.51	35.49	37.49	39.69
ENGINEERING/ADMINISTRATION	33.31	32.14	32.56	33.39	31.22	31.87	33.36	30.05	31.11	33.27
CONTINGENCIES	77.77	72.92	74.63	78.11	69.15	71.78	77.98	64.56	68.71	77.60
S U B T O T A L	466.62	437.49	447.77	468.69	414.92	430.66	467.87	387.39	412.29	465.62
ACCESS ROAD (ROAD LENGTH 14.0 KM)										
CONSTRUCTION COST	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
ENGINEERING ADMINSITRATION	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
CONTINEGENCIES	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
S U B T O T A L	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99
TRANSMISSION LINE SYSTEM (T/L LENGTH 18.6 KM)										
TRANSMISSION LINE	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
ENGINEERING/ADMINISTRATION	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
CONTINGENCIES	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
S U B T O T A L	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91
T O T A L	474.53	445.40	455.68	476.59	422.82	438.57	475.77	395.29	420.19	473.52
EVALUATION INDICES										
U S D / K W	2450.1	2435.8	2325.7	2255.6	2422.4	2283.9	2224.7	2421.2	2269.3	2236.1
U S D / K W H	0.820	0.811	0.775	0.752	0.802	0.757	0.738	0.794	0.747	0.736

PROJECT NAME : DARAITAN
PROJECT ID : 4-007-00-02-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE (UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(61.2)	(53.7)	(57.2)	(61.0)	(49.6)	(54.4)	(59.8)	(44.1)	(49.8)	(56.6)
STORAGE DAM	29.43	25.69	27.35	29.43	23.18	25.87	29.43	21.03	24.15	29.43
SPILLWAY	12.37	11.72	12.01	12.37	11.29	11.75	12.37	10.86	11.46	12.37
DIVERSION TUNNEL	11.29	11.29	11.29	11.29	11.29	11.29	11.29	11.29	11.29	11.29
INTAKE (PRESSURE TYPE)	2.69	2.83	2.71	2.59	2.67	2.51	2.36	2.45	2.25	2.09
HEADRACE TUNNEL (PRESSURE)	2.22	2.20	2.20	2.20	2.14	2.13	2.13	2.03	2.02	2.01
SURGE TANK	1.68	1.67	1.66	1.65	1.60	1.59	1.57	1.49	1.47	1.46
PENSTOCK	1.83	1.63	1.73	1.83	1.56	1.69	1.83	1.45	1.60	1.78
(PRESSURE SHAFT)	(0.54)	(0.52)	(0.53)	(0.55)	(0.51)	(0.53)	(0.55)	(0.50)	(0.53)	(0.55)
(STEEL LINER)	(1.28)	(1.11)	(1.19)	(1.29)	(1.04)	(1.15)	(1.28)	(0.94)	(1.07)	(1.23)
POWERHOUSE BUILDING	3.50	3.20	3.33	3.47	2.99	3.17	3.38	2.70	2.92	3.17
(SUPER STRUCTURE)	(1.56)	(1.42)	(1.48)	(1.54)	(1.33)	(1.41)	(1.50)	(1.20)	(1.30)	(1.41)
(SUB STRUCTURE)	(1.94)	(1.78)	(1.85)	(1.93)	(1.66)	(1.76)	(1.88)	(1.50)	(1.62)	(1.76)
MISCELLANEOUS CIVIL WORK	3.25	3.01	3.11	3.24	2.84	3.00	3.22	2.66	2.86	3.18
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	18.66	17.50	17.98	18.48	16.56	17.24	17.97	15.21	16.02	16.93
ENGINEERING/ADMINISTRATION	10.86	10.09	10.42	10.82	9.51	10.03	10.69	8.89	9.50	10.46
CONTINGENCIES	19.56	18.17	18.76	19.47	17.13	18.05	19.25	16.01	17.11	18.83
S U B T O T A L	117.34	109.00	112.53	116.84	102.75	108.33	115.48	96.06	102.65	113.00
ACCESS ROAD (ROAD LENGTH 20.0 KM)										
CONSTRUCTION COST	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
ENGINEERING ADMINSITRATION	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
CONTINEGENCIES	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
S U B T O T A L	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70
TRANSMISSION LINE SYSTEM (T/L LENGTH 23.0 KM)										
TRANSMISSION LINE	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
SWITCHYARD AND SUBSTATION	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
ENGINEERING/ADMINISTRATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
CONTINGENCIES	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
S U B T O T A L	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
T O T A L	125.87	117.53	121.06	125.37	111.28	116.86	124.01	104.59	111.18	121.53
EVALUATION INDICES										
U S D / K W	2055.8	2188.2	2117.0	2055.7	2245.6	2148.9	2072.3	2369.9	2232.3	2146.0
U S D / K W H	0.857	0.904	0.877	0.853	0.915	0.879	0.850	0.942	0.892	0.860

PROJECT NAME : UPPER AGOS-1M
PROJECT ID : 4-007-00-03-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(43.2)	(38.5)	(41.4)	(44.7)	(37.8)	(40.9)	(44.6)	(37.0)	(40.4)	(44.4)
STORAGE DAM	20.76	17.09	18.57	20.76	16.61	18.20	20.76	16.13	17.82	20.76
SPILLWAY	7.51	6.93	7.17	7.51	6.85	7.12	7.51	6.76	7.06	7.51
DIVERSION TUNNEL	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89
INTAKE (PRESSURE TYPE)	2.39	2.20	2.07	1.95	2.17	2.02	1.89	2.13	1.98	1.84
HEADRACE TUNNEL (PRESSURE)	6.14	5.94	5.92	5.89	5.90	5.88	5.85	5.86	5.84	5.80
SURGE TANK	1.77	1.69	1.68	1.67	1.68	1.66	1.65	1.66	1.65	1.63
PENSTOCK	0.97	0.92	0.99	1.06	0.91	0.98	1.07	0.90	0.98	1.07
(PRESSURE SHAFT)	(0.34)	(0.34)	(0.35)	(0.36)	(0.34)	(0.35)	(0.37)	(0.33)	(0.35)	(0.37)
(STEEL LINER)	(0.63)	(0.58)	(0.63)	(0.70)	(0.57)	(0.63)	(0.70)	(0.56)	(0.63)	(0.70)
POWERHOUSE BUILDING	2.57	2.35	2.46	2.58	2.31	2.43	2.57	2.27	2.40	2.55
(SUPER STRUCTURE)	(1.14)	(1.04)	(1.09)	(1.15)	(1.03)	(1.08)	(1.14)	(1.01)	(1.07)	(1.14)
(SUB STRUCTURE)	(1.43)	(1.30)	(1.37)	(1.43)	(1.28)	(1.35)	(1.43)	(1.26)	(1.34)	(1.42)
MISCELLANEOUS CIVIL WORK	2.35	2.10	2.19	2.32	2.07	2.16	2.31	2.03	2.13	2.30
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	14.41	13.41	13.82	14.26	13.23	13.68	14.17	13.06	13.54	14.08
ENGINEERING/ADMINISTRATION	7.97	7.19	7.47	7.86	7.08	7.38	7.83	6.96	7.29	7.81
CONTINGENCIES	14.35	12.94	13.44	14.15	12.74	13.28	14.10	12.53	13.12	14.05
S U B T O T A L	86.10	77.65	80.67	84.90	76.42	79.68	84.61	75.18	78.69	84.31
ACCESS ROAD (ROAD LENGTH 23.0 KM)										
CONSTRUCTION COST	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
ENGINEERING ADMINSITRATION	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
CONTINEGENCIES	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
S U B T O T A L	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56
TRANSMISSION LINE SYSTEM (T/L LENGTH 18.0 KM)										
TRANSMISSION LINE	1.22	0.83	1.22	1.22	0.83	1.22	1.22	0.83	1.22	1.22
SWITCHYARD AND SUBSTATION	0.62	0.54	0.62	0.62	0.54	0.62	0.62	0.54	0.62	0.62
ENGINEERING/ADMINISTRATION	0.23	0.17	0.23	0.23	0.17	0.23	0.23	0.17	0.23	0.23
CONTINGENCIES	0.31	0.23	0.31	0.31	0.23	0.31	0.31	0.23	0.31	0.31
S U B T O T A L	2.39	1.77	2.39	2.39	1.77	2.39	2.39	1.77	2.39	2.39
T O T A L	95.04	85.97	89.61	93.85	84.74	88.62	93.55	83.51	87.64	93.25
EVALUATION INDICES										
U S D / K W	2197.5	2230.3	2162.7	2099.4	2243.0	2165.3	2098.9	2255.7	2167.8	2098.7
U S D / K W H	1.454	1.454	1.410	1.369	1.458	1.408	1.364	1.462	1.406	1.360

PROJECT NAME : UPPER AGOS-1S
PROJECT ID : 4-007-00-04-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(24.1)	(19.4)	(21.4)	(23.5)	(17.0)	(19.5)	(22.4)	(14.6)	(17.6)	(21.0)
STORAGE DAM	18.11	14.53	16.13	18.11	12.99	15.10	18.11	11.28	14.05	18.11
SPILLWAY	7.51	6.83	7.14	7.51	6.51	6.95	7.51	6.12	6.73	7.51
DIVERSION TUNNEL	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73
INTAKE (PRESSURE TYPE)	1.46	1.47	1.41	1.35	1.34	1.25	1.18	1.20	1.11	1.03
HEADRACE TUNNEL (PRESSURE)	1.72	1.67	1.67	1.66	1.58	1.58	1.57	1.49	1.48	1.48
SURGE TANK	0.93	0.89	0.89	0.88	0.83	0.82	0.82	0.76	0.76	0.75
PENSTOCK	0.47	0.40	0.44	0.48	0.38	0.42	0.48	0.35	0.41	0.47
(PRESSURE SHAFT)	(0.21)	(0.19)	(0.20)	(0.21)	(0.18)	(0.20)	(0.21)	(0.18)	(0.20)	(0.21)
(STEEL LINER)	(0.27)	(0.21)	(0.24)	(0.27)	(0.19)	(0.22)	(0.26)	(0.17)	(0.21)	(0.25)
POWERHOUSE BUILDING	1.51	1.28	1.37	1.46	1.15	1.26	1.37	1.01	1.14	1.28
(SUPER STRUCTURE)	(0.67)	(0.57)	(0.61)	(0.65)	(0.51)	(0.56)	(0.61)	(0.45)	(0.51)	(0.57)
(SUB STRUCTURE)	(0.84)	(0.71)	(0.76)	(0.81)	(0.64)	(0.70)	(0.76)	(0.56)	(0.63)	(0.71)
MISCELLANEOUS CIVIL WORK	1.82	1.59	1.69	1.81	1.48	1.61	1.79	1.35	1.52	1.77
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	9.09	8.07	8.43	8.79	7.36	7.82	8.30	6.62	7.18	7.76
ENGINEERING/ADMINISTRATION	5.92	5.18	5.49	5.85	4.79	5.19	5.73	4.36	4.89	5.61
CONTINGENCIES	10.65	9.33	9.87	10.52	8.63	9.35	10.32	7.85	8.80	10.10
S U B T O T A L	63.93	55.98	59.25	63.14	51.77	56.08	61.91	47.13	52.79	60.59
ACCESS ROAD (ROAD LENGTH 23.0 KM)										
CONSTRUCTION COST	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06
ENGINEERING ADMINSITRATION	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
CONTINEGENCIES	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
S U B T O T A L	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56
TRANSMISSION LINE SYSTEM (T/L LENGTH 18.0 KM)										
TRANSMISSION LINE	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
CONTINGENCIES	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
S U B T O T A L	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
T O T A L	71.37	63.42	66.69	70.58	59.21	63.53	69.35	54.57	60.23	68.03
EVALUATION INDICES										
U S D / K W	2957.6	3276.4	3123.4	3007.5	3480.4	3251.4	3099.3	3739.8	3423.4	3241.6
U S D / K W H	1.669	1.794	1.723	1.669	1.844	1.743	1.674	1.910	1.775	1.695

PROJECT NAME : UPPER AGOS-2
PROJECT ID : 4-007-00-05-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(120.7)	(114.4)	(123.3)	(133.0)	(108.6)	(121.2)	(135.2)	(101.8)	(116.5)	(134.1)
STORAGE DAM	96.57	89.35	91.92	96.57	83.15	87.79	96.57	77.26	82.71	96.57
SPILLWAY	18.11	17.51	17.73	18.11	16.99	17.38	18.11	16.46	16.96	18.11
DIVERSION TUNNEL	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28	11.28
INTAKE (PRESSURE TYPE)	4.95	4.80	4.43	4.06	4.64	4.15	3.63	4.45	3.86	3.27
HEADRACE TUNNEL (PRESSURE)	3.24	3.19	3.18	3.17	3.15	3.13	3.11	3.08	3.06	3.03
SURGE TANK	2.41	2.37	2.33	2.30	2.31	2.27	2.22	2.24	2.19	2.13
PENSTOCK	4.03	3.90	4.28	4.71	3.77	4.31	4.90	3.62	4.24	4.96
(PRESSURE SHAFT)	(1.16)	(1.15)	(1.22)	(1.28)	(1.15)	(1.23)	(1.31)	(1.14)	(1.24)	(1.33)
(STEEL LINER)	(2.87)	(2.74)	(3.07)	(3.43)	(2.62)	(3.07)	(3.59)	(2.48)	(3.00)	(3.63)
POWERHOUSE BUILDING	8.67	8.31	8.73	9.16	7.97	8.56	9.18	7.56	8.25	9.02
(SUPER STRUCTURE)	(3.85)	(3.69)	(3.88)	(4.07)	(3.54)	(3.80)	(4.08)	(3.36)	(3.67)	(4.01)
(SUB STRUCTURE)	(4.81)	(4.62)	(4.85)	(5.09)	(4.43)	(4.76)	(5.10)	(4.20)	(4.58)	(5.01)
MISCELLANEOUS CIVIL WORK	7.46	7.04	7.19	7.47	6.66	6.94	7.45	6.30	6.63	7.42
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	29.28	28.34	29.26	30.21	27.42	28.74	30.07	26.27	27.83	29.48
ENGINEERING/ADMINISTRATION	23.25	22.01	22.54	23.38	20.92	21.82	23.32	19.81	20.87	23.16
CONTINGENCIES	41.85	39.62	40.58	42.08	37.65	39.28	41.97	35.67	37.57	41.69
S U B T O T A L	251.10	237.71	243.47	252.49	225.93	235.66	251.81	213.99	225.45	250.13
ACCESS ROAD (ROAD LENGTH 18.6 KM)										
CONSTRUCTION COST	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09
ENGINEERING ADMINSITRATION	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
CONTINEGENCIES	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
S U B T O T A L	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30
TRANSMISSION LINE SYSTEM (T/L LENGTH 21.0 KM)										
TRANSMISSION LINE	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
SWITCHYARD AND SUBSTATION	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
ENGINEERING/ADMINISTRATION	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
CONTINGENCIES	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
S U B T O T A L	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26
T O T A L	260.66	247.27	253.03	262.05	235.49	245.22	261.37	223.55	235.01	259.69
EVALUATION INDICES										
U S D / K W	2159.4	2162.4	2052.0	1969.7	2168.9	2023.9	1933.2	2195.7	2018.0	1936.5
U S D / K W H	0.722	0.720	0.683	0.656	0.718	0.671	0.641	0.720	0.663	0.637

PROJECT NAME : WAWA
PROJECT ID : 4-115-01-01-0
TYPE : RESERVOIR

SUMMARY TABLE OF COST ESTIMATE

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(55.9)	(51.2)	(55.8)	(60.8)	(47.8)	(54.0)	(60.9)	(43.9)	(51.6)	(60.0)
STORAGE DAM	59.97	52.38	55.29	59.97	47.94	52.46	59.97	43.09	49.43	59.97
SPILLWAY	15.55	14.70	15.04	15.55	14.18	14.71	15.55	13.58	14.36	15.55
DIVERSION TUNNEL	12.48	12.48	12.48	12.48	12.48	12.48	12.48	12.48	12.48	12.48
INTAKE (PRESSURE TYPE)	2.85	2.69	2.50	2.31	2.57	2.32	2.07	2.43	2.13	1.84
HEADRACE TUNNEL (PRESSURE)	1.99	1.95	1.95	1.94	1.91	1.90	1.89	1.86	1.85	1.83
SURGE TANK	1.34	1.30	1.28	1.27	1.25	1.24	1.22	1.21	1.19	1.16
PENSTOCK	1.74	1.66	1.82	2.00	1.59	1.81	2.04	1.51	1.77	2.06
(PRESSURE SHAFT)	(0.53)	(0.53)	(0.55)	(0.58)	(0.52)	(0.56)	(0.59)	(0.52)	(0.56)	(0.60)
(STEEL LINER)	(1.21)	(1.13)	(1.27)	(1.42)	(1.07)	(1.25)	(1.45)	(1.00)	(1.21)	(1.46)
POWERHOUSE BUILDING	3.00	2.80	2.96	3.13	2.65	2.87	3.10	2.47	2.74	3.02
(SUPER STRUCTURE)	(1.33)	(1.24)	(1.32)	(1.39)	(1.18)	(1.27)	(1.38)	(1.10)	(1.22)	(1.34)
(SUB STRUCTURE)	(1.66)	(1.56)	(1.65)	(1.74)	(1.47)	(1.59)	(1.72)	(1.37)	(1.52)	(1.68)
MISCELLANEOUS CIVIL WORK	4.95	4.50	4.67	4.93	4.23	4.49	4.92	3.93	4.30	4.90
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	15.76	14.95	15.52	16.11	14.29	15.07	15.85	13.52	14.50	15.44
ENGINEERING/ADMINISTRATION	14.95	13.68	14.19	14.96	12.89	13.67	14.89	12.01	13.09	14.78
CONTINGENCIES	26.91	24.62	25.54	26.93	23.19	24.60	26.79	21.61	23.57	26.61
SUB TOTAL	161.49	147.70	153.24	161.59	139.16	147.62	160.77	129.68	141.41	159.65
ACCESS ROAD (ROAD LENGTH 3.6 KM)										
CONSTRUCTION COST	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
ENGINEERING ADMINSITRATION	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
CONTINEGENCIES	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
SUB TOTAL	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
TRANSMISSION LINE SYSTEM (T/L LENGTH 21.0 KM)										
TRANSMISSION LINE	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
SWITCHYARD AND SUBSTATION	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
ENGINEERING/ADMINISTRATION	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
CONTINGENCIES	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
SUB TOTAL	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
TOTAL	165.16	151.38	156.92	165.26	142.84	151.30	164.44	133.36	145.09	163.32
EVALUATION INDICES										
USD / KW	2954.8	2955.1	2812.1	2716.3	2988.0	2802.9	2701.5	3036.1	2814.3	2722.1
USD / KWH	0.986	0.979	0.932	0.901	0.981	0.922	0.889	0.985	0.917	0.887

