Table-K.13 (2/2) Unit Price of Cost Estimate

Unit Price of Construction Materials			Unit Price of Construction Labors			Remarks
Item	Unit	Unit Rate (Rp.)	Item	Unit Price (Rp./day.)	Overtime (Rp./hr)	
Gravel for Draining Backfill	m^3	100,000	Carpenter	50,000	12,500	
Stone for Masonry	m^3	120,000	Plasterer	50,000	12,500	
Stone for Gabion	m^3	120,000	Chief Steel Bar Worker	75,000	18,750	
Brick	m^3	500,000	Steel Bar Worker	50,000	12,500	
Reinforced Bar: 13mm/under	kg	5,400	Gabion Net Maker	50,000	12,500	
Reinforced Bar: 16mm/over	kg	5,400	Blasting Master	125,000	31,250	
Dynamite	kg	32,830	Miner	75,000	18,750	
ANFO	kg	7,220	Technician	75,000	18,750	
Detonator	pcs	8,200				
Cord	m	4,260				
Detnator Relay	pcs	20,600				
Shaped Steel	kg	7,200				
Wire Mesh 100*100*5	m^2	24,500				
Timber for Form	m^3	1,690,000				
Sod Facing	m2	7,500				
Fertile Soil	m3	125,500				
Asphalt Bitument	t	2,550,000				
Schafolding	unit	7,500				

(3) Main Quantities

Main quantity to use for the cost estimate of the dam is shown in Table-K.14.

Table-K.14(1/2) Main Quantity for the Cost Estimate Ayung Dam

Works Description		Unit	Quantity
1	Preparatory Works (Clearing and Grubbing etc)		
	1.1 Mobilization	Ls	1.0
	1.2 Temporary Road of Disposal Area	m	550.0
	1.3 Road works	m	2,080.0
2	Diversion Works(L=340m)		
	2.1 Diversion Length	m	340.0
	(Figure：7.5m×7.5m Semi-Horse Shaped Tunnel)		
	2.2 Open Inlet・Outlet	site	2.0
	2.3 Coffer Dam	site	2.0
3	Permanent Works（Concrete Gravity Dam）		
	3.1 Excavation	m^3	514,000.0
	3.2 Artificial Plug	m^3	50,000.0
	3.3 Concrete Works	m^3	240,000.0
	3.4 Artificial Concrete Abutment	m^3	750.0
	3.5 Grout Works		
	1) Consolidation Grout	m	2,600.0
	2) Curtain Grout	m	29,500.0
	3) Rim Grout	m	500.0
	3.6 Crown Road of Dam	site	10.0
4	Temporary Equipment		
	1) Concrete Plant	t	750.0
	2) Tower Crane （13.5t×75m)	set	1.0
	3) Feed Plant	t/hr	150.0
5	Power Station		
	Excavation	m^3	14,000.0
	Concrete Structure	m^3	3,000.0
	Power Station(7900kw v)	set	1.0
6	Sabo Dam		
	Excavation	m^3	1,000.0
	Concrete Works	m^3	12,000.0

Table-K.14 (2/2) Main Quantity for the Cost Estimate Ayung Dam

	Works Description	Unit	Quantity
7	Road Works		
	1) Earth Works & Pavement	m^2	18,550.0
	2) Excavation(Rock)	m^3	5,000.0
	3) Surface Course(Concrete:25cm)	m^2	18,550.0
	5) Beacon・Signal etc	m	1,667.0
	6) Steel bridge	t	390.0
8	Disporsal Area		
	Left bank	m^3	1,250,000.0
	Right bnak	m^3	250,000.0
	Embankment (Backfulling)	m^3	1,495,000.0
9	Outlet&Electric Power Gate		
	1) Intake Gate	t	540.0
	2) Conduit Pressure Pipe	t	110.0

(4) Estimated Direct Cost

Ayung dam construction direct cost is estimated based on the main quantities which shows in the Table-K.14. The estimation result of direct cost for Ayung Dam is shown in the Table-K.15.