PROJECT NAME : BOSIGON
PROJECT ID : 5-014-01-01-0
TYPE : RESERVOIR

****
* SUMMARY TABLE OF COST ESTIMATE *
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(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(44.7)	(40.4)	(42.3)	(44.2)	(37.0)	(39.5)	(42.7)	(33.5)	(36.7)	(40.8)
STORAGE DAM	16.86	15.20	15.99	16.86	13.89	15.04	16.86	12.77	14.07	16.86
SPILLWAY	9.57	9.21	9.38	9.57	8.92	9.17	9.57	8.64	8.96	9.57
DIVERSION TUNNEL	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03
INTAKE (PRESSURE TYPE)	2.74	2.75	2.65	2.55	2.57	2.43	2.31	2.42	2.23	2.10
HEADRACE TUNNEL (PRESSURE)	4.59	4.52	4.50	4.48	4.36	4.33	4.29	3.41	3.38	3.34
SURGE TANK	2.22	2.17	2.16	2.14	2.07	2.04	2.02	1.89	1.86	1.82
PENSTOCK	1.31	1.23	1.28	1.32	1.18	1.24	1.31	0.86	0.92	0.99
(PRESSURE SHAFT)	(0.59)	(0.58)	(0.59)	(0.60)	(0.57)	(0.58)	(0.60)	(0.34)	(0.35)	(0.36)
(STEEL LINER)	(0.72)	(0.66)	(0.69)	(0.72)	(0.61)	(0.66)	(0.71)	(0.52)	(0.57)	(0.63)
POWERHOUSE BUILDING	4.25	3.94	4.06	4.17	3.66	3.81	4.00	2.37	2.50	2.67
(SUPER STRUCTURE)	(1.89)	(1.75)	(1.80)	(1.85)	(1.62)	(1.69)	(1.78)	(1.05)	(1.11)	(1.19)
(SUB STRUCTURE)	(2.36)	(2.19)	(2.25)	(2.32)	(2.03)	(2.12)	(2.22)	(1.32)	(1.89)	(1.48)
MISCELLANEOUS CIVIL WORK	2.28	2.15	2.20	2.26	2.03	2.10	2.22	1.82	1.90	2.07
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	17.51	16.56	16.85	17.15	15.55	15.96	16.44	14.44	14.94	15.56
ENGINEERING/ADMINISTRATION	8.17	7.72	7.89	8.06	7.28	7.52	7.88	6.58	6.85	7.38
CONTINGENCIES	14.71	13.90	14.20	14.52	13.11	13.54	14.18	11.85	12.33	13.28
S U B T O T A L	88.23	83.40	85.17	87.10	78.66	81.22	85.09	71.08	73.99	79.66
ACCESS ROAD (ROAD LENGTH 0. KM)										
CONSTRUCTION COST	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ENGINEERING ADMINSITRATION	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CONTINEGENCIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
S U B T O T A L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TRANSMISSION LINE SYSTEM (T/L LENGTH 30.0 KM)										
TRANSMISSION LINE	2.04	2.04	2.04	2.04	1.38	1.38	2.04	1.38	1.38	2.04
SWITCHYARD AND SUBSTATION	0.62	0.62	0.62	0.62	0.54	0.54	0.62	0.54	0.54	0.62
ENGINEERING/ADMINISTRATION	0.33	0.33	0.33	0.33	0.24	0.24	0.33	0.24	0.24	0.33
CONTINGENCIES	0.45	0.45	0.45	0.45	0.32	0.32	0.45	0.32	0.32	0.45
S U B T O T A L	3.44	3.44	3.44	3.44	2.48	2.48	3.44	2.48	2.48	3.44
T O T A L	91.67	86.84	88.61	90.54	81.15	83.70	88.53	73.56	76.48	83.10
EVALUATION INDICES										
U S D / K W	2051.2	2150.3	2096.1	2047.2	2195.8	2116.4	2073.1	2195.8	2085.6	2037.0
U S D / K W H	1.111	1.147	1.121	1.097	1.146	1.110	1.089	1.113	1.064	1.040

PROJECT NAME : PULANTUNA
PROJECT ID : 5-020-00-01-0
TYPE : RESERVOIR

*** SUMMARY TABLE OF COST ESTIMATE ***

(UNIT : MILLION USD)

ITEM	CASE 1	2	3	4	5	6	7	8	9	10
POWER DEVELOPMENT (INST.CAP(MW))	(9.1)	(8.7)	(9.1)	(8.6)	(8.7)	(8.8)	(9.0)	(9.1)	(1.0)	(1.3)
STORAGE DAM	7.42	7.13	7.42	7.04	7.13	7.23	7.33	7.42	4.25	7.42
SPILLWAY	6.83	6.74	6.83	6.71	6.74	6.77	6.80	6.83	5.50	6.83
DIVERSION TUNNEL	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
INTAKE (PRESSURE TYPE)	0.85	0.82	0.79	0.81	0.80	0.79	0.78	0.77	0.14	0.09
HEADRACE TUNNEL (PRESSURE)	1.20	1.18	1.18	1.18	1.18	1.18	1.18	1.18	0.71	0.71
SURGE TANK	0.58	0.57	0.57	0.57	0.57	0.56	0.56	0.56	0.09	0.08
PENSTOCK	0.55	0.54	0.55	0.54	0.54	0.54	0.55	0.55	0.25	0.26
(PRESSURE SHAFT)	(0.31)	(0.31)	(0.32)	(0.31)	(0.31)	(0.31)	(0.32)	(0.32)	(0.18)	(0.18)
(STEEL LINER)	(0.23)	(0.23)	(0.23)	(0.22)	(0.23)	(0.23)	(0.23)	(0.23)	(0.07)	(0.08)
POWERHOUSE BUILDING	0.67	0.65	0.67	0.64	0.65	0.65	0.66	0.67	0.08	0.09
(SUPER STRUCTURE)	(0.30)	(0.29)	(0.30)	(0.28)	(0.29)	(0.29)	(0.29)	(0.30)	(0.04)	(0.04)
(SUB STRUCTURE)	(0.37)	(0.36)	(0.37)	(0.36)	(0.36)	(0.36)	(0.37)	(0.37)	(0.05)	(0.05)
MISCELLANEOUS CIVIL WORK	1.09	1.07	1.09	1.06	1.06	1.07	1.08	1.08	0.74	0.96
CONSTRUCTION FACILITIES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
POWER EQUIPMENT	4.73	4.60	4.69	4.56	4.59	4.62	4.65	4.67	0.76	0.77
ENGINEERING/ADMINISTRATION	3.45	3.37	3.44	3.35	3.37	3.39	3.41	3.43	2.03	2.61
CONTINGENCIES	6.21	6.07	6.18	6.03	6.06	6.10	6.14	6.17	3.65	4.71
S U B T O T A L	37.29	36.44	37.11	36.18	36.38	36.60	36.82	37.04	21.90	28.24
ACCESS ROAD (ROAD LENGTH 4.5 KM)										
CONSTRUCTION COST	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
ENGINEERING ADMINSITRATION	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
CONTINEGENCIES	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
S U B T O T A L	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
TRANSMISSION LINE SYSTEM (T/L LENGTH 36.0 KM)										
TRANSMISSION LINE	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
SWITCHYARD AND SUBSTATION	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
ENGINEERING/ADMINISTRATION	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
CONTINGENCIES	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
S U B T O T A L	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
T O T A L	39.99	39.15	39.81	38.88	39.08	39.31	39.53	39.75	24.61	30.94
EVALUATION INDICES										
U S D / K W	4418.8	4495.2	4378.9	4524.4	4481.4	4442.1	4403.9	4366.7	23654.0	23662.8
U S D / K W H	1.447	1.459	1.430	1.464	1.453	1.443	1.434	1.424	5.685	5.687

C-5 便益・コスト解析

SCHEME ID NO: 2-006-00-03-0
SCHEME NAME: BULU

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	139.80			
Q-max ;(m3/s):	279.60	419.40	559.20	838.79
F.S.L. ;(El.-m):	218.00			
A.O.L. ;(El.-m):	199.20			
M.O.L. ;(El.-m):	161.50			
Inst.Cap.;(MW):	272.05	408.08	544.11	816.17
Firm Engy;(GWh):	1191.60	1191.60	1191.60	1191.60
Scnd Engy;(GWh):	130.40	173.87	195.61	217.34
Plnt Fctr:	0.55	0.38	0.29	0.19
Ann Bnft ;(Mil.US$):	114.17	176.30	187.30	206.99
Pjct Cost;(Mil.US$):	434.90	517.70	615.80	788.30
Acc.Bnft ;(Mil.US$):	713.16	979.19	1040.32	1292.97
Acc.Cost ;(Mil.US$):	695.33	861.53	1024.79	1260.37
B/C Ratio:	1.02	1.13	1.01	1.02
B-C :	17.82	117.65	15.53	32.60
D.Rate :	0.16	0.18	0.18	0.16

SCHEME ID NO: 2-006-00-02-0
SCHEME NAME: BUBULAYAN

R.D.Coef.;(%):	80.00			
Q-firm;(m3/s):	150.10			
Q-max ;(m3/s):	300.20	450.30	600.40	900.59
F.S.L. ;(El.-m):	206.00			
A.O.L. ;(El.-m):	182.30			
M.O.L. ;(El.-m):	134.80			
Inst.Cap.;(MW):	384.27	576.41	768.55	1152.83
Firm Engy;(GWh):	1683.14	1683.14	1683.14	1683.14
Scnd Engy;(GWh):	138.27	184.36	207.40	230.45
Plnt Fctr:	0.54	0.36	0.28	0.18
Ann Bnft ;(Mil.US$):	158.84	242.48	257.21	284.21
Pjct Cost;(Mil.US$):	622.10	742.90	861.20	1117.40
Acc.Bnft ;(Mil.US$):	1057.99	1346.78	1512.42	1892.98
Acc.Cost ;(Mil.US$):	975.66	1236.30	1404.46	1752.46
B/C Ratio:	1.08	1.08	1.07	1.08
B-C :	82.33	110.47	107.95	140.52
D.Rate :	0.15	0.18	0.17	0.15

SCHEME ID NO: 2-006-01-05-0
SCHEME NAME: DIBAGAT

R.D.Coef.;(%):	80.00			
Q-firm;(m3/s):	78.10			
Q-max ;(m3/s):	156.20	234.30	312.40	468.59
F.S.L. ;(El.-m):	341.00			
A.O.L. ;(El.-m):	314.60			
M.O.L. ;(El.-m):	261.80			
Inst.Cap.;(MW):	201.10	301.65	402.21	603.31
Firm Engy;(GWh):	880.84	880.84	880.84	880.84
Scnd Engy;(GWh):	73.16	97.54	109.74	121.93
Plnt Fctr:	0.54	0.37	0.28	0.18
Ann Bnft ;(Mil.US$):	83.17	127.01	134.73	148.87
Pjct Cost;(Mil.US$):	391.90	451.80	502.70	622.60
Acc.Bnft ;(Mil.US$):	638.36	746.84	841.59	991.60
Acc.Cost ;(Mil.US$):	592.67	736.80	803.74	976.44
B/C Ratio:	1.07	1.01	1.04	1.01
B-C :	45.68	10.03	37.85	15.15
D.Rate :	0.13	0.17	0.16	0.15

SCHEME ID NO: 2-006-01-06-0
SCHEME NAME: AGBULU

R.D.Coef.;(%):	75.00			
Q-firm;(m3/s):	64.60			
Q-max ;(m3/s):	129.20	193.80	258.40	387.59
F.S.L. ;(El.-m):	346.00			
A.O.L. ;(El.-m):	323.40			
M.O.L. ;(El.-m):	278.10			
Inst.Cap.;(MW):	144.22	216.33	288.44	432.66
Firm Engy;(GWh):	631.68	631.68	631.68	631.68
Scnd Engy;(GWh):	60.46	80.61	90.69	100.77
Plnt Fctr:	0.54	0.37	0.28	0.19
Ann Bnft ;(Mil.US$):	60.06	92.22	97.90	108.19
Pjct Cost;(Mil.US$):	282.60	315.50	366.60	441.40
Acc.Bnft ;(Mil.US$):	461.03	542.28	611.54	720.60
Acc.Cost ;(Mil.US$):	427.38	514.52	586.13	692.26
B/C Ratio:	1.07	1.05	1.04	1.04
B-C :	33.65	27.76	25.40	28.33
D.Rate :	0.13	0.17	0.16	0.15

SCHEME ID NO: 2-008-28-52-0
SCHEME NAME: CABINGATAN

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	67.70			
Q-max ;(m3/s):	135.40	203.10	270.80	406.19
F.S.L. ;(El.-m):	303.00			
A.O.L. ;(El.-m):	284.60			
M.O.L. ;(El.-m):	247.70			
Inst.Cap.;(MW):	132.52	198.79	265.05	397.58
Firm Engy;(GWh):	580.47	580.47	580.47	580.47
Scnd Engy;(GWh):	158.41	211.22	237.62	264.02
Plnt Fctr:	0.63	0.45	0.35	0.24
Ann Bnft ;(Mil.US$):	60.62	72.68	106.44	117.72
Pjct Cost;(Mil.US$):	280.90	317.50	359.20	436.80
Acc.Bnft ;(Mil.US$):	432.44	518.44	625.90	735.35
Acc.Cost ;(Mil.US$):	432.42	488.77	585.79	698.37
B/C Ratio:	1.00	1.06	1.06	1.05
B-C :	0.01	29.67	40.10	36.97
D.Rate :	0.14	0.14	0.17	0.16

SCHEME ID NO: 2-006-00-01-0
SCHEME NAME: SISIRITAN

R.D.Coef.;(%):	30.00			
Q-firm;(m3/s):	111.40			
Q-max ;(m3/s):	222.80	334.20	445.60	668.39
F.S.L. ;(El.-m):	100.00			
A.O.L. ;(El.-m):	88.40			
M.O.L. ;(El.-m):	65.20			
Inst.Cap.;(MW):	139.20	208.81	278.41	417.62
Firm Engy;(GWh):	609.72	609.72	609.72	609.72
Scnd Engy;(GWh):	282.36	376.48	423.54	470.60
Plnt Fctr:	0.73	0.53	0.42	0.29
Ann Bnft ;(Mil.US$):	49.14	84.51	96.73	144.30
Pjct Cost;(Mil.US$):	318.20	369.60	428.40	536.80
Acc.Bnft ;(Mil.US$):	487.27	602.80	689.97	901.34
Acc.Cost ;(Mil.US$):	459.60	568.97	659.49	858.26
B/C Ratio:	1.06	1.05	1.04	1.05
B-C :	27.66	33.82	30.47	43.08
D.Rate :	0.10	0.14	0.14	0.16

SCHEME ID NO: 1-022-00-01-0
SCHEME NAME: BANAOANG

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	183.80			
Q-max ;(m3/s):	367.60	551.40	735.20	1102.80
F.S.L. ;(El.-m):	77.00			
A.O.L. ;(El.-m):	68.00			
M.O.L. ;(El.-m):	50.10			
Inst.Cap.;(MW):	176.42	264.63	352.84	529.26
Firm Engy;(GWh):	772.72	772.72	772.72	772.72
Scnd Engy;(GWh):	114.77	153.03	172.16	191.29
Plnt Fctr:	0.57	0.39	0.30	0.20
Ann Bnft ;(Mil.US$):	75.63	118.62	126.30	139.61
Pjct Cost;(Mil.US$):	367.30	447.10	526.60	701.20
Acc.Bnft ;(Mil.US$):	580.50	740.97	841.24	1071.54
Acc.Cost ;(Mil.US$):	555.47	714.84	825.88	1060.43
B/C Ratio:	1.04	1.03	1.01	1.01
B-C :	25.03	26.13	15.35	11.10
D.Rate :	0.13	0.16	0.15	0.13

SCHEME ID NO: 2-006-01-04-0
SCHEME NAME: NABABARAYAN

R.D.Coef.;(%):	45.00			
Q-firm;(m3/s):	77.90			
Q-max ;(m3/s):	155.80	233.70	311.60	467.39
F.S.L. ;(El.-m):	240.00			
A.O.L. ;(El.-m):	222.30			
M.O.L. ;(El.-m):	186.80			
Inst.Cap.;(MW):	152.10	228.16	304.21	456.32
Firm Engy;(GWh):	666.24	666.24	666.24	666.24
Scnd Engy;(GWh):	160.70	214.27	241.05	267.83
Plnt Fctr:	0.62	0.44	0.34	0.23
Ann Bnft ;(Mil.US$):	68.47	81.93	118.78	131.36
Pjct Cost;(Mil.US$):	357.80	401.10	456.30	540.90
Acc.Bnft ;(Mil.US$):	568.62	628.90	741.98	874.94
Acc.Cost ;(Mil.US$):	532.12	606.59	729.55	848.31
B/C Ratio:	1.06	1.03	1.01	1.03
B-C :	36.49	22.31	12.43	26.62
D.Rate :	0.12	0.13	0.16	0.15

SCHEME ID NO: 4-007-00-05-0
SCHEME NAME: UPPER AGOS-2

R.O.Coef.;(%):	75.00			
Q-firm;(m3/s):	41.80			
Q-max ;(m3/s):	83.60	125.40	167.20	250.79
F.S.L. ;(El.-m):	316.00			
A.O.L. ;(El.-m):	299.80			
M.O.L. ;(El.-m):	267.30			
Inst.Cap.;(MW):	90.08	135.12	180.16	270.25
Firm Engy;(GWh):	394.57	394.57	394.57	394.57
Scnd Engy;(GWh):	33.41	44.55	50.12	55.69
Plnt Fctr:	0.54	0.37	0.28	0.19
Ann Bnft ;(Mil.US$):	37.29	56.98	60.45	66.80
Pjct Cost;(Mil.US$):	235.30	261.40	282.20	332.00
Acc.Bnft ;(Mil.US$):	369.72	406.46	464.02	512.73
Acc.Cost ;(Mil.US$):	339.86	402.40	426.77	502.08
B/C Ratio:	1.08	1.01	1.08	1.02
B-C :	29.86	4.05	37.24	10.64
D.Rate :	0.10	0.14	0.13	0.13

SCHEME ID NO: 1-022-00-05-0
SCHEME NAME: SUPO

R.O.Coef.;(%):	43.00			
Q-firm;(m3/s):	43.30			
Q-max ;(m3/s):	86.60	129.90	173.20	259.79
F.S.L. ;(El.-m):	320.00			
A.O.L. ;(El.-m):	306.30			
M.O.L. ;(El.-m):	278.80			
Inst.Cap.;(MW):	71.14	106.71	142.29	213.43
Firm Engy;(GWh):	311.62	311.62	311.62	311.62
Scnd Engy;(GWh):	84.71	112.94	127.06	141.18
Plnt Fctr:	0.63	0.45	0.35	0.24
Ann Bnft ;(Mil.US$):	32.53	38.99	57.09	63.14
Pjct Cost;(Mil.US$):	205.30	229.70	249.90	294.50
Acc.Bnft ;(Mil.US$):	322.53	352.60	407.20	484.62
Acc.Cost ;(Mil.US$):	296.53	336.38	384.70	445.37
B/C Ratio:	1.08	1.04	1.05	1.08
B-C :	26.00	16.22	22.50	39.24
D.Rate :	0.10	0.11	0.14	0.13

SCHEME ID NO: 4-007-00-01-0
SCHEME NAME: KANAN

R.D.Coef.;(%):	75.00			
Q-firm;(m3/s):	51.30			
Q-max ;(m3/s):	102.60	153.90	205.20	307.79
F.S.L. ;(El.-m):	294.00			
A.O.L. ;(El.-m):	273.00			
M.O.L. ;(El.-m):	231.00			
Inst.Cap.;(MW):	142.31	213.47	284.63	426.94
Firm Engy;(GWh):	623.34	623.34	623.34	623.34
Scnd Engy;(GWh):	49.19	65.59	73.79	81.99
Plnt Fctr:	0.53	0.36	0.27	0.18
Ann Bnft ;(Mil.US$):	58.72	89.51	94.93	104.89
Pjct Cost;(Mil.US$):	445.20	475.80	515.90	585.90
Acc.Bnft ;(Mil.US$):	643.68	743.38	788.38	948.44
Acc.Cost ;(Mil.US$):	635.57	707.61	767.25	858.01
B/C Ratio:	1.01	1.05	1.02	1.10
B-C :	8.10	35.76	21.13	90.43
D.Rate :	0.09	0.12	0.12	0.11

SCHEME ID NO: 2-008-07-24-0
SCHEME NAME: BANTAY

R.D.Coef.;(%):	80.00			
Q-firm;(m3/s):	34.60			
Q-max ;(m3/s):	69.20	103.80	138.40	207.60
F.S.L. ;(El.-m):	62.00			
A.O.L. ;(El.-m):	56.20			
M.O.L. ;(El.-m):	44.50			
Inst.Cap.;(MW):	19.88	29.82	39.76	59.64
Firm Engy;(GWh):	87.07	87.07	87.07	87.07
Scnd Engy;(GWh):	23.62	31.50	35.43	39.37
Plnt Fctr:	0.63	0.45	0.35	0.24
Ann Bnft ;(Mil.US$):	9.08	10.89	15.94	17.63
Pjct Cost;(Mil.US$):	70.10	79.00	94.30	118.70
Acc.Bnft ;(Mil.US$):	99.61	108.01	132.42	174.85
Acc.Cost ;(Mil.US$):	95.13	107.79	130.83	171.44
B/C Ratio:	1.04	1.00	1.01	1.01
B-C :	4.48	0.21	1.58	3.40
D.Rate :	0.09	0.10	0.12	0.10

SCHEME ID NO: 4-007-00-02-0
SCHEME NAME: DARAITAN

R.D.Coef.;(%):	40.00			
Q-firm;(m3/s):	24.00			
Q-max ;(m3/s):	48.00	72.00	96.00	144.00
F.S.L. ;(El.-m):	234.00			
A.O.L. ;(El.-m):	221.80			
M.O.L. ;(El.-m):	197.40			
Inst.Cap.;(MW):	30.50	45.75	61.00	91.51
Firm Engy;(GWh):	133.60	133.60	133.60	133.60
Scnd Engy;(GWh):	28.04	37.39	42.06	46.73
Plnt Fctr:	0.60	0.42	0.32	0.22
Ann Bnft ;(Mil.US$):	13.51	16.13	23.15	25.59
Pjct Cost;(Mil.US$):	105.80	116.40	125.90	150.60
Acc.Bnft ;(Mil.US$):	165.28	176.89	192.26	231.45
Acc.Cost ;(Mil.US$):	149.69	166.17	187.24	220.54
B/C Ratio:	1.10	1.06	1.02	1.04
B-C :	15.58	10.72	5.02	10.91
D.Rate :	0.08	0.09	0.12	0.11

SCHEME ID NO: 5-014-01-01-0
SCHEME NAME: BOSIGON

R.D.Coef.;(%):	38.00			
Q-firm;(m3/s):	19.00			
Q-max ;(m3/s):	38.00	57.00	76.00	114.00
F.S.L. ;(El.-m):	80.00			
A.O.L. ;(El.-m):	72.30			
M.O.L. ;(El.-m):	56.80			
Inst.Cap.;(MW):	14.89	22.33	29.78	44.67
Firm Engy;(GWh):	65.21	65.21	65.21	65.21
Scnd Engy;(GWh):	34.49	45.99	51.74	57.49
Plnt Fctr:	0.76	0.56	0.44	0.31
Ann Bnft ;(Mil.US$):	5.35	9.34	10.68	16.19
Pjct Cost;(Mil.US$):	60.30	67.10	73.60	91.70
Acc.Bnft ;(Mil.US$):	84.37	92.62	105.95	134.52
Acc.Cost ;(Mil.US$):	82.13	91.55	100.42	127.22
B/C Ratio:	1.02	1.01	1.05	1.05
B-C :	2.24	1.06	5.53	7.29
D.Rate :	0.06	0.10	0.10	0.12

SCHEME ID NO: 2-008-03-05-0
SCHEME NAME: SADANGA

R.D.Coef.;(%):	65.00			
Q-firm;(m3/s):	38.90			
Q-max ;(m3/s):	77.80	116.70	155.60	233.40
F.S.L. ;(El.-m):	890.00			
A.O.L. ;(El.-m):	866.70			
M.O.L. ;(El.-m):	820.20			
Inst.Cap.;(MW):	119.18	178.78	238.37	357.56
Firm Engy;(GWh):	522.04	522.04	522.04	522.04
Scnd Engy;(GWh):	59.64	79.52	89.46	99.41
Plnt Fctr:	0.55	0.38	0.29	0.19
Ann Bnft ;(Mil.US$):	50.15	77.59	82.46	91.13
Pjct Cost;(Mil.US$):	403.00	434.10	463.00	521.00
Acc.Bnft ;(Mil.US$):	613.54	701.58	745.59	824.00
Acc.Cost ;(Mil.US$):	570.20	635.71	678.03	762.96
B/C Ratio:	1.07	1.10	1.09	1.07
B-C :	43.33	65.87	67.55	61.03
D.Rate :	0.08	0.11	0.11	0.11

SCHEME ID NO: 1-022-00-06-0
SCHEME NAME: ETEB

R.D.Coef.;(%):	60.00			
Q-firm;(m3/s):	39.40			
Q-max ;(m3/s):	78.80	118.20	157.60	236.40
F.S.L. ;(El.-m):	371.00			
A.O.L. ;(El.-m):	357.80			
M.O.L. ;(El.-m):	331.40			
Inst.Cap.;(MW):	53.51	80.27	107.03	160.54
Firm Engy;(GWh):	234.40	234.40	234.40	234.40
Scnd Engy;(GWh):	41.40	55.20	62.11	69.01
Plnt Fctr:	0.58	0.41	0.31	0.21
Ann Bnft ;(Mil.US$):	23.29	27.76	39.36	43.52
Pjct Cost;(Mil.US$):	199.10	222.40	239.40	277.90
Acc.Bnft ;(Mil.US$):	284.93	339.63	355.96	431.52
Acc.Cost ;(Mil.US$):	281.70	314.67	350.58	401.39
B/C Ratio:	1.01	1.07	1.01	1.07
B-C :	3.22	24.96	5.37	30.12
D.Rate :	0.08	0.08	0.11	0.10

SCHEME ID NO: 2-008-14-34-0
SCHEME NAME: MALIANO

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	43.00			
Q-max ;(m3/s):	86.00	129.00	172.00	257.99
F.S.L. ;(El.-m):	292.00			
A.O.L. ;(El.-m):	272.20			
M.O.L. ;(El.-m):	232.70			
Inst.Cap.;(MW):	87.71	131.57	175.43	263.14
Firm Engy;(GWh):	384.19	384.19	384.19	384.19
Scnd Engy;(GWh):	104.14	138.85	156.21	173.57
Plnt Fctr:	0.63	0.45	0.35	0.24
Ann Bnft ;(Mil.US$):	40.09	48.05	70.33	77.79
Pjct Cost;(Mil.US$):	344.50	371.20	392.90	452.70
Acc.Bnft ;(Mil.US$):	490.44	587.92	635.97	703.37
Acc.Cost ;(Mil.US$):	487.43	525.21	575.37	662.94
B/C Ratio:	1.00	1.11	1.10	1.06
B-C :	3.00	62.70	60.60	40.43
D.Rate :	0.08	0.08	0.11	0.11

SCHEME ID NO: 2-008-08-25-0
SCHEME NAME: DABBA

R.D.Coef.;(%):	62.00			
Q-firm;(m3/s):	27.80			
Q-max ;(m3/s):	55.60	83.40	111.20	166.80
F.S.L. ;(El.-m):	117.00			
A.O.L. ;(El.-m):	105.50			
M.O.L. ;(El.-m):	82.50			
Inst.Cap.;(MW):	30.11	45.17	60.23	90.34
Firm Engy;(GWh):	131.91	131.91	131.91	131.91
Scnd Engy;(GWh):	36.23	48.31	54.34	60.38
Plnt Fctr:	0.63	0.45	0.35	0.24
Ann Bnft ;(Mil.US$):	13.78	16.53	24.22	26.79
Pjct Cost;(Mil.US$):	122.80	134.00	147.40	170.00
Acc.Bnft ;(Mil.US$):	190.31	202.26	219.04	265.66
Acc.Cost ;(Mil.US$):	172.81	189.59	215.85	245.54
B/C Ratio:	1.10	1.06	1.01	1.08
B-C :	17.49	12.67	3.19	20.11
D.Rate :	0.07	0.08	0.11	0.10

SCHEME ID NO: 4-115-01-01-0
SCHEME NAME: WAWA

R.D.Coef.;(%):	67.00			
Q-firm;(m3/s):	22.40			
Q-max ;(m3/s):	44.80	67.20	89.60	134.40
F.S.L. ;(El.-m):	151.00			
A.O.L. ;(El.-m):	136.90			
M.O.L. ;(El.-m):	108.80			
Inst.Cap.;(MW):	40.60	60.90	81.20	121.81
Firm Engy;(GWh):	177.84	177.84	177.84	177.84
Scnd Engy;(GWh):	17.91	23.88	26.86	29.85
Plnt Fctr:	0.55	0.37	0.28	0.19
Ann Bnft ;(Mil.US$):	16.95	26.09	27.70	30.61
Pjct Cost;(Mil.US$):	153.60	164.40	176.50	202.20
Acc.Bnft ;(Mil.US$):	234.04	258.69	274.70	303.57
Acc.Cost ;(Mil.US$):	216.15	237.45	254.93	292.05
B/C Ratio:	1.08	1.08	1.07	1.03
B-C :	17.88	21.23	19.77	11.52
D.Rate :	0.07	0.10	0.10	0.10

SCHEME ID NO: 1-022-01-12-0
SCHEME NAME: TINEG-1

R.D.Coef.;(%):	75.00			
Q-firm;(m3/s):	46.70			
Q-max ;(m3/s):	93.40	140.10	186.80	280.19
F.S.L. ;(El.-m):	324.00			
A.O.L. ;(El.-m):	299.10			
M.O.L. ;(El.-m):	249.40			
Inst.Cap.;(MW):	122.55	183.83	245.11	367.67
Firm Engy;(GWh):	536.80	536.80	536.80	536.80
Scnd Engy;(GWh):	61.79	82.39	92.69	102.99
Plnt Fctr:	0.55	0.38	0.29	0.19
Ann Bnft ;(Mil.US$):	51.59	79.85	84.86	93.79
Pjct Cost;(Mil.US$):	508.60	540.60	568.60	628.70
Acc.Bnft ;(Mil.US$):	813.23	791.75	841.45	929.94
Acc.Cost ;(Mil.US$):	715.20	780.83	821.27	908.08
B/C Ratio:	1.13	1.01	1.02	1.02
B-C :	98.03	10.91	20.17	21.86
D.Rate :	0.06	0.10	0.10	0.10

SCHEME ID NO: 2-008-14-37-0
SCHEME NAME: DINAPIQUI

R.D.Coef.;(%):	94.00			
Q-firm;(m3/s):	4.30			
Q-max ;(m3/s):	8.60	12.90	17.20	25.79
F.S.L. ;(El.-m):	546.00			
A.O.L. ;(El.-m):	525.80			
M.O.L. ;(El.-m):	485.30			
Inst.Cap.;(MW):	30.00	45.00	60.00	90.00
Firm Engy;(GWh):	131.41	131.41	131.41	131.41
Scnd Engy;(GWh):	22.41	29.88	33.61	37.35
Plnt Fctr:	0.58	0.40	0.31	0.21
Ann Bnft ;(Mil.US$):	13.01	15.50	21.94	24.25
Pjct Cost;(Mil.US$):	130.80	138.50	146.40	169.00
Acc.Bnft ;(Mil.US$):	205.14	214.02	217.56	265.90
Acc.Cost ;(Mil.US$):	183.93	194.90	211.45	241.26
B/C Ratio:	1.11	1.09	1.02	1.10
B-C :	21.21	19.11	6.10	24.63
D.Rate :	0.06	0.07	0.10	0.09

SCHEME ID NO: 2-008-29-61-0
SCHEME NAME: UP.CASECNAN-3

R.D.Coef.;(%):	91.00			
Q-firm;(m3/s):	6.80			
Q-max ;(m3/s):	13.60	20.40	27.20	40.79
F.S.L. ;(El.-m):	796.00			
A.O.L. ;(El.-m):	782.90			
M.O.L. ;(El.-m):	756.60			
Inst.Cap.;(MW):	34.72	52.09	69.45	104.18
Firm Engy;(GWh):	152.11	152.11	152.11	152.11
Scnd Engy;(GWh):	27.97	37.30	41.96	46.62
Plnt Fctr:	0.59	0.41	0.31	0.21
Ann Bnft ;(Mil.US$):	15.17	18.09	26.83	30.10
Pjct Cost;(Mil.US$):	149.20	163.70	179.90	205.00
Acc.Bnft ;(Mil.US$):	239.15	249.71	266.05	298.47
Acc.Cost ;(Mil.US$):	209.80	230.37	259.84	296.09
B/C Ratio:	1.13	1.08	1.02	1.00
B-C :	29.34	19.34	6.20	2.37
D.Rate :	0.06	0.07	0.10	0.10

SCHEME ID NO: 2-008-29-54-0
SCHEME NAME: DAKGAN

R.D.Coef.;(%):	72.00			
Q-firm;(m3/s):	28.50			
Q-max ;(m3/s):	57.00	85.50	114.00	171.00
F.S.L. ;(El.-m):	433.00			
A.O.L. ;(El.-m):	413.20			
M.O.L. ;(El.-m):	373.50			
Inst.Cap.;(MW):	56.21	84.31	112.42	168.63
Firm Engy;(GWh):	246.21	246.21	246.21	246.21
Scnd Engy;(GWh):	62.41	83.21	93.62	104.02
Plnt Fctr:	0.62	0.44	0.34	0.23
Ann Bnft ;(Mil.US$):	25.46	30.49	44.38	49.08
Pjct Cost;(Mil.US$):	270.80	287.40	304.30	330.40
Acc.Bnft ;(Mil.US$):	401.35	420.84	440.05	486.66
Acc.Cost ;(Mil.US$):	380.80	404.45	439.52	477.22
B/C Ratio:	1.05	1.04	1.00	1.01
B-C :	20.55	16.38	0.53	9.43
D.Rate :	0.06	0.07	0.10	0.10

SCHEME ID NO: 2-005-00-02-0
SCHEME NAME: ZIMIGUI

R.D.Coef.;(%):	57.00			
Q-firm;(m3/s):	34.90			
Q-max ;(m3/s):	69.80	104.70	139.60	209.40
F.S.L. ;(El.-m):	74.00			
A.O.L. ;(El.-m):	64.30			
M.O.L. ;(El.-m):	44.90			
Inst.Cap.;(MW):	32.34	48.52	64.69	97.04
Firm Engy;(GWh):	141.69	141.69	141.69	141.69
Scnd Engy;(GWh):	23.79	31.72	35.69	39.66
Plnt Fctr:	0.58	0.40	0.31	0.21
Ann Bnft ;(Mil.US$):	14.01	16.69	23.60	26.08
Pjct Cost;(Mil.US$):	141.10	158.10	171.30	203.00
Acc.Bnft ;(Mil.US$):	220.88	230.40	258.69	319.16
Acc.Cost ;(Mil.US$):	198.41	222.49	244.55	287.22
B/C Ratio:	1.11	1.03	1.05	1.11
B-C :	22.46	7.91	14.14	31.93
D.Rate :	0.06	0.07	0.09	0.08

SCHEME ID NO: 2-008-03-03-0
SCHEME NAME: BASAO

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	47.20			
Q-max ;(m3/s):	94.40	141.60	188.80	283.19
F.S.L. ;(El.-m):	768.00			
A.O.L. ;(El.-m):	740.40			
M.O.L. ;(El.-m):	685.20			
Inst.Cap.;(MW):	174.14	261.22	348.29	522.44
Firm Engy;(GWh):	762.76	762.76	762.76	762.76
Scnd Engy;(GWh):	78.95	105.27	118.43	131.59
Plnt Fctr:	0.55	0.37	0.28	0.19
Ann Bnft ;(Mil.US$):	72.84	112.20	119.17	131.69
Pjct Cost;(Mil.US$):	746.70	791.10	825.90	909.50
Acc.Bnft ;(Mil.US$):	1148.19	1229.99	1306.34	1443.64
Acc.Cost ;(Mil.US$):	1050.02	1129.39	1179.07	1298.42
B/C Ratio:	1.09	1.08	1.10	1.11
B-C :	98.16	100.60	127.27	145.22
D.Rate :	0.06	0.09	0.09	0.09

SCHEME ID NO: 3-077-00-04-0
SCHEME NAME: TABU

R.D.Coef.;(%):	6.00			
Q-firm;(m3/s):	12.50			
Q-max ;(m3/s):	25.00	37.50	50.00	74.99
F.S.L. ;(El.-m):	414.00			
A.O.L. ;(El.-m):	404.40			
M.O.L. ;(El.-m):	385.10			
Inst.Cap.;(MW):	22.43	33.64	44.86	67.29
Firm Engy;(GWh):	94.90	97.30	97.30	98.30
Scnd Engy;(GWh):	94.90	194.50	244.20	361.90
Plnt Fctr:	0.96	0.98	0.86	0.78
Ann Bnft ;(Mil.US$):	8.93	13.33	16.54	23.40
Pjct Cost;(Mil.US$):	125.40	136.00	145.30	161.80
Acc.Bnft ;(Mil.US$):	192.01	210.22	228.37	256.58
Acc.Cost ;(Mil.US$):	179.69	191.24	204.47	230.98
B/C Ratio:	1.06	1.09	1.11	1.11
B-C :	12.32	18.97	23.89	25.59
D.Rate :	0.04	0.06	0.07	0.09

SCHEME ID NO: 2-008-14-35-0
SCHEME NAME: ILAGAN-1

R.D.Coef.;(%):	90.00			
Q-firm;(m3/s):	22.50			
Q-max ;(m3/s):	45.00	67.50	90.00	135.00
F.S.L. ;(El.-m):	474.00			
A.O.L. ;(El.-m):	441.30			
M.O.L. ;(El.-m):	375.90			
Inst.Cap.;(MW):	69.34	104.01	138.69	208.03
Firm Engy;(GWh):	303.73	303.73	303.73	303.73
Scnd Engy;(GWh):	57.87	77.17	86.81	96.46
Plnt Fctr:	0.59	0.41	0.32	0.21
Ann Bnft ;(Mil.US$):	30.40	36.27	51.69	57.14
Pjct Cost;(Mil.US$):	329.40	348.00	361.90	396.60
Acc.Bnft ;(Mil.US$):	479.21	500.58	566.62	626.45
Acc.Cost ;(Mil.US$):	463.20	489.73	516.65	566.19
B/C Ratio:	1.03	1.02	1.09	1.10
B-C :	16.00	10.85	49.96	60.25
D.Rate :	0.06	0.07	0.09	0.09

SCHEME ID NO: 2-008-04-10-0
SCHEME NAME: MATALAG

R.D.Coef.;(%):	67.00			
Q-firm;(m3/s):	21.40			
Q-max ;(m3/s):	42.80	64.20	85.60	128.40
F.S.L. ;(El.-m):	81.00			
A.O.L. ;(El.-m):	73.50			
M.O.L. ;(El.-m):	58.60			
Inst.Cap.;(MW):	15.57	23.35	31.14	46.71
Firm Engy;(GWh):	68.20	68.20	68.20	68.20
Scnd Engy;(GWh):	9.32	12.42	13.98	15.53
Plnt Fctr:	0.56	0.39	0.30	0.20
Ann Bnft ;(Mil.US$):	6.63	10.35	11.01	12.17
Pjct Cost;(Mil.US$):	72.60	79.80	88.10	105.70
Acc.Bnft ;(Mil.US$):	104.55	113.51	120.78	168.08
Acc.Cost ;(Mil.US$):	98.88	108.30	119.56	148.75
B/C Ratio:	1.05	1.04	1.01	1.12
B-C :	5.67	5.21	1.22	19.33
D.Rate :	0.06	0.09	0.09	0.07

SCHEME ID NO: 3-023-00-02-0
SCHEME NAME: UP.UMIRAY

R.D.Coef.;(%):	75.00			
Q-firm;(m3/s):	27.30			
Q-max ;(m3/s):	54.60	81.90	109.20	163.80
F.S.L. ;(El.-m):	322.00			
A.O.L. ;(El.-m):	300.40			
M.O.L. ;(El.-m):	257.20			
Inst.Cap.;(MW):	71.82	107.73	143.64	215.47
Firm Engy;(GWh):	314.59	314.59	314.59	314.59
Scnd Engy;(GWh):	25.50	34.01	38.26	42.51
Plnt Fctr:	0.54	0.36	0.28	0.18
Ann Bnft ;(Mil.US$):	29.67	45.27	48.02	53.06
Pjct Cost;(Mil.US$):	336.90	351.80	371.70	401.80
Acc.Bnft ;(Mil.US$):	541.68	553.86	587.46	581.64
Acc.Cost ;(Mil.US$):	476.30	497.76	525.92	573.61
B/C Ratio:	1.13	1.11	1.11	1.01
B-C :	65.38	56.09	61.54	8.02
D.Rate :	0.05	0.08	0.08	0.09

SCHEME ID NO: 2-032-00-01-0
SCHEME NAME: TABOAN

R.D.Coef.;(%):	67.00			
Q-firm;(m3/s):	19.00			
Q-max ;(m3/s):	38.00	57.00	76.00	114.00
F.S.L. ;(El.-m):	103.00			
A.O.L. ;(El.-m):	91.20			
M.O.L. ;(El.-m):	67.70			
Inst.Cap.;(MW):	25.15	37.72	50.30	75.45
Firm Engy;(GWh):	110.15	110.15	110.15	110.15
Scnd Engy;(GWh):	28.25	37.67	42.38	47.09
Plnt Fctr:	0.62	0.44	0.34	0.23
Ann Bnft ;(Mil.US$):	11.41	13.66	19.91	22.02
Pjct Cost;(Mil.US$):	125.90	136.30	146.10	169.10
Acc.Bnft ;(Mil.US$):	179.84	215.41	218.25	269.38
Acc.Cost ;(Mil.US$):	177.04	191.66	208.57	239.26
B/C Ratio:	1.01	1.12	1.04	1.12
B-C :	2.80	23.74	9.68	30.12
D.Rate :	0.06	0.06	0.09	0.08

SCHEME ID NO: 2-008-15-39-0
SCHEME NAME: ABUAN-1

R.D.Coef.;(%):	80.00			
Q-firm;(m3/s):	24.40			
Q-max ;(m3/s):	48.80	73.20	97.60	146.40
F.S.L. ;(El.-m):	284.00			
A.O.L. ;(El.-m):	261.60			
M.O.L. ;(El.-m):	216.70			
Inst.Cap.;(MW):	61.78	92.67	123.56	185.35
Firm Engy;(GWh):	270.61	270.61	270.61	270.61
Scnd Engy;(GWh):	61.62	82.16	92.43	102.70
Plnt Fctr:	0.61	0.43	0.33	0.22
Ann Bnft ;(Mil.US$):	27.61	33.02	47.66	52.70
Pjct Cost;(Mil.US$):	313.60	330.70	345.30	382.40
Acc.Bnft ;(Mil.US$):	504.21	520.54	522.49	577.76
Acc.Cost ;(Mil.US$):	443.36	465.03	492.95	545.92
B/C Ratio:	1.13	1.11	1.05	1.05
B-C :	60.85	55.50	29.53	31.84
D.Rate :	0.05	0.06	0.09	0.09

SCHEME ID NO: 2-008-29-56-0
SCHEME NAME: KAGIPSIPAN

R.D.Coef.;(%):	75.00			
Q-firm;(m3/s):	22.90			
Q-max ;(m3/s):	45.80	68.70	91.60	137.40
F.S.L. ;(El.-m):	525.00			
A.O.L. ;(El.-m):	503.60			
M.O.L. ;(El.-m):	460.70			
Inst.Cap.;(MW):	52.59	78.89	105.19	157.78
Firm Engy;(GWh):	230.36	230.36	230.36	230.36
Scnd Engy;(GWh):	57.43	76.57	86.15	95.72
Plnt Fctr:	0.62	0.44	0.34	0.23
Ann Bnft ;(Mil.US$):	23.77	28.46	41.37	45.75
Pjct Cost;(Mil.US$):	286.10	303.10	315.30	345.60
Acc.Bnft ;(Mil.US$):	434.01	448.63	453.51	501.53
Acc.Cost ;(Mil.US$):	404.48	426.22	450.12	493.38
B/C Ratio:	1.07	1.05	1.00	1.01
B-C :	29.53	22.41	3.38	8.15
D.Rate :	0.05	0.06	0.09	0.09

SCHEME ID NO: 2-008-26-50-0
SCHEME NAME: PINARIPAD

R.D.Coef.;(%):	41.00			
Q-firm;(m3/s):	23.80			
Q-max ;(m3/s):	47.60	71.40	95.20	142.80
F.S.L. ;(El.-m):	194.00			
A.O.L. ;(El.-m):	182.90			
M.O.L. ;(El.-m):	160.60			
Inst.Cap.;(MW):	26.17	39.26	52.35	78.52
Firm Engy;(GWh):	114.64	114.64	114.64	114.64
Scnd Engy;(GWh):	60.38	80.51	90.58	100.64
Plnt Fctr:	0.76	0.56	0.44	0.31
Ann Bnft ;(Mil.US$):	9.40	16.40	18.76	28.43
Pjct Cost;(Mil.US$):	160.10	171.40	182.10	208.10
Acc.Bnft ;(Mil.US$):	241.98	258.56	258.99	311.65
Acc.Cost ;(Mil.US$):	235.04	241.02	256.26	297.08
B/C Ratio:	1.02	1.07	1.01	1.04
B-C :	6.94	17.54	2.72	14.57
D.Rate :	0.03	0.06	0.07	0.09

SCHEME ID NO: 2-008-15-38-0
SCHEME NAME: BALLASANG

R.D.Coef.;(%):	49.00			
Q-firm;(m3/s):	24.90			
Q-max ;(m3/s):	49.80	74.70	99.60	149.40
F.S.L. ;(El.-m):	194.00			
A.O.L. ;(El.-m):	175.60			
M.O.L. ;(El.-m):	138.80			
Inst.Cap.;(MW):	46.36	69.54	92.73	139.09
Firm Engy;(GWh):	203.08	203.08	203.08	203.08
Scnd Engy;(GWh):	82.50	110.00	123.75	137.50
Plnt Fctr:	0.70	0.51	0.40	0.27
Ann Bnft ;(Mil.US$):	16.10	27.33	31.30	46.00
Pjct Cost;(Mil.US$):	282.10	294.40	309.90	339.30
Acc.Bnft ;(Mil.US$):	414.48	430.86	493.42	504.31
Acc.Cost ;(Mil.US$):	414.15	413.99	435.78	484.39
B/C Ratio:	1.00	1.04	1.13	1.04
B-C :	0.33	16.87	57.63	19.92
D.Rate :	0.03	0.06	0.06	0.09

SCHEME ID NO: 4-007-00-03-0
SCHEME NAME: UPPER AGOS-1M

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	12.00			
Q-max ;(m3/s):	24.00	36.00	48.00	71.99
F.S.L. ;(El.-m):	252.00			
A.O.L. ;(El.-m):	242.90			
M.O.L. ;(El.-m):	224.70			
Inst.Cap.;(MW):	14.85	22.28	29.71	44.57
Firm Engy;(GWh):	65.07	65.07	65.07	65.07
Scnd Engy;(GWh):	6.68	8.91	10.03	11.14
Plnt Fctr:	0.55	0.37	0.28	0.19
Ann Bnft ;(Mil.US$):	6.21	9.56	10.15	11.22
Pjct Cost;(Mil.US$):	69.20	75.30	81.10	93.80
Acc.Bnft ;(Mil.US$):	97.91	117.02	124.28	137.34
Acc.Cost ;(Mil.US$):	94.25	101.92	109.77	126.96
B/C Ratio:	1.03	1.14	1.13	1.08
B-C :	3.66	15.10	14.51	10.38
D.Rate :	0.06	0.08	0.08	0.08

SCHEME ID NO: 3-023-00-01-0
SCHEME NAME: UMIRAY-3

R.D.Coef.;(%):	62.00			
Q-firm;(m3/s):	39.70			
Q-max ;(m3/s):	79.40	119.10	158.80	238.20
F.S.L. ;(El.-m):	201.00			
A.O.L. ;(El.-m):	182.50			
M.O.L. ;(El.-m):	145.40			
Inst.Cap.;(MW):	76.93	115.39	153.86	230.79
Firm Engy;(GWh):	336.95	336.95	336.95	336.95
Scnd Engy;(GWh):	37.32	49.76	55.98	62.20
Plnt Fctr:	0.55	0.38	0.29	0.19
Ann Bnft ;(Mil.US$):	32.30	49.91	53.03	58.61
Pjct Cost;(Mil.US$):	402.40	431.00	453.40	513.20
Acc.Bnft ;(Mil.US$):	589.83	610.65	648.83	808.91
Acc.Cost ;(Mil.US$):	568.91	609.82	641.51	722.21
B/C Ratio:	1.03	1.00	1.01	1.12
B-C :	20.92	0.83	7.31	86.69
D.Rate :	0.05	0.08	0.08	0.07

SCHEME ID NO: 2-008-06-19-0
SCHEME NAME: NANENG

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	16.70			
Q-max ;(m3/s):	33.40	50.10	66.80	100.20
F.S.L. ;(El.-m):	474.00			
A.O.L. ;(El.-m):	455.50			
M.O.L. ;(El.-m):	418.60			
Inst.Cap.;(MW):	40.99	61.49	81.98	122.98
Firm Engy;(GWh):	179.55	179.55	179.55	179.55
Scnd Engy;(GWh):	19.94	26.58	29.91	33.23
Plnt Fctr:	0.55	0.38	0.29	0.19
Ann Bnft ;(Mil.US$):	17.21	26.60	28.27	31.24
Pjct Cost;(Mil.US$):	214.60	225.40	238.20	264.60
Acc.Bnft ;(Mil.US$):	314.36	325.49	345.85	382.21
Acc.Cost ;(Mil.US$):	303.40	318.92	337.03	374.38
B/C Ratio:	1.03	1.02	1.02	1.02
B-C :	10.96	6.57	8.82	7.83
D.Rate :	0.05	0.08	0.08	0.08

SCHEME ID NO: 2-008-29-60-0
SCHEME NAME: UP.CASECNAN-2

R.D.Coef.;(%):	95.00			
Q-firm;(m3/s):	9.90			
Q-max ;(m3/s):	19.80	29.70	39.60	59.39
F.S.L. ;(El.-m):	795.00			
A.O.L. ;(El.-m):	774.00			
M.O.L. ;(El.-m):	731.90			
Inst.Cap.;(MW):	31.81	47.72	63.63	95.44
Firm Engy;(GWh):	139.35	139.35	139.35	139.35
Scnd Engy;(GWh):	23.38	31.18	35.07	38.97
Plnt Fctr:	0.58	0.40	0.31	0.21
Ann Bnft ;(Mil.US$):	13.78	16.41	23.20	25.65
Pjct Cost;(Mil.US$):	165.50	181.40	194.80	223.40
Acc.Bnft ;(Mil.US$):	251.60	258.79	283.91	354.07
Acc.Cost ;(Mil.US$):	233.98	255.08	275.62	314.38
B/C Ratio:	1.07	1.01	1.03	1.12
B-C :	17.61	3.70	8.29	39.68
D.Rate :	0.05	0.06	0.08	0.07

SCHEME ID NO: 1-010-00-01-0
SCHEME NAME: LUYA

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	43.80			
Q-max ;(m3/s):	87.60	131.40	175.20	262.79
F.S.L. ;(El.-m):	310.00			
A.O.L. ;(El.-m):	279.70			
M.O.L. ;(El.-m):	219.10			
Inst.Cap.;(MW):	137.22	205.84	274.45	411.68
Firm Engy;(GWh):	601.06	601.06	601.06	601.06
Scnd Engy;(GWh):	100.22	133.62	150.33	167.03
Plnt Fctr:	0.58	0.40	0.31	0.21
Ann Bnft ;(Mil.US$):	59.40	70.77	99.99	110.54
Pjct Cost;(Mil.US$):	755.70	789.20	822.80	885.80
Acc.Bnft ;(Mil.US$):	1084.58	1115.49	1223.32	1352.34
Acc.Cost ;(Mil.US$):	1068.40	1109.79	1164.18	1253.32
B/C Ratio:	1.01	1.00	1.05	1.07
B-C :	16.18	5.70	59.13	99.01
D.Rate :	0.05	0.06	0.08	0.08

SCHEME ID NO: 2-008-13-32-0
SCHEME NAME: TABUK

R.D.Coef.;(%):	80.00			
Q-firm;(m3/s):	12.00			
Q-max ;(m3/s):	24.00	36.00	48.00	71.99
F.S.L. ;(El.-m):	146.00			
A.O.L. ;(El.-m):	136.50			
M.O.L. ;(El.-m):	117.40			
Inst.Cap.;(MW):	12.24	18.37	24.49	36.74
Firm Engy;(GWh):	53.65	53.65	53.65	53.65
Scnd Engy;(GWh):	16.49	21.99	24.74	27.49
Plnt Fctr:	0.65	0.47	0.36	0.25
Ann Bnft ;(Mil.US$):	5.70	6.84	10.13	11.21
Pjct Cost;(Mil.US$):	72.40	77.10	81.70	91.20
Acc.Bnft ;(Mil.US$):	104.09	107.95	123.99	137.15
Acc.Cost ;(Mil.US$):	99.74	105.01	110.58	123.44
B/C Ratio:	1.04	1.02	1.12	1.11
B-C :	4.34	2.93	13.41	13.71
D.Rate :	0.05	0.06	0.08	0.08

SCHEME ID NO: 2-039-00-01-0
SCHEME NAME: DIKATAYAN

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	18.50			
Q-max ;(m3/s):	37.00	55.50	74.00	111.00
F.S.L. ;(El.-m):	166.00			
A.O.L. ;(El.-m):	147.00			
M.O.L. ;(El.-m):	108.90			
Inst.Cap.;(MW):	39.16	58.75	78.33	117.50
Firm Engy;(GWh):	171.56	171.56	171.56	171.56
Scnd Engy;(GWh):	40.97	54.63	61.46	68.29
Plnt Fctr:	0.61	0.43	0.33	0.23
Ann Bnft ;(Mil.US$):	17.61	21.07	30.52	33.75
Pjct Cost;(Mil.US$):	240.40	251.40	263.20	286.60
Acc.Bnft ;(Mil.US$):	378.31	384.67	373.42	412.94
Acc.Cost ;(Mil.US$):	344.48	355.42	372.40	405.51
B/C Ratio:	1.09	1.08	1.00	1.01
B-C :	33.82	29.25	1.01	7.42
D.Rate :	0.04	0.05	0.08	0.08

SCHEME ID NO: 1-003-00-01-0
SCHEME NAME: BAGULIN

R.D.Coef.;(%):	70.00			
Q-firm;(m3/s):	22.60			
Q-max ;(m3/s):	45.20	67.80	90.40	135.60
F.S.L. ;(El.-m):	298.00			
A.O.L. ;(El.-m):	275.30			
M.O.L. ;(El.-m):	229.80			
Inst.Cap.;(MW):	61.13	91.70	122.26	183.40
Firm Engy;(GWh):	267.76	267.76	267.76	267.76
Scnd Engy;(GWh):	45.17	60.23	67.76	75.29
Plnt Fctr:	0.58	0.40	0.31	0.21
Ann Bnft ;(Mil.US$):	26.49	31.56	44.63	49.33
Pjct Cost;(Mil.US$):	363.40	378.10	390.90	422.80
Acc.Bnft ;(Mil.US$):	569.15	576.24	615.95	603.59
Acc.Cost ;(Mil.US$):	520.74	534.55	550.10	598.22
B/C Ratio:	1.09	1.07	1.11	1.00
B-C :	48.40	41.69	65.84	5.37
D.Rate :	0.04	0.05	0.07	0.08

SCHEME ID NO: 2-008-08-26-0
SCHEME NAME: DALAYA

R.D.Coef.;(%):	52.00			
Q-firm;(m3/s):	15.90			
Q-max ;(m3/s):	31.80	47.70	63.60	95.39
F.S.L. ;(El.-m):	222.00			
A.O.L. ;(El.-m):	200.80			
M.O.L. ;(El.-m):	158.60			
Inst.Cap.;(MW):	33.53	50.30	67.06	100.60
Firm Engy;(GWh):	146.87	146.87	146.87	146.87
Scnd Engy;(GWh):	46.29	61.72	69.44	77.15
Plnt Fctr:	0.65	0.47	0.36	0.25
Ann Bnft ;(Mil.US$):	15.66	18.82	27.92	30.89
Pjct Cost;(Mil.US$):	205.10	214.70	225.70	245.30
Acc.Bnft ;(Mil.US$):	336.60	343.74	341.66	377.94
Acc.Cost ;(Mil.US$):	293.90	303.54	319.34	347.07
B/C Ratio:	1.14	1.13	1.06	1.08
B-C :	42.69	40.20	22.32	30.86
D.Rate :	0.04	0.05	0.08	0.08

SCHEME ID NO: 4-007-00-04-0
SCHEME NAME: UP.AGOS-1S

R.D.Coef.;(%):	20.00			
Q-firm;(m3/s):	7.80			
Q-max ;(m3/s):	15.60	23.40	31.20	46.79
F.S.L. ;(El.-m):	252.00			
A.O.L. ;(El.-m):	242.70			
M.O.L. ;(El.-m):	224.20			
Inst.Cap.;(MW):	7.79	11.69	15.59	23.38
Firm Engy;(GWh):	34.14	34.14	34.14	34.14
Scnd Engy;(GWh):	16.15	21.53	24.22	26.92
Plnt Fctr:	0.73	0.54	0.42	0.29
Ann Bnft ;(Mil.US$):	2.75	4.75	5.44	8.14
Pjct Cost;(Mil.US$):	58.20	62.40	66.60	70.60
Acc.Bnft ;(Mil.US$):	108.16	86.83	99.38	99.59
Acc.Cost ;(Mil.US$):	93.59	85.96	91.75	95.55
B/C Ratio:	1.15	1.01	1.08	1.04
B-C :	14.57	0.86	7.62	4.03
D.Rate :	0.01	0.05	0.05	0.08

SCHEME ID NO: 2-047-00-01-0
SCHEME NAME: PALANAN

R.D.Coef.;(%):	18.00			
Q-firm;(m3/s):	9.40			
Q-max ;(m3/s):	18.80	28.20	37.60	56.39
F.S.L. ;(El.-m):	94.00			
A.O.L. ;(El.-m):	86.90			
M.O.L. ;(El.-m):	72.60			
Inst.Cap.;(MW):	7.78	11.67	15.56	23.35
Firm Engy;(GWh):	34.09	34.09	34.09	34.09
Scnd Engy;(GWh):	18.62	24.83	27.93	31.04
Plnt Fctr:	0.77	0.57	0.45	0.31
Ann Bnft ;(Mil.US$):	2.81	4.92	5.63	8.57
Pjct Cost;(Mil.US$):	59.80	63.40	66.90	73.40
Acc.Bnft ;(Mil.US$):	110.22	89.92	102.85	104.89
Acc.Cost ;(Mil.US$):	96.16	87.34	92.16	99.34
B/C Ratio:	1.14	1.02	1.11	1.05
B-C :	14.05	2.57	10.68	5.54
D.Rate :	0.01	0.05	0.05	0.08

C-6　抽出水力地点インベントリー

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-002-00-01-0-1

SCHEME : RIZAL

RIVER SYSTEM : ARINGAY | WATER RESOURCES REGION : I | COORDINATES : N16-22-51 E120-26-34
STREAM : GALIANO | PROVINCE : LA UNION | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	117.0	(MAIN : 117., INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	: 4-1-017-NW-114		
AVER. BASIN RAINFALL (MM/YR)	3478.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	304.		
AVERAGE DISCHARGE (M3/S)	12.0	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	29.2		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR — RESERVOIR DEVELOPMENT RATIO : 0.52

RESERVIOR	FULL SUPPLY LEVEL (EL.M)	180.9	GROSS STORAGE VOL. (MIL M3)	253.4		
	AVERAGE OPERATING LEVEL (EL.M)	162.1	ACTIVE STORAGE VOL. (MIL M3)	196.8		
	MINIMUM OPERATING LEVEL (EL.M)	124.5	DEAD STORAGE VOL. (MIL M3)	56.6		
	DRAWDOWN DEPTH (M)	56.4	SEDIMENT VOL. (MIL M3)	8.2		
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	186.9	CREST LENGTH (M)	562.2		
	DAM HEIGHT (M)	140.2	EMBANKMENT VOL. (MIL M3)	8.90		
WATERWAY	HEADRACE : LENGTH (M)	960.0	DIAMETER (WIDTH) (M)	2.7	NOS. :	1
	PENSTOCK : HORIZONT. L (M)	200.0	DIAMETER (M)	2.4	NOS. :	1
	DIVERSION : LENGTH (M)	1340.0	DIAMETER (M)	6.8	NOS. :	2
	EXCAVATION VOL TOTAL (1000 M3)	102.8				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	16.7	AVERAGE NET HEAD (M)	110.0		
	FIRM DISCHARGE (M3/S)	8.4	TAILWATER LEVEL (EL.M)	45.7		
POWER /ENERGY	INSATLLED CAPACITY (MW)	15.1	ANNUAL TOTAL ENERGY (GWH)	83.2		
	FIRM POWER (MW)	7.6	FIRM ENERGY (GWH)	66.3		
	MIN.GUARANTEED POWER (MW)	9.5	SECONDARY ENERGY (GWH)	16.9		

TRANSMISSION LINE — LENGTH (KM) : 4.0 — TO : AGOO — 69 K V SINGLE CIRCUIT — NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 5.0 — FROM : ANDUYAN

CONSTRUCTION COST

TOTAL COST (MIL USD)	171.3	POWER COST (MIL USD)	169.4
TOTAL COST/KW (USD/KW)	11306.7	TRANSMISSION COST (MIL USD)	0.5
TOTAL COST/KWH (USD/KWH)	2.398	ACCESS ROAD COST (MIL USD)	1.4

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3069-II
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-003-00-01-0-1

SCHEME : BAGULIN

RIVER SYSTEM : NAGUILIAN | WATER RESOURCES REGION : I | COORDINATES : N16-35-56 E120-28-44
STREAM : NAGUILIAN | PROVINCE : LA UNION | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	297.0	(MAIN : 297., INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-017-NW-114		
AVER. BASIN RAINFALL	(MM/YR) :	3352.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	304.
AVERAGE DISCHARGE	(M3/S) :	29.3	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	29.2

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.70

RESERVOIR	FULL SUPPLY LEVEL	(EL.M) :	298.0	GROSS STORAGE VOL.	(MIL M3) :	919.0		
	AVERAGE OPERATING LEVEL	(EL.M) :	275.3	ACTIVE STORAGE VOL.	(MIL M3) :	646.4		
	MINIMUM OPERATING LEVEL	(EL.M) :	229.8	DEAD STORAGE VOL.	(MIL M3) :	272.7		
	DRAWDOWN DEPTH	(M) :	68.2	SEDIMENT VOL.	(MIL M3) :	20.8		
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) :	304.0	CREST LENGTH	(M) :	716.0		
	DAM HEIGHT	(M) :	197.0	EMBANKMENT VOL.	(MIL M3) :	22.14		
WATERWAY	HEADRACE : LENGTH	(M) :	880.0	DIAMETER (WIDTH)	(M) :	5.4	NOS. :	2
	PENSTOCK : HORIZONT. L	(M) :	190.0	DIAMETER	(M) :	4.1	NOS. :	2
	DIVERSION : LENGTH	(M) :	1600.0	DIAMETER	(M) :	8.8	NOS. :	2
	EXCAVATION VOL TOTAL	(1000 M3) :	242.8					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) :	135.9	AVERAGE NET HEAD	(M) :	164.3		
	FIRM DISCHARGE	(M3/S) :	22.6	TAILWATER LEVEL	(EL.M) :	107.0		
POWER /ENERGY	INSATLLED CAPACITY	(MW) :	183.8	ANNUAL TOTAL ENERGY	(GWH) :	342.9		
	FIRM POWER	(MW) :	30.6	FIRM ENERGY	(GWH) :	268.4		
	MIN.GUARANTEED POWER	(MW) :	126.6	SECONDARY ENERGY	(GWH) :	74.6		

TRANSMISSION LINE : LENGTH (KM) : 18.0 | TO : BAUANG | 230 K V DOUBLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 10.0 | FROM : GUSING NORTE

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	422.8	POWER COST	(MIL USD) :	416.2	
TOTAL COST/KW	(USD/KW) :	2300.4	TRANSMISSION COST	(MIL USD) :	3.8	
TOTAL COST/KWH	(USD/KWH) :	1.454	ACCESS ROAD COST	(MIL USD) :	2.9	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3069-I
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-003-00-02-0-2

SCHEME : NAGUILIAN

RIVER SYSTEM : NAGUILIAN | WATER RESOURCES REGION : I | COORDINATES : N16-30-37 E120-33-55
STREAM : TRINIDAD | PROVINCE : BENGUET | STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 134.3	(MAIN : 134..	INTER TRANSFER TOTAL : 0.)	STREAM GAGE ID	: 4-1-017-NW-14
AVER. BASIN RAINFALL	(MM/YR) : 3769.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 304.
AVERAGE DISCHARGE	(M3/S) : 15.0	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 29.2

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER | OUTPUT FACTOR : 0.51

PONDAGE	FULL SUPPLY LEVEL	(EL.M) : 484.9	PONDAGE STORAGE VOL.	(1000M3) : 121.8		
	AVERAGE OPERATING LEVEL	(EL.M) : 484.3	ACTIVE STORAGE VOL.	(1000M3) : 28.4		
	MINIMUM OPERATING LEVEL	(EL.M) : 483.7				
	DRAWDOWN DEPTH	(M) : 1.1				
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) : 484.9	CREST LENGTH	(M) : 74.6		
	WEIR HEIGHT	(M) : 7.9	WEIR CONCRETE VOL.	(1000 M3) : 10.5		
WATERWAY	HEADRACE : LENGTH	(M) : 8800.0	DIAMETER (WIDTH)	(M) : 3.0	NOS. : 1	
	PENSTOCK : HORIZONT. L	(M) : 1050.0	DIAMETER	(M) : 2.1	NOS. : 1	
	EXCAVATION VOL TOTAL	(1000 M3) : 66.2				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) : 15.0	AVERAGE NET HEAD	(M) : 301.1		
	FIRM DISCHARGE	(M3/S) : 1.0	TAILWATER LEVEL	(EL.M) : 159.0		
POWER /ENERGY	INSATLLED CAPACITY	(MW) : 37.2	ANNUAL TOTAL ENERGY	(GWH) : 151.6		
	FIRM POWER	(MW) : 2.4	FIRM ENERGY	(GWH) : 21.4		
	MIN.GUARANTEED POWER	(MW) : 2.2	SECONDARY ENERGY	(GWH) : 130.2		

TRANSMISSION LINE : LENGTH (KM) : 17.4 | TO : LA TRINIDAD | 69 K V SINGLE CIRCUIT | NOS. OF CIRCUIT : 2

ACCESS ROAD LENGTH (KM) : 12.4 | FROM : PROVCIAL ROAD FROM BAGUIO

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 47.2	POWER COST	(MIL USD) : 41.9
TOTAL COST/KW	(USD/KW) : 1268.6	TRANSMISSION COST	(MIL USD) : 1.7
TOTAL COST/KWH	(USD/KWH) : 0.780	ACCESS ROAD COST	(MIL USD) : 3.5

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : FOREST - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3169-IV 1964
TECHNICAL COMMENT : - JOINTED LIMESTONE STRUCTURE AT INTAKE WEIR SITE

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-010-00-01-0-1

SCHEME : LUYA

RIVER SYSTEM : AMBURAYAN | WATER RESOURCES REGION : I | COORDINATES : N16-47-55 E120-32-09
STREAM : AMBURAYAN | PROVINCE : ILOCOS SUR | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	599.0	(MAIN : 599..	INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-017-NW-114	
AVER. BASIN RAINFALL	(MM/YR) :	3214.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	304.
AVERAGE DISCHARGE	(M3/S) :	56.4	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	29.2

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR — RESERVOIR DEVELOPMENT RATIO : 0.70

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) :	310.0	GROSS STORAGE VOL.	(MIL M3) :	1769.4	
	AVERAGE OPERATING LEVEL	(EL.M) :	279.7	ACTIVE STORAGE VOL.	(MIL M3) :	1245.8	
	MINIMUM OPERATING LEVEL	(EL.M) :	219.1	DEAD STORAGE VOL.	(MIL M3) :	523.6	
	DRAWDOWN DEPTH	(M) :	90.9	SEDIMENT VOL.	(MIL M3) :	41.9	
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) :	316.0	CREST LENGTH	(M) :	946.0	
	DAM HEIGHT	(M) :	231.0	EMBANKMENT VOL.	(MIL M3) :	60.70	
WATERWAY	HEADRACE : LENGTH	(M) :	900.0	DIAMETER (WIDTH)	(M) :	6.1	NOS. : 3
	PENSTOCK : HORIZONT. L	(M) :	240.0	DIAMETER	(M) :	4.5	NOS. : 3
	DIVERSION : LENGTH	(M) :	1260.0	DIAMETER	(M) :	8.8	NOS. : 3
	EXCAVATION VOL TOTAL	(1000 M3) :	328.1				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) :	262.8	AVERAGE NET HEAD	(M) :	190.3	
	FIRM DISCHARGE	(M3/S) :	43.8	TAILWATER LEVEL	(EL.M) :	85.0	
POWER /ENERGY	INSATLLED CAPACITY	(MW) :	411.7	ANNUAL TOTAL ENERGY	(GWH) :	768.5	
	FIRM POWER	(MW) :	68.6	FIRM ENERGY	(GWH) :	601.0	
	MIN.GUARANTEED POWER	(MW) :	267.2	SECONDARY ENERGY	(GWH) :	167.5	

TRANSMISSION LINE — LENGTH (KM) : 45.0 — TO : BANANG — 230 K V DOUBLE CIRCUIT — NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0. — FROM :

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	885.8	POWER COST	(MIL USD) :	871.8	
TOTAL COST/KW	(USD/KW) :	2151.9	TRANSMISSION COST	(MIL USD) :	14.1	
TOTAL COST/KWH	(USD/KWH) :	1.360	ACCESS ROAD COST	(MIL USD) :	0.	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50.000 SCALE) : 3170-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-010-00-01-1-2

SCHEME : LUYA (ROR ALT.)

RIVER SYSTEM : AMBURAYAN | WATER RESOURCES REGION : 1 | COORDINATES : N16-40-21 E120-34-00
STREAM : AMBURAYAN | PROVINCE : ILOCOS SUR | STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	403.0	(MAIN : 403.. INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	: 4-1-017-NW-114		
AVER. BASIN RAINFALL (MM/YR)	3400.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	304.		
AVERAGE DISCHARGE (M3/S)	40.3	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	29.2		

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER | OUTPUT FACTOR : 0.51

PONDAGE	FULL SUPPLY LEVEL (EL.M)	273.0	PONDAGE STORAGE VOL.(1000M3)	131.1			
	AVERAGE OPERATING LEVEL (EL.M)	270.8	ACTIVE STORAGE VOL. (1000M3)	76.2			
	MINIMUM OPERATING LEVEL (EL.M)	268.5					
	DRAWDOWN DEPTH (M)	4.5					
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	273.0	CREST LENGTH (M)	31.8			
	WEIR HEIGHT (M)	13.0	WEIR CONCRETE VOL. (1000 M3)	11.6			
WATERWAY	HEADRACE : LENGTH (M)	6750.0	DIAMETER (WIDTH) (M)	4.3	NOS.	1	
	PENSTOCK : HORIZONT. L (M)	200.0	DIAMETER (M)	3.4	NOS.	1	
	EXCAVATION VOL TOTAL (1000 M3)	101.9					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	40.3	AVERAGE NET HEAD (M)	119.4			
	FIRM DISCHARGE (M3/S)	2.6	TAILWATER LEVEL (EL.M)	140.0			
POWER /ENERGY	INSATLLED CAPACITY (MW)	39.6	ANNUAL TOTAL ENERGY (GWH)	163.8			
	FIRM POWER (MW)	2.6	FIRM ENERGY (GWH)	22.8			
	MIN.GUARANTEED POWER (MW)	2.3	SECONDARY ENERGY (GWH)	141.0			

TRANSMISSION LINE : LENGTH (KM) : 35.0 | TO : LA TRINIDAD | 69 K V SINGLE CIRCUIT | NOS. OF CIRCUIT : 2

ACCESS ROAD LENGTH (KM) : 15.0 | FROM : NEAREST PROVINCIAL ROAD

CONSTRUCTION COST

TOTAL COST	(MIL USD)	55.8	POWER COST	(MIL USD)	48.8
TOTAL COST/KW	(USD/KW)	1410.2	TRANSMISSION COST	(MIL USD)	2.8
TOTAL COST/KWH	(USD/KWH)	0.858	ACCESS ROAD COST	(MIL USD)	4.3

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : FOREST - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3170-III 1970
TECHNICAL COMMENT : - ALTERNATIVE PLAN OF LUYA (RESERVOIR TYPE DEVELOPMENT) SCREENED OUT AT THE FIRST SCREENING.

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-010-00-02-0-2

SCHEME : BAKUM

RIVER SYSTEM : AMBURAYAN | WATER RESOURCES REGION : I | COORDINATES : N16-48-49 E120-38-50
STREAM : BAKUM | PROVINCE : BENGUET | STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	108.3	(MAIN : 108., INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-017-NW-14		
AVER. BASIN RAINFALL	(MM/YR) :	3193.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	304.
AVERAGE DISCHARGE	(M3/S) :	10.1	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	29.2

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER | OUTPUT FACTOR : 0.51

PONDAGE	FULL SUPPLY LEVEL	(EL.M) :	689.2	PONDAGE STORAGE VOL.	(1000M3) :	84.1	
	AVERAGE OPERATING LEVEL	(EL.M) :	688.7	ACTIVE STORAGE VOL.	(1000M3) :	19.1	
	MINIMUM OPERATING LEVEL	(EL.M) :	688.2				
	DRAWDOWN DEPTH	(M) :	1.0				
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) :	689.2	CREST LENGTH	(M) :	60.5	
	WEIR HEIGHT	(M) :	7.2	WEIR CONCRETE VOL.	(1000 M3) :	7.6	
WATERWAY	HEADRACE : LENGTH	(M) :	4650.0	DIAMETER (WIDTH)	(M) :	2.6	NOS. : 1
	PENSTOCK : HORIZONT. L	(M) :	350.0	DIAMETER	(M) :	1.8	NOS. : 1
	EXCAVATION VOL TOTAL	(1000 M3) :	25.8				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) :	10.1	AVERAGE NET HEAD	(M) :	407.0	
	FIRM DISCHARGE	(M3/S) :	0.7	TAILWATER LEVEL	(EL.M) :	267.0	
POWER /ENERGY	INSATLLED CAPACITY	(MW) :	33.9	ANNUAL TOTAL ENERGY	(GWH) :	138.1	
	FIRM POWER	(MW) :	2.2	FIRM ENERGY	(GWH) :	19.5	
	MIN.GUARANTEED POWER	(MW) :	2.0	SECONDARY ENERGY	(GWH) :	118.6	

TRANSMISSION LINE LENGTH (KM) : 18.2 TO : BALAOAN 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 2

ACCESS ROAD LENGTH (KM) : 7.0 FROM : NEAREST PROVINCIAL ROAD

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	26.9	POWER COST	(MIL USD) :	23.1		
TOTAL COST/KW	(USD/KW) :	793.3	TRANSMISSION COST	(MIL USD) :	1.8		
TOTAL COST/KWH	(USD/KWH) :	0.488	ACCESS ROAD COST	(MIL USD) :	2.0		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : FOREST - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3170-III 1970
TECHNICAL COMMENT : NONE

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-010-01-03-0-1

SCHEME : TIBUNEC

RIVER SYSTEM : AMBURAYAN | WATER RESOURCES REGION : 1 | COORDINATES : N16-52-14 E120-33-22
STREAM : BAKUM | PROVINCE : ILOCOS SUR | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	: 241.0	(MAIN : 241., INTER TRANSFER TOTAL	: 0.)	STREAM GAGE ID	: 4-1-017-NW-114		
AVER. BASIN RAINFALL (MM/YR)	: 2970.	DENUDATION RATE (MM/YR)	: 1.4	GAGE CATCHMENT (KM2)	: 304.		
AVERAGE DISCHARGE (M3/S)	: 20.8	EVAPORATION RATE (MM/DAY)	: 3.5	GAGE AVER.DISCHARGE (M3/S)	: 29.2		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.52

RESERVIOR	FULL SUPPLY LEVEL (EL.M)	: 223.5	GROSS STORAGE VOL. (MIL M3)	: 463.6			
	AVERAGE OPERATING LEVEL (EL.M)	: 202.9	ACTIVE STORAGE VOL. (MIL M3)	: 341.8			
	MINIMUM OPERATING LEVEL (EL.M)	: 161.5	DEAD STORAGE VOL. (MIL M3)	: 121.8			
	DRAWDOWN DEPTH (M)	: 62.1	SEDIMENT VOL. (MIL M3)	: 16.9			
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	: 229.5	CREST LENGTH (M)	: 602.6			
	DAM HEIGHT (M)	: 165.5	EMBANKMENT VOL. (MIL M3)	: 15.28			
WATERWAY	HEADRACE : LENGTH (M)	: 440.0	DIAMETER (WIDTH) (M)	: 6.1	NOS.	: 1	
	PENSTOCK : HORIZONT. L (M)	: 190.0	DIAMETER (M)	: 4.6	NOS.	: 1	
	DIVERSION : LENGTH (M)	: 940.0	DIAMETER (M)	: 8.3	NOS.	: 2	
	EXCAVATION VOL TOTAL (1000 M3)	: 119.0					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	: 87.2	AVERAGE NET HEAD (M)	: 136.0			
	FIRM DISCHARGE (M3/S)	: 14.5	TAILWATER LEVEL (EL.M)	: 64.0			
POWER /ENERGY	INSATLLED CAPACITY (MW)	: 97.7	ANNUAL TOTAL ENERGY (GWH)	: 201.9			
	FIRM POWER (MW)	: 16.3	FIRM ENERGY (GWH)	: 142.6			
	MIN.GUARANTEED POWER (MW)	: 64.7	SECONDARY ENERGY (GWH)	: 59.3			

TRANSMISSION LINE LENGTH (KM) : 27.0 TO : BALAOAN 230 K V DOUBLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0. FROM :

CONSTRUCTION COST

TOTAL COST (MIL USD)	: 288.8	POWER COST (MIL USD)	: 283.7		
TOTAL COST/KW (USD/KW)	: 2957.5	TRANSMISSION COST (MIL USD)	: 5.1		
TOTAL COST/KWH (USD/KWH)	: 1.801	ACCESS ROAD COST (MIL USD)	: 0.		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3170-IV
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-010-01-04-0-2

SCHEME : AMBURAYAN

RIVER SYSTEM : AMBURAYAN | WATER RESOURCES REGION : I | COORDINATES : N16-36-53 E120-37-54
STREAM : AMBURAYAN | PROVINCE : BENGUET | STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	339.6	(MAIN : 340.. INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-017-NW-14		
AVER. BASIN RAINFALL	(MM/YR) :	3466.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	304.
AVERAGE DISCHARGE	(M3/S) :	34.7	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	29.2

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER | OUTPUT FACTOR : 0.51

PONDAGE	FULL SUPPLY LEVEL	(EL.M) :	517.3	PONDAGE STORAGE VOL.	(1000M3) :	220.4	
	AVERAGE OPERATING LEVEL	(EL.M) :	516.3	ACTIVE STORAGE VOL.	(1000M3) :	65.5	
	MINIMUM OPERATING LEVEL	(EL.M) :	515.2				
	DRAWDOWN DEPTH	(M) :	2.2				
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) :	517.3	CREST LENGTH	(M) :	67.3	
	WEIR HEIGHT	(M) :	10.3	WEIR CONCRETE VOL.	(1000 M3) :	14.7	
WATERWAY	HEADRACE : LENGTH	(M) :	12800.0	DIAMETER (WIDTH)	(M) :	4.1	NOS. : 1
	PENSTOCK : HORIZONT. L	(M) :	365.0	DIAMETER	(M) :	3.1	NOS. : 1
	EXCAVATION VOL TOTAL	(1000 M3) :	172.1				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) :	34.7	AVERAGE NET HEAD	(M) :	214.2	
	FIRM DISCHARGE	(M3/S) :	2.3	TAILWATER LEVEL	(EL.M) :	280.0	
POWER /ENERGY	INSATLLED CAPACITY	(MW) :	61.1	ANNUAL TOTAL ENERGY	(GWH) :	249.8	
	FIRM POWER	(MW) :	4.0	FIRM ENERGY	(GWH) :	35.1	
	MIN.GUARANTEED POWER	(MW) :	3.6	SECONDARY ENERGY	(GWH) :	214.7	

TRANSMISSION LINE : LENGTH (KM) : 32.8 | TO : LA TRINIDAD | 115 K V SINGLE CIRCUIT | NOS. OF CIRCUIT : 2

ACCESS ROAD LENGTH (KM) : 15.4 | FROM : PROVINCIAL ROAD NEAR KIBUNGA

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	80.7	POWER COST	(MIL USD) :	72.6	
TOTAL COST/KW	(USD/KW) :	1320.4	TRANSMISSION COST	(MIL USD) :	3.7	
TOTAL COST/KWH	(USD/KWH) :	0.811	ACCESS ROAD COST	(MIL USD) :	4.4	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : FOREST - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3170-III - 1970
TECHNICAL COMMENT : - JOINTED AND CAVED LIMESTONE FORMATION AT THE INTAKE WEIR SITE SUSCEPTIBLE TO LEAKAGE FROM PONDAGE
- ONE TRIBUTARY INTAKE

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-011-00-01-0-1

SCHEME : USO

RIVER SYSTEM : CHICO | WATER RESOURCES REGION : 1 | COORDINATES : N16-58-26 E120-32-17
STREAM : CHICO | PROVINCE : ILOCOS SUR | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 114.0	(MAIN : 114., INTER TRANSFER TOTAL : 0.)		STREAM GAGE ID	: 4-1-017-NW-114		
AVER. BASIN RAINFALL	(MM/YR) : 2656.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 304.		
AVERAGE DISCHARGE	(M3/S) : 8.7	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 29.2		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.62

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 205.0	GROSS STORAGE VOL.	(MIL M3) : 272.1			
	AVERAGE OPERATING LEVEL	(EL.M) : 190.4	ACTIVE STORAGE VOL.	(MIL M3) : 170.6			
	MINIMUM OPERATING LEVEL	(EL.M) : 161.3	DEAD STORAGE VOL.	(MIL M3) : 101.5			
	DRAWDOWN DEPTH	(M) : 43.7	SEDIMENT VOL.	(MIL M3) : 8.0			
MAIN DAM	CREST ELEVATION	(EL.M) : 211.0	CREST LENGTH	(M) : 823.5			
(WEIR)	DAM HEIGHT	(M) : 120.0	EMBANKMENT VOL.	(MIL M3) : 14.55			
WATERWAY	HEADRACE : LENGTH	(M) : 580.0	DIAMETER (WIDTH)	(M) : 2.5	NOS. : 1		
	PENSTOCK : HORIZONT. L	(M) : 200.0	DIAMETER	(M) : 2.2	NOS. : 1		
	DIVERSION : LENGTH	(M) : 1220.0	DIAMETER	(M) : 6.7	NOS. : 2		
	EXCAVATION VOL TOTAL	(1000 M3) : 90.2					
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) : 12.8	AVERAGE NET HEAD	(M) : 95.7			
/HEAD	FIRM DISCHARGE	(M3/S) : 6.4	TAILWATER LEVEL	(EL.M) : 91.0			
POWER	INSATLLED CAPACITY	(MW) : 10.1	ANNUAL TOTAL ENERGY	(GWH) : 53.4			
/ENERGY	FIRM POWER	(MW) : 5.0	FIRM ENERGY	(GWH) : 44.2			
	MIN.GUARANTEED POWER	(MW) : 6.7	SECONDARY ENERGY	(GWH) : 9.2			

TRANSMISSION LINE LENGTH (KM) : 40.0 TO : BALAOAN 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0. FROM :

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 225.0	POWER COST	(MIL USD) : 223.5		
TOTAL COST/KW	(USD/KW) : 22307.5	TRANSMISSION COST	(MIL USD) : 1.5		
TOTAL COST/KWH	(USD/KWH) : 4.792	ACCESS ROAD COST	(MIL USD) : 0.		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3170-IV
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-011-00-02-0-2

SCHEME : CHICO-R

RIVER SYSTEM : CHICO | WATER RESOURCES REGION : I | COORDINATES : N16-59-27 E120-35-00
STREAM : CHICO-R | PROVINCE : ILOCOS SUR. | STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	126.3	(MAIN : 126., INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	4-1-017-NW-14		
AVER. BASIN RAINFALL (MM/YR)	2575.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	304.		
AVERAGE DISCHARGE (M3/S)	9.3	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	29.2		

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER | OUTPUT FACTOR : 0.51

PONDAGE	FULL SUPPLY LEVEL (EL.M)	304.3	PONDAGE STORAGE VOL.(1000M3)	65.0			
	AVERAGE OPERATING LEVEL (EL.M)	303.7	ACTIVE STORAGE VOL. (1000M3)	17.6			
	MINIMUM OPERATING LEVEL (EL.M)	303.2					
	DRAWDOWN DEPTH (M)	1.2					
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	304.3	CREST LENGTH (M)	70.8			
	WEIR HEIGHT (M)	7.3	WEIR CONCRETE VOL. (1000 M3)	9.0			
WATERWAY	HEADRACE : LENGTH (M)	10780.0	DIAMETER (WIDTH) (M)	2.5	NOS.	1	
	PENSTOCK : HORIZONT. L (M)	685.0	DIAMETER (M)	1.8	NOS.	1	
	EXCAVATION VOL TOTAL (1000 M3)	55.1					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	9.3	AVERAGE NET HEAD (M)	185.8			
	FIRM DISCHARGE (M3/S)	0.6	TAILWATER LEVEL (EL.M)	96.0			
POWER /ENERGY	INSATLLED CAPACITY (MW)	14.3	ANNUAL TOTAL ENERGY (GWH)	58.2			
	FIRM POWER (MW)	0.9	FIRM ENERGY (GWH)	8.2			
	MIN.GUARANTEED POWER (MW)	0.8	SECONDARY ENERGY (GWH)	50.0			

TRANSMISSION
LINE LENGTH (KM) : 37.0 TO : BALAOAN 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 8.5 FROM : SOYU

CONSTRUCTION COST

TOTAL COST (MIL USD)	31.3	POWER COST (MIL USD)	27.4		
TOTAL COST/KW (USD/KW)	2191.6	TRANSMISSION COST (MIL USD)	1.5		
TOTAL COST/KWH (USD/KWH)	1.347	ACCESS ROAD COST (MIL USD)	2.4		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3170-IV
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-01-0-1

SCHEME : BANAOANG

RIVER SYSTEM : ABRA
STREAM : ABRA
WATER RESOURCES REGION : 1
PROVINCE : ABRA
COORDINATES : N17-33-30 E120-28-18
STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 4766.0	(MAIN : 4766., INTER TRANSFER TOTAL : 0.)	STREAM GAGE ID	: 4-1-008-NW-106
AVER. BASIN RAINFALL	(MM/YR) : 2500.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 2575.
AVERAGE DISCHARGE	(M3/S) : 231.1	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.70

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 77.0	GROSS STORAGE VOL.	(MIL M3) : 7208.4		
	AVERAGE OPERATING LEVEL	(EL.M) : 68.0	ACTIVE STORAGE VOL.	(MIL M3) : 5101.9		
	MINIMUM OPERATING LEVEL	(EL.M) : 50.1	DEAD STORAGE VOL.	(MIL M3) : 2106.5		
	DRAWDOWN DEPTH	(M) : 26.9	SEDIMENT VOL.	(MIL M3) : 333.6		
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) : 83.0	CREST LENGTH	(M) : 415.0		
	DAM HEIGHT	(M) : 75.0	EMBANKMENT VOL.	(MIL M3) : 4.29		
WATERWAY	HEADRACE : LENGTH	(M) : 490.0	DIAMETER (WIDTH)	(M) : 6.2	NOS. : 6
	PENSTOCK : HORIZONT. L	(M) : 180.0	DIAMETER	(M) : 4.9	NOS. : 6
	DIVERSION : LENGTH	(M) : 940.0	DIAMETER	(M) : 8.8	NOS. : 10
	EXCAVATION VOL TOTAL	(1000 M3) : 681.4			
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) : 551.5	AVERAGE NET HEAD	(M) : 58.3	
	FIRM DISCHARGE	(M3/S) : 183.8	TAILWATER LEVEL	(EL.M) : 8.0	
POWER /ENERGY	INSATLLED CAPACITY	(MW) : 264.5	ANNUAL TOTAL ENERGY	(GWH) : 925.0	
	FIRM POWER	(MW) : 88.1	FIRM ENERGY	(GWH) : 772.2	
	MIN.GUARANTEED POWER	(MW) : 174.3	SECONDARY ENERGY	(GWH) : 152.8	

TRANSMISSION LINE : LENGTH (KM) : 24.0 TO : SAN ESTEBAN 230 K V DOUBLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0.5 FROM : BANAOANG

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 447.1	POWER COST	(MIL USD) : 438.9
TOTAL COST/KW	(USD/KW) : 1690.5	TRANSMISSION COST	(MIL USD) : 8.1
TOTAL COST/KWH	(USD/KWH) : 0.547	ACCESS ROAD COST	(MIL USD) : 0.1

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : MIXED - SEVERAL TOWNS IN SUBMERGENCE ARE
SUBMERGED ROAD : NATIONAL ROAD 30.0 KMS.
MAP USED (1:50,000 SCALE) : 3072-I 1978
TECHNICAL COMMENT : - NO PARTICULAR PROBLEM ON GEOLOGIC ASPECT
- NOT PROCEEDED TO 2ND SCREENING TAKING COSTLY COMPENSATION FOR SUBMERGENCE INTO ACCOUNT

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-02-0-1

SCHEME : LANGIDEN

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : I | COORDINATES : N17-40-50 E120-32-30
STREAM : MALAPAAO | PROVINCE : ABRA | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	70.0	(MAIN : 70., INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL (MM/YR)	2250.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	2575.		
AVERAGE DISCHARGE (M3/S)	2.8	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR — RESERVOIR DEVELOPMENT RATIO : 0.65

RESERVIOR	FULL SUPPLY LEVEL (EL.M)	202.0	GROSS STORAGE VOL. (MIL M3)	82.3		
	AVERAGE OPERATING LEVEL (EL.M)	189.8	ACTIVE STORAGE VOL. (MIL M3)	58.2		
	MINIMUM OPERATING LEVEL (EL.M)	165.3	DEAD STORAGE VOL. (MIL M3)	24.1		
	DRAWDOWN DEPTH (M)	36.7	SEDIMENT VOL. (MIL M3)	4.9		
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	206.0	CREST LENGTH (M)	384.0		
	DAM HEIGHT (M)	102.4	EMBANKMENT VOL. (MIL M3)	3.53		
WATERWAY	HEADRACE : LENGTH (M)	450.0	DIAMETER (WIDTH) (M)	2.5	NOS. :	1
	PENSTOCK : HORIZONT. L (M)	150.0	DIAMETER (M)	1.4	NOS. :	1
	DIVERSION : LENGTH (M)	720.0	DIAMETER (M)	8.3	NOS. :	1
	EXCAVATION VOL TOTAL (1000 M3)	41.0				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	4.5	AVERAGE NET HEAD (M)	82.1		
	FIRM DISCHARGE (M3/S)	2.2	TAILWATER LEVEL (EL.M)	105.6		
POWER /ENERGY	INSATLLED CAPACITY (MW)	3.0	ANNUAL TOTAL ENERGY (GWH)	15.3		
	FIRM POWER (MW)	1.5	FIRM ENERGY (GWH)	13.2		
	MIN.GUARANTEED POWER (MW)	2.0	SECONDARY ENERGY (GWH)	2.1		

TRANSMISSION LINE — LENGTH (KM) : 21.0 — TO : BANTAY — 69 K V SINGLE CIRCUIT — NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 12.5 — FROM : MADENG

CONSTRUCTION COST

TOTAL COST (MIL USD)	79.6	POWER COST (MIL USD)	75.1	
TOTAL COST/KW (USD/KW)	26360.7	TRANSMISSION COST (MIL USD)	1.0	
TOTAL COST/KWH (USD/KWH)	5.750	ACCESS ROAD COST (MIL USD)	3.6	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-03-0-1

SCHEME : BANDI

RIVER SYSTEM : ABRA
STREAM : SAQUET-SOOT
WATER RESOURCES REGION : I
PROVINCE : ABRA
COORDINATES : N17-43-10 E120-38-40
STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 85.7	(MAIN : 86., INTER TRANSFER TOTAL : 0.)		STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL	(MM/YR) : 2250.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 2575.*		
AVERAGE DISCHARGE	(M3/S) : 3.5	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.73

RESERVIOR	FULL SUPPLY LEVEL	(EL,M) : 178.0	GROSS STORAGE VOL.	(MIL M3) : 110.0			
	AVERAGE OPERATING LEVEL	(EL,M) : 166.5	ACTIVE STORAGE VOL.	(MIL M3) : 80.0			
	MINIMUM OPERATING LEVEL	(EL,M) : 143.6	DEAD STORAGE VOL.	(MIL M3) : 29.9			
	DRAWDOWN DEPTH	(M) : 34.4	SEDIMENT VOL.	(MIL M3) : 6.0			
MAIN DAM (WEIR)	CREST ELEVATION	(EL,M) : 184.0	CREST LENGTH	(M) : 870.7			
	DAM HEIGHT	(M) : 87.0	EMBANKMENT VOL.	(MIL M3) : 12.35			
WATERWAY	HEADRACE : LENGTH	(M) : 670.0	DIAMETER (WIDTH)	(M) : 2.5	NOS. : 1		
	PENSTOCK : HORIZONT. L	(M) : 140.0	DIAMETER	(M) : 1.6	NOS. : 1		
	DIVERSION : LENGTH	(M) : 870.0	DIAMETER	(M) : 8.8	NOS. : 1		
	EXCAVATION VOL TOTAL	(1000 M3) : 55.9					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) : 5.7	AVERAGE NET HEAD	(M) : 67.6			
	FIRM DISCHARGE	(M3/S) : 2.8	TAILWATER LEVEL	(EL,M) : 97.0			
POWER /ENERGY	INSATLLED CAPACITY	(MW) : 3.1	ANNUAL TOTAL ENERGY	(GWH) : 15.6			
	FIRM POWER	(MW) : 1.6	FIRM ENERGY	(GWH) : 13.8			
	MIN.GUARANTEED POWER	(MW) : 2.0	SECONDARY ENERGY	(GWH) : 1.9			

TRANSMISSION LINE : LENGTH (KM) : 35.0 TO : BANTAY 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0.5 FROM : BANDI

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 182.1	POWER COST	(MIL USD) : 180.6		
TOTAL COST/KW	(USD/KW) : 57849.3	TRANSMISSION COST	(MIL USD) : 1.4		
TOTAL COST/KWH	(USD/KWH) : 12.696	ACCESS ROAD COST	(MIL USD) : 0.1		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-04-0-1

SCHEME : ALIP

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : I | COORDINATES : N17-47-00 E120-42-20
STREAM : PALSIGUAN | PROVINCE : ABRA | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 188.6	(MAIN : 189., INTER TRANSFER TOTAL : 0.)		STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL	(MM/YR) : 2729.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 2575.		
AVERAGE DISCHARGE	(M3/S) : 10.5	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.75

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 293.0	GROSS STORAGE VOL.	(MIL M3) : 332.7			
	AVERAGE OPERATING LEVEL	(EL.M) : 273.1	ACTIVE STORAGE VOL.	(MIL M3) : 248.7			
	MINIMUM OPERATING LEVEL	(EL.M) : 233.4	DEAD STORAGE VOL.	(MIL M3) : 84.0			
	DRAWDOWN DEPTH	(M) : 59.6	SEDIMENT VOL.	(MIL M3) : 13.2			
MAIN DAM	CREST ELEVATION	(EL.M) : 299.0	CREST LENGTH	(M) : 338.3			
(WEIR)	DAM HEIGHT	(M) : 147.7	EMBANKMENT VOL.	(MIL M3) : 8.29			
WATERWAY	HEADRACE : LENGTH	(M) : 470.0	DIAMETER (WIDTH)	(M) : 2.7	NOS. : 1		
	PENSTOCK : HORIZONT. L	(M) : 160.0	DIAMETER	(M) : 2.4	NOS. : 1		
	DIVERSION : LENGTH	(M) : 1380.0	DIAMETER	(M) : 7.8	NOS. : 2		
	EXCAVATION VOL TOTAL	(1000 M3) : 134.3					
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) : 17.5	AVERAGE NET HEAD	(M) : 118.1			
/HEAD	FIRM DISCHARGE	(M3/S) : 8.7	TAILWATER LEVEL	(EL.M) : 151.3			
POWER	INSATLLED CAPACITY	(MW) : 17.0	ANNUAL TOTAL ENERGY	(GWH) : 83.3			
/ENERGY	FIRM POWER	(MW) : 8.5	FIRM ENERGY	(GWH) : 74.5			
	MIN.GUARANTEED POWER	(MW) : 10.7	SECONDARY ENERGY	(GWH) : 8.8			

TRANSMISSION LINE : LENGTH (KM) : 10.0 | TO : BANGUED | 69 K V SINGLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 8.0 | FROM : LAGAYAN

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 174.4	POWER COST	(MIL USD) : 171.5		
TOTAL COST/KW	(USD/KW) : 10257.4	TRANSMISSION COST	(MIL USD) : 0.6		
TOTAL COST/KWH	(USD/KWH) : 2.261	ACCESS ROAD COST	(MIL USD) : 2.3		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-05-0-1

SCHEME : SUPO

RIVER SYSTEM : ABRA
STREAM : ABRA
WATER RESOURCES REGION : I
PROVINCE : ILOCOS SUR
COORDINATES : N17-14-42 E120-40-36
STUDY LEVEL : UNSCALED (PRE-F/S.RECONNAISSANCE)

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	1134.0	(MAIN : 1134., INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-008-NW-106
AVER. BASIN RAINFALL (MM/YR)	2750.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	2575.
AVERAGE DISCHARGE (M3/S)	64.0	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.43

RESERVIOR	FULL SUPPLY LEVEL	(EL.M)	320.0	GROSS STORAGE VOL.	(MIL M3)	1131.6	
	AVERAGE OPERATING LEVEL	(EL.M)	306.3	ACTIVE STORAGE VOL.	(MIL M3)	868.0	
	MINIMUM OPERATING LEVEL	(EL.M)	278.8	DEAD STORAGE VOL.	(MIL M3)	263.6	
	DRAWDOWN DEPTH	(M)	41.2	SEDIMENT VOL.	(MIL M3)	79.4	
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M)	326.0	CREST LENGTH	(M)	365.0	
	DAM HEIGHT	(M)	122.0	EMBANKMENT VOL.	(MIL M3)	5.69	
WATERWAY	HEADRACE : LENGTH	(M)	500.0	DIAMETER (WIDTH)	(M)	6.1	NOS. : 2
	PENSTOCK : HORIZONT. L	(M)	200.0	DIAMETER	(M)	4.6	NOS. : 2
	DIVERSION : LENGTH	(M)	750.0	DIAMETER	(M)	8.2	NOS. : 5
	EXCAVATION VOL TOTAL (1000 M3)		235.7				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S)	173.0	AVERAGE NET HEAD	(M)	99.8	
	FIRM DISCHARGE	(M3/S)	43.3	TAILWATER LEVEL	(EL.M)	204.0	
POWER /ENERGY	INSATLLED CAPACITY	(MW)	142.1	ANNUAL TOTAL ENERGY	(GWH)	438.4	
	FIRM POWER	(MW)	35.5	FIRM ENERGY	(GWH)	311.2	
	MIN.GUARANTEED POWER	(MW)	98.1	SECONDARY ENERGY	(GWH)	127.2	

TRANSMISSION LINE : LENGTH (KM) : 31.7 TO : SAN ESTEBAN 230 K V DOUBLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 3.1 FROM : NEAREST PROVINCIAL ROAD

CONSTRUCTION COST

TOTAL COST	(MIL USD)	249.9	POWER COST	(MIL USD)	243.2
TOTAL COST/KW	(USD/KW)	1758.7	TRANSMISSION COST	(MIL USD)	5.8
TOTAL COST/KWH	(USD/KWH)	0.715	ACCESS ROAD COST	(MIL USD)	0.9

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : FOREST - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3171-IV 1979
TECHNICAL COMMENT : - ACTUAL C.A. AT SUPO DAMSITE (1293 SQ. KMS.) IS ADUSTED TO 1134. SQ. KMS. TAKING ACCOUNT OF 9.0 CMS OF IRRIGATION REQUIREMENT TO BE DIVERTED AT UPSTREAM OF SUPO SITE.

I N V E N T O R Y O F H Y D R O P O W E R S I T E S

SCHEME ID : 1-022-00-06-0-1

SCHEME : ETEB

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : 1 | COORDINATES : N17-10-42 E120-40-22
STREAM : ABRA | PROVINCE : ILOCOS SUR | STUDY LEVEL : UNSCALED (PRE-F/S.RECONNAISSANCE)

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	911.0	(MAIN ; 911., INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL	(MM/YR) :	2750.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	2575.
AVERAGE DISCHARGE	(M3/S) :	51.4	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.60

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) :	371.0	GROSS STORAGE VOL.	(MIL M3) :	1626.2		
	AVERAGE OPERATING LEVEL	(EL.M) :	357.8	ACTIVE STORAGE VOL.	(MIL M3) :	972.5		
	MINIMUM OPERATING LEVEL	(EL.M) :	331.4	DEAD STORAGE VOL.	(MIL M3) :	653.7		
	DRAWDOWN DEPTH	(M) :	39.6	SEDIMENT VOL.	(MIL M3) :	63.8		
MAIN DAM	CREST ELEVATION	(EL.M) :	377.0	CREST LENGTH	(M) :	461.8		
(WEIR)	DAM HEIGHT	(M) :	104.0	EMBANKMENT VOL.	(MIL M3) :	6.06		
WATERWAY	HEADRACE : LENGTH	(M) :	460.0	DIAMETER (WIDTH)	(M) :	5.8	NOS. :	2
	PENSTOCK : HORIZONT. L	(M) :	220.0	DIAMETER	(M) :	4.5	NOS. :	2
	DIVERSION : LENGTH	(M) :	970.0	DIAMETER	(M) :	8.6	NOS. :	4
	EXCAVATION VOL TOTAL	(1000 M3) :	259.0					
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) :	157.8	AVERAGE NET HEAD	(M) :	82.5		
/HEAD	FIRM DISCHARGE	(M3/S) :	39.4	TAILWATER LEVEL	(EL.M) :	273.0		
POWER	INSATLLED CAPACITY	(MW) :	107.1	ANNUAL TOTAL ENERGY	(GWH) :	296.4		
/ENERGY	FIRM POWER	(MW) :	26.8	FIRM ENERGY	(GWH) :	234.6		
	MIN.GUARANTEED POWER	(MW) :	69.3	SECONDARY ENERGY	(GWH) :	61.9		

TRANSMISSION LINE : LENGTH (KM) : 36.5 | TO : SAN ESTEBAN | 230 K V DOUBLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 0.2 | FROM : NEAREST PROVINCIAL ROAD

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	239.4	POWER COST	(MIL USD) :	232.9	
TOTAL COST/KW	(USD/KW) :	2235.6	TRANSMISSION COST	(MIL USD) :	6.5	
TOTAL COST/KWH	(USD/KWH) :	0.946	ACCESS ROAD COST	(MIL USD) :	0.1	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : MIXED - SCARCE POPULATION
SUBMERGED ROAD : PROVINCIAL ROAD 0.2 KMS.
MAP USED (1:50,000 SCALE) : 3171-IV 1979
TECHNICAL COMMENT : - NONE

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-07-0-1

SCHEME : BUCNIT

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : I | COORDINATES : N17-05-18 E120-44-00
STREAM : ABRA | PROVINCE : ILOCOS SUR | STUDY LEVEL : UNSCALED (PRE-F/S.RECONNAISSANCE)

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	589.0	(MAIN : 589., INTER TRANSFER TOTAL :	0.)	STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL	(MM/YR) :	2750.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	2575.
AVERAGE DISCHARGE	(M3/S) :	33.2	EVAPORATION RATE	(MM/DAY) :	3.5	GAGE AVER.DISCHARGE	(M3/S) :	134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.65

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) :	460.0	GROSS STORAGE VOL.	(MIL M3) :	1036.5		
	AVERAGE OPERATING LEVEL	(EL.M) :	447.0	ACTIVE STORAGE VOL.	(MIL M3) :	681.2		
	MINIMUM OPERATING LEVEL	(EL.M) :	420.9	DEAD STORAGE VOL.	(MIL M3) :	355.3		
	DRAWDOWN DEPTH	(M) :	39.1	SEDIMENT VOL.	(MIL M3) :	41.2		
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) :	466.0	CREST LENGTH	(M) :	878.2		
	DAM HEIGHT	(M) :	136.0	EMBANKMENT VOL.	(MIL M3) :	16.85		
WATERWAY	HEADRACE : LENGTH	(M) :	580.0	DIAMETER (WIDTH)	(M) :	5.8	NOS. :	2
	PENSTOCK : HORIZONT. L	(M) :	150.0	DIAMETER	(M) :	4.4	NOS. :	2
	DIVERSION : LENGTH	(M) :	970.0	DIAMETER	(M) :	8.8	NOS. :	3
	EXCAVATION VOL TOTAL	(1000 M3) :	212.9					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) :	157.3	AVERAGE NET HEAD	(M) :	114.4		
	FIRM DISCHARGE	(M3/S) :	26.2	TAILWATER LEVEL	(EL.M) :	330.0		
POWER /ENERGY	INSATLLED CAPACITY	(MW) :	148.1	ANNUAL TOTAL ENERGY	(GWH) :	269.9		
	FIRM POWER	(MW) :	24.7	FIRM ENERGY	(GWH) :	216.2		
	MIN.GUARANTEED POWER	(MW) :	108.9	SECONDARY ENERGY	(GWH) :	53.7		

TRANSMISSION LINE : LENGTH (KM) : 50.0 | TO : SAN ESTEBAN | 230 K V DOUBLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 15.0 | FROM : CERVANTES

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	362.2	POWER COST	(MIL USD) :	349.5
TOTAL COST/KW	(USD/KW) :	2446.1	TRANSMISSION COST	(MIL USD) :	8.4
TOTAL COST/KWH	(USD/KWH) :	1.559	ACCESS ROAD COST	(MIL USD) :	4.3

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50.000 SCALE) : 3171-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-08-0-1

SCHEME : UPPER BUCNIT

RIVER SYSTEM : ABRA
STREAM : ABRA
WATER RESOURCES REGION : I
PROVINCE : ILOCOS SUR
COORDINATES : N17-03-30 E120-44-45
STUDY LEVEL : UNSCALED (PRE-F/S.RECONNAISSANCE)

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 572.0	(MAIN ; 572., INTER TRANSFER TOTAL : 0.)				STREAM GAGE ID	: 4-1-008-NW-106
AVER. BASIN RAINFALL	(MM/YR) : 2750.	DENUDATION RATE	(MM/YR) : 1.4			GAGE CATCHMENT	(KM2) : 2575.
AVERAGE DISCHARGE	(M3/S) : 32.3	EVAPORATION RATE	(MM/DAY) : 3.5			GAGE AVER.DISCHARGE	(M3/S) : 134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.70

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 473.0	GROSS STORAGE VOL.	(MIL M3) : 1020.4			
	AVERAGE OPERATING LEVEL	(EL.M) : 459.9	ACTIVE STORAGE VOL.	(MIL M3) : 712.4			
	MINIMUM OPERATING LEVEL	(EL.M) : 433.7	DEAD STORAGE VOL.	(MIL M3) : 308.0			
	DRAWDOWN DEPTH	(M) : 39.3	SEDIMENT VOL.	(MIL M3) : 40.0			
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) : 479.0	CREST LENGTH	(M) : 675.6			
	DAM HEIGHT	(M) : 119.0	EMBANKMENT VOL.	(MIL M3) : 10.90			
WATERWAY	HEADRACE : LENGTH	(M) : 700.0	DIAMETER (WIDTH)	(M) : 5.7	NOS. : 2		
	PENSTOCK : HORIZONT. L	(M) : 270.0	DIAMETER	(M) : 4.5	NOS. : 2		
	DIVERSION : LENGTH	(M) : 1250.0	DIAMETER	(M) : 8.7	NOS. : 3		
	EXCAVATION VOL TOTAL	(1000 M3) : 269.6					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) : 156.0	AVERAGE NET HEAD	(M) : 96.9			
	FIRM DISCHARGE	(M3/S) : 26.0	TAILWATER LEVEL	(EL.M) : 360.0			
POWER /ENERGY	INSATLLED CAPACITY	(MW) : 124.4	ANNUAL TOTAL ENERGY	(GWH) : 223.1			
	FIRM POWER	(MW) : 20.7	FIRM ENERGY	(GWH) : 181.6			
	MIN.GUARANTEED POWER	(MW) : 86.4	SECONDARY ENERGY	(GWH) : 41.4			

TRANSMISSION LINE : LENGTH (KM) : 53.0 TO : SAN ESTEBAN 230 K V DOUBLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 10.5 FROM : CERVANTES

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 306.1	POWER COST	(MIL USD) : 294.3		
TOTAL COST/KW	(USD/KW) : 2461.0	TRANSMISSION COST	(MIL USD) : 8.9		
TOTAL COST/KWH	(USD/KWH) : 1.578	ACCESS ROAD COST	(MIL USD) : 3.0		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50.000 SCALE) : 3171-III
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-09-0-1

SCHEME : DAYAPAN

RIVER SYSTEM : ABRA
STREAM : ABRA
WATER RESOURCES REGION : I
PROVINCE : ILOCOS SUR
COORDINATES : N16-55-10 E120-44-12
STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	162.0	(MAIN : 162.. INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL (MM/YR)	3166.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	2575.		
AVERAGE DISCHARGE (M3/S)	11.3	EVAPORATION RATE (MM/DAY)	3.0	GAGE AVER.DISCHARGE (M3/S)	134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.70

RESERVOIR	FULL SUPPLY LEVEL (EL.M)	746.0	GROSS STORAGE VOL. (MIL M3)	354.1		
	AVERAGE OPERATING LEVEL (EL.M)	721.4	ACTIVE STORAGE VOL. (MIL M3)	248.9		
	MINIMUM OPERATING LEVEL (EL.M)	672.1	DEAD STORAGE VOL. (MIL M3)	105.1		
	DRAWDOWN DEPTH (M)	73.9	SEDIMENT VOL. (MIL M3)	11.3		
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	752.0	CREST LENGTH (M)	595.2		
	DAM HEIGHT (M)	196.0	EMBANKMENT VOL. (MIL M3)	23.13		
WATERWAY	HEADRACE : LENGTH (M)	1060.0	DIAMETER (WIDTH) (M)	2.8	NOS. :	1
	PENSTOCK : HORIZONT. L (M)	430.0	DIAMETER (M)	2.4	NOS. :	1
	DIVERSION : LENGTH (M)	1410.0	DIAMETER (M)	7.4	NOS. :	2
	EXCAVATION VOL TOTAL (1000 M3)	131.0				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	18.5	AVERAGE NET HEAD (M)	157.7		
	FIRM DISCHARGE (M3/S)	9.2	TAILWATER LEVEL (EL.M)	556.0		
POWER /ENERGY	INSATLLED CAPACITY (MW)	23.9	ANNUAL TOTAL ENERGY (GWH)	118.4		
	FIRM POWER (MW)	12.0	FIRM ENERGY (GWH)	104.9		
	MIN.GUARANTEED POWER (MW)	15.7	SECONDARY ENERGY (GWH)	13.5		

TRANSMISSION LINE LENGTH (KM) : 12.0 TO : QUINAOANG 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 4.0 FROM : CAMAY

CONSTRUCTION COST

TOTAL COST (MIL USD)	337.3	POWER COST (MIL USD)	335.4		
TOTAL COST/KW (USD/KW)	14063.3	TRANSMISSION COST (MIL USD)	0.7		
TOTAL COST/KWH (USD/KWH)	3.096	ACCESS ROAD COST (MIL USD)	1.1		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3170-IV
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-00-10-0-2

SCHEME : ABRA

RIVER SYSTEM : ABRA
STREAM : ABRA
WATER RESOURCES REGION : I
PROVINCE : BENGUET
COORDINATES : N16-50-44 E120-43-52
STUDY LEVEL : NEWLY IDENTIFIED THROUGH LHPPS

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 107.1	(MAIN : 107., INTER TRANSFER TOTAL : 0.)			STREAM GAGE ID	: 4-1-008-NW-106	
AVER. BASIN RAINFALL	(MM/YR) : 3000.	DENUDATION RATE	(MM/YR) : 1.4		GAGE CATCHMENT	(KM2) : 2575.	
AVERAGE DISCHARGE	(M3/S) : 6.9	EVAPORATION RATE	(MM/DAY) : 3.5		GAGE AVER.DISCHARGE	(M3/S) : 134.6	

SELECTED PLAN

TYPE OF DEVELOPMENT : RUN-OF-RIVER — OUTPUT FACTOR : 0.57

PONDAGE	FULL SUPPLY LEVEL	(EL.M) : 804.3	PONDAGE STORAGE VOL.	(1000M3) : 75.9		
	AVERAGE OPERATING LEVEL	(EL.M) : 803.6	ACTIVE STORAGE VOL.	(1000M3) : 25.9		
	MINIMUM OPERATING LEVEL	(EL.M) : 802.9				
	DRAWDOWN DEPTH	(M) : 1.5				
MAIN DAM	CREST ELEVATION	(EL.M) : 804.3	CREST LENGTH	(M) : 63.0		
(WEIR)	WEIR HEIGHT	(M) : 7.3	WEIR CONCRETE VOL.	(1000 M3) : 8.1		
WATERWAY	HEADRACE : LENGTH	(M) : 6000.0	DIAMETER (WIDTH)	(M) : 2.2	NOS. :	1
	PENSTOCK : HORIZONT. L	(M) : 360.0	DIAMETER	(M) : 1.6	NOS. :	1
	EXCAVATION VOL TOTAL	(1000 M3) : 23.4				
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) : 6.9	AVERAGE NET HEAD	(M) : 189.2		
/HEAD	FIRM DISCHARGE	(M3/S) : 0.9	TAILWATER LEVEL	(EL.M) : 600.0		
POWER	INSATLLED CAPACITY	(MW) : 10.7	ANNUAL TOTAL ENERGY	(GWH) : 49.8		
/ENERGY	FIRM POWER	(MW) : 1.4	FIRM ENERGY	(GWH) : 12.3		
	MIN.GUARANTEED POWER	(MW) : 1.3	SECONDARY ENERGY	(GWH) : 37.5		

TRANSMISSION LINE — LENGTH (KM) : 8.0 — TO : QUINAOANG — 69 K V SINGLE CIRCUIT — NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 10.0 — FROM : NEAREST NATIONAL ROAD

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 18.5	POWER COST	(MIL USD) : 15.1	
TOTAL COST/KW	(USD/KW) : 1724.5	TRANSMISSION COST	(MIL USD) : 0.6	
TOTAL COST/KWH	(USD/KWH) : 0.788	ACCESS ROAD COST	(MIL USD) : 2.9	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA : MIXED - SCARCE POPULATION
SUBMERGED ROAD : NONE
MAP USED (1:50,000 SCALE) : 3170-IV 1970
TECHNICAL COMMENT : - NONE

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-01-11-0-1

SCHEME : NAGLIBACAN

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : I | COORDINATES : N17-51-30 E120-53-00
STREAM : ANAYAN | PROVINCE : ABRA | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA (KM2)	128.3	(MAIN : 128.. INTER TRANSFER TOTAL	0.)	STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL (MM/YR)	2750.	DENUDATION RATE (MM/YR)	1.4	GAGE CATCHMENT (KM2)	2575.		
AVERAGE DISCHARGE (M3/S)	7.2	EVAPORATION RATE (MM/DAY)	3.5	GAGE AVER.DISCHARGE (M3/S)	134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.75

RESERVIOR	FULL SUPPLY LEVEL (EL.M)	494.0	GROSS STORAGE VOL. (MIL M3)	226.2		
	AVERAGE OPERATING LEVEL (EL.M)	475.3	ACTIVE STORAGE VOL. (MIL M3)	171.2		
	MINIMUM OPERATING LEVEL (EL.M)	437.9	DEAD STORAGE VOL. (MIL M3)	55.0		
	DRAWDOWN DEPTH (M)	56.1	SEDIMENT VOL. (MIL M3)	9.0		
MAIN DAM (WEIR)	CREST ELEVATION (EL.M)	500.0	CREST LENGTH (M)	426.7		
	DAM HEIGHT (M)	150.0	EMBANKMENT VOL. (MIL M3)	8.52		
WATERWAY	HEADRACE : LENGTH (M)	540.0	DIAMETER (WIDTH) (M)	2.5	NOS. :	1
	PENSTOCK : HORIZONT. L (M)	120.0	DIAMETER (M)	2.1	NOS. :	1
	DIVERSION : LENGTH (M)	1100.0	DIAMETER (M)	7.0	NOS. :	2
	EXCAVATION VOL TOTAL (1000 M3)	86.6				
DISCHARGE /HEAD	PLANT MAX. DISCHARGE (M3/S)	12.0	AVERAGE NET HEAD (M)	121.9		
	FIRM DISCHARGE (M3/S)	6.0	TAILWATER LEVEL (EL.M)	350.0		
POWER /ENERGY	INSATLLED CAPACITY (MW)	12.1	ANNUAL TOTAL ENERGY (GWH)	59.1		
	FIRM POWER (MW)	6.0	FIRM ENERGY (GWH)	52.8		
	MIN.GUARANTEED POWER (MW)	8.0	SECONDARY ENERGY (GWH)	6.2		

TRANSMISSION LINE : LENGTH (KM) : 27.0 | TO : HMOI | 69 K V SINGLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 38.0 | FROM : SAN JUAN

CONSTRUCTION COST

TOTAL COST (MIL USD)	171.7	POWER COST (MIL USD)	159.7		
TOTAL COST/KW (USD/KW)	14227.5	TRANSMISSION COST (MIL USD)	1.2		
TOTAL COST/KWH (USD/KWH)	3.137	ACCESS ROAD COST (MIL USD)	10.8		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-I
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-01-12-0-1

SCHEME : TINEG-1

RIVER SYSTEM : ABRA
STREAM : TINEG
WATER RESOURCES REGION : I
PROVINCE : ABRA
COORDINATES : N17-47-00 E120-47-00
STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 992.4	(MAIN : 992., INTER TRANSFER TOTAL : 0.)				STREAM GAGE ID	: 4-1-008-NW-105
AVER. BASIN RAINFALL	(MM/YR) : 2750.	DENUDATION RATE	(MM/YR) : 1.4			GAGE CATCHMENT	(KM2) : 2575.
AVERAGE DISCHARGE	(M3/S) : 56.0	EVAPORATION RATE	(MM/DAY) : 3.5			GAGE AVER.DISCHARGE	(M3/S) : 134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.75

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 324.0	GROSS STORAGE VOL.	(MIL M3) : 1777.5			
	AVERAGE OPERATING LEVEL	(EL.M) : 299.1	ACTIVE STORAGE VOL.	(MIL M3) : 1324.3			
	MINIMUM OPERATING LEVEL	(EL.M) : 249.4	DEAD STORAGE VOL.	(MIL M3) : 453.2			
	DRAWDOWN DEPTH	(M) : 74.6	SEDIMENT VOL.	(MIL M3) : 69.5			
MAIN DAM (WEIR)	CREST ELEVATION	(EL.M) : 330.0	CREST LENGTH	(M) : 840.0			
	DAM HEIGHT	(M) : 193.7	EMBANKMENT VOL.	(MIL M3) : 30.07			
WATERWAY	HEADRACE : LENGTH	(M) : 910.0	DIAMETER (WIDTH)	(M) : 6.3		NOS. :	3
	PENSTOCK : HORIZONT. L	(M) : 160.0	DIAMETER	(M) : 4.7		NOS. :	3
	DIVERSION : LENGTH	(M) : 1400.0	DIAMETER	(M) : 8.9		NOS. :	4
	EXCAVATION VOL TOTAL	(1000 M3) : 439.8					
DISCHARGE /HEAD	PLANT MAX. DISCHARGE	(M3/S) : 280.5	AVERAGE NET HEAD	(M) : 159.4			
	FIRM DISCHARGE	(M3/S) : 46.7	TAILWATER LEVEL	(EL.M) : 136.3			
POWER /ENERGY	INSATLLED CAPACITY	(MW) : 367.9	ANNUAL TOTAL ENERGY	(GWH) : 639.5			
	FIRM POWER	(MW) : 61.3	FIRM ENERGY	(GWH) : 537.2			
	MIN.GUARANTEED POWER	(MW) : 241.1	SECONDARY ENERGY	(GWH) : 102.3			

TRANSMISSION LINE : LENGTH (KM) : 15.0 TO : NEW S/S (SAN ESTEBAN-BATONG 230 K V DOUBLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 16.0 FROM : LAGAYAN

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 628.7	POWER COST	(MIL USD) : 618.6	
TOTAL COST/KW	(USD/KW) : 1708.6	TRANSMISSION COST	(MIL USD) : 5.5	
TOTAL COST/KWH	(USD/KWH) : 1.107	ACCESS ROAD COST	(MIL USD) : 4.6	

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-11
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-01-13-0-1

SCHEME : TINEG-2

RIVER SYSTEM : ABRA | WATER RESOURCES REGION : I | COORDINATES : N17-48-30 E120-52-00
STREAM : TINEG | PROVINCE : ABRA | STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) : 317.9	(MAIN : 318., INTER TRANSFER TOTAL : 0.)		STREAM GAGE ID	: 4-1-008-NW-106		
AVER. BASIN RAINFALL	(MM/YR) : 2750.	DENUDATION RATE	(MM/YR) : 1.4	GAGE CATCHMENT	(KM2) : 2575.		
AVERAGE DISCHARGE	(M3/S) : 17.9	EVAPORATION RATE	(MM/DAY) : 3.5	GAGE AVER.DISCHARGE	(M3/S) : 134.6		

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR | RESERVOIR DEVELOPMENT RATIO : 0.55

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) : 492.5	GROSS STORAGE VOL.	(MIL M3) : 418.4			
	AVERAGE OPERATING LEVEL	(EL.M) : 468.3	ACTIVE STORAGE VOL.	(MIL M3) : 311.1			
	MINIMUM OPERATING LEVEL	(EL.M) : 419.7	DEAD STORAGE VOL.	(MIL M3) : 107.3			
	DRAWDOWN DEPTH	(M) : 72.9	SEDIMENT VOL.	(MIL M3) : 22.3			
MAIN DAM	CREST ELEVATION	(EL.M) : 498.5	CREST LENGTH	(M) : 644.5			
(WEIR)	DAM HEIGHT	(M) : 198.5	EMBANKMENT VOL.	(MIL M3) : 19.40			
WATERWAY	HEADRACE : LENGTH	(M) : 840.0	DIAMETER (WIDTH)	(M) : 5.8	NOS. : 1		
	PENSTOCK : HORIZONT. L	(M) : 260.0	DIAMETER	(M) : 4.4	NOS. : 1		
	DIVERSION : LENGTH	(M) : 1470.0	DIAMETER	(M) : 7.4	NOS. : 3		
	EXCAVATION VOL TOTAL	(1000 M3) : 215.1					
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) : 80.6	AVERAGE NET HEAD	(M) : 164.2			
/HEAD	FIRM DISCHARGE	(M3/S) : 13.4	TAILWATER LEVEL	(EL.M) : 300.0			
POWER	INSATLLED CAPACITY	(MW) : 108.9	ANNUAL TOTAL ENERGY	(GWH) : 210.0			
/ENERGY	FIRM POWER	(MW) : 18.1	FIRM ENERGY	(GWH) : 159.0			
	MIN.GUARANTEED POWER	(MW) : 73.0	SECONDARY ENERGY	(GWH) : 51.0			

TRANSMISSION LINE : LENGTH (KM) : 27.0 | TO : HMOI | 230 K V DOUBLE CIRCUIT | NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 36.0 | FROM : SAN JUAN

CONSTRUCTION COST

TOTAL COST	(MIL USD) : 371.9	POWER COST	(MIL USD) : 356.6		
TOTAL COST/KW	(USD/KW) : 3416.3	TRANSMISSION COST	(MIL USD) : 5.1		
TOTAL COST/KWH	(USD/KWH) : 2.134	ACCESS ROAD COST	(MIL USD) : 10.3		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-II
TECHNICAL COMMENT :

INVENTORY OF HYDROPOWER SITES

SCHEME ID : 1-022-01-14-0-1

SCHEME : TINEG-3

RIVER SYSTEM : ABRA
STREAM : TINEG
WATER RESOURCES REGION : 1
PROVINCE : ABRA
COORDINATES : N17-47-20 E120-57-35
STUDY LEVEL : IDENTIFIED IN THE PREVIOUS STUDY

HYDRO/TOPO. INFORMATION

CATCHMENT AREA	(KM2) :	235.1	(MAIN : 235., INTER TRANSFER TOTAL :		0.)	STREAM GAGE ID		: 4-1-008-NW-106
AVER. BASIN RAINFALL	(MM/YR) :	2500.	DENUDATION RATE	(MM/YR) :	1.4	GAGE CATCHMENT	(KM2) :	2575.
AVERAGE DISCHARGE	(M3/S) :	11.4	EVAPORATION RATE	(MM/DAY) :	3.0	GAGE AVER.DISCHARGE	(M3/S) :	134.6

SELECTED PLAN

TYPE OF DEVELOPMENT : RESERVOIR
RESERVOIR DEVELOPMENT RATIO : 0.75

RESERVIOR	FULL SUPPLY LEVEL	(EL.M) :	645.0	GROSS STORAGE VOL.	(MIL M3) :	362.0	
	AVERAGE OPERATING LEVEL	(EL.M) :	626.5	ACTIVE STORAGE VOL.	(MIL M3) :	269.6	
	MINIMUM OPERATING LEVEL	(EL.M) :	589.6	DEAD STORAGE VOL.	(MIL M3) :	92.3	
	DRAWDOWN DEPTH	(M) :	55.4	SEDIMENT VOL.	(MIL M3) :	16.5	
MAIN DAM	CREST ELEVATION	(EL.M) :	651.0	CREST LENGTH	(M) :	749.6	
(WEIR)	DAM HEIGHT	(M) :	143.8	EMBANKMENT VOL.	(MIL M3) :	13.93	
WATERWAY	HEADRACE : LENGTH	(M) :	400.0	DIAMETER (WIDTH)	(M) :	2.8	NOS. : 1
	PENSTOCK : HORIZONT. L	(M) :	470.0	DIAMETER	(M) :	2.5	NOS. : 1
	DIVERSION : LENGTH	(M) :	1400.0	DIAMETER	(M) :	8.3	NOS. : 2
	EXCAVATION VOL TOTAL	(1000 M3) :	155.4				
DISCHARGE	PLANT MAX. DISCHARGE	(M3/S) :	19.0	AVERAGE NET HEAD	(M) :	114.3	
/HEAD	FIRM DISCHARGE	(M3/S) :	9.5	TAILWATER LEVEL	(EL.M) :	507.2	
POWER	INSATLLED CAPACITY	(MW) :	17.9	ANNUAL TOTAL ENERGY	(GWH) :	87.3	
/ENERGY	FIRM POWER	(MW) :	8.9	FIRM ENERGY	(GWH) :	78.2	
	MIN.GUARANTEED POWER	(MW) :	11.5	SECONDARY ENERGY	(GWH) :	9.1	

TRANSMISSION
LINE LENGTH (KM) : 39.0 TO : HMO1 69 K V SINGLE CIRCUIT NOS. OF CIRCUIT : 1

ACCESS ROAD LENGTH (KM) : 51.0 FROM : SAN JUAN

CONSTRUCTION COST

TOTAL COST	(MIL USD) :	257.0	POWER COST	(MIL USD) :	241.0		
TOTAL COST/KW	(USD/KW) :	14395.6	TRANSMISSION COST	(MIL USD) :	1.5		
TOTAL COST/KWH	(USD/KWH) :	3.175	ACCESS ROAD COST	(MIL USD) :	14.5		

OTHER INFORMATION

LAND USE IN RESERVOIR AREA :
SUBMERGED ROAD :
MAP USED (1:50,000 SCALE) : 3173-II
TECHNICAL COMMENT :