Table-K.15(1/2) Estimation of Direct Cost for Ayung Dam

Works Description	Unit	Quantity	Foreign Currency (¥)		Local Currency (Rp)		Total (Rp)	Foreign (¥)	Remark
			Unit Price	Amount	Unit Price	Amount			Total of Bill No
Mobilization and Demobilization	LS	1		720,552,500.0		24,250,200,000.00	87,687,642,100.00	995,997,752	NO.0
1.General Item	LS	1				45,343,977,772.00	45,343,977,772.00	515,038,366	NO.1
2.Diversion Work	m	343							NO.2
2.1 Care of Water	LS	1			941,940,060.00	941,940,060.00	941,940,060.00		
2.2 Earths Works						0.00			
1) Excavation (Soil)	m^3	139,110	270.0	37,301,160.0		0.00	3,283,994,126.40		
2) Excavation(Rock)	m^3	188,110			289,400.00	54,439,034,000.00	54,439,034,000.00		
3) Backfill	m	1,495,000			9,450.00	14,127,750,000.00	14,127,750,000.00		
2.3 Excavation Support and Protection Works	m^2	7,830			1,036,120.00	8,112,819,600.00	8,112,819,600.00		
2.4 Concrete Works	m^3	9,905			671,300.00	6,649,226,500.00	6,649,226,500.00		
2.5 Drilling and Grouting Works	m	1,731			319,480.00	553,019,880.00	553,019,880.00		
		Sub Total		37,301,160.0		84,823,790,040.00	88,107,784,166.40	1,000,769,925	
3.Concrete Gravity Dam									NO.3
3.1 Care of Water	LS	1			2,018,376,000.00	2,018,376,000.00	2,018,376,000.00		
3.2 Excavation and Support Works	m^3	609,100	37.0	22,750,800.0	119,640.00	72,872,724,000.00	74,875,704,432.00		
3.3 Protection and Support of Excavation	m^2	1,000			2,851,220.00	2,851,220,000.00	2,851,220,000.00		
3.4 Dam Concrete	m^3	277,400			554,080.00	153,701,792,000.00	153,701,792,000.00		
1) Reinforce Concrete	m^3	16,300			970,730.00	15,822,899,000.00	15,822,899,000.00		
2) Coffer Dam	m^3	920			2,100,380.00	1,932,349,600.00	1,932,349,600.00		
3.5 Drilling and Grouting Works							0.00		
1) Consolidation grouting	m	2,600			165,370.00	429,962,000.00	429,962,000.00		
2) Curtain Grouting	m	29,500			295,670.00	8,722,265,000.00	8,722,265,000.00		
3) Rim Grout	m	500			162,150.00	81,075,000.00	81,075,000.00		
		Sub Total		22,750,800.0		258,432,662,600.00	260,435,643,032.00	2,958,151,329	
4.Artificial Concrete Abutment									NO.4
4.1 Care of Water	L.S	1			80,280,000.00	80,280,000.00	80,280,000.00		
4.2 Earth Works	m^3	600			38,480.00	23,088,000.00	23,088,000.00		
4.3 Protection and Support Works	m	300			211,163.00	63,348,900.00	63,348,900.00		
4.5 Concrete Works	m^3	750			995,170.00	746,377,500.00	746,377,500.00		
		Sub Total				913,094,400.00	913,094,400.00	10,371,358	
5.Sabo Dam							0.00		NO.5
5.1.1 Care of Water	L.S.	1			1,126,560,000.00	1,126,560,000.00	1,126,560,000.00		
5.1.2 Earth Works							0.00		
1) Excavation (Soil)	m^3	900			92,370.00	83,133,000.00	83,133,000.00		
2) Excavation(Rock)	m^3	100	156.0	15,600.0	585,180.00	58,518,000.00	59,891,424.00		
3) Backfill	m^3	600			9,450.00	5,670,000.00	5,670,000.00		
5.I.3 Concrete Works	m^3	12,000			67,120.00	805,440,000.00	805,440,000.00		
		Sub Total		15,600.0		2,079,321,000.00	2,080,694,424.00	23,633,512	
6.Instrumentation									NO.6
DAM									
1) Ground water level	LS	1	6,400,000.0	6,400,000.0	134,400,000.00	134,400,000.00	697,856,000.00		
2) Seepage measuring	LS	1	6,560,000.0	6,560,000.0	137,760,000.00	137,760,000.00	715,302,400.00		
3) Plamline	LS	1	9,600,000.0	9,600,000.0	201,600,000.00	201,600,000.00	1,046,784,000.00		
4) Strain gauge	LS	1	3,520,000.0	3,520,000.0	73,920,000.00	73,920,000.00	383,820,800.00		
5) Embedded Instrument	LS	1	10,400,000.0	10,400,000.0	218,400,000.00	218,400,000.00	1,134,016,000.00		
6) Cabling	LS	1	6,160,000.0	6,160,000.0	129,360,000.00	129,360,000.00	671,686,400.00		
		Sub Total		42,640,000.0		895,440,000.00	4,649,465,600.00	52,810,831	
8.Road Works							0.00		NO.8
1) Earth and Pavement Works	m^2	18,550			2,170,820.00	40,268,711,000.00	40,268,711,000.00		
2) Excavation(Rock)	m^3	5,000	156.0	780,000.0	245,010.00	1,225,065,000.00	1,293,736,200.00		
3) Concrete Surfacing, Wearing Course(25cm)	m^2	18,550	362.0	6,715,100.0	679,830.00	12,610,772,300.00	13,201,969,704.00		
4) Concrete and Masonry Works	m^3	300			3,422,960.00	1,026,889,000.00	1,026,889,000.00		
5) Guarding Road Markings and Signs	m	1,667			380,410.00	634,138,670.00	634,138,670.00		
6) Steel Bridge	t	390			27,685,200.00	3,183,792,400.00	3,183,792,400.00		
		Sub Total		7,495,100.0		58,949,368,370.00	59,609,236,974.00	677,069,934	
9.Power Station									NO.9
9.1 Building Works	LS	1				5,801,354,500.00	5,801,354,500.00		
9.2 Water Supply and Sewage Water System	LS	1				343,740,000.00	343,740,000.00		
9.3 Civil Works							0.00		
(1) Asphalt Paving	m^2	4,700	362.0	1,701,400.0	4,426,590.00	20,804,980,620.00	20,954,771,876.00		
(2) Excavation	m^3	14,000	156.0	2,184,000.0			192,279,360.00		
		Sub Total		3,885,400.0		26,950,075,120.00	27,292,145,736.00	309,997,112	
10.Electrical Works	LS	1			911,689,800.00	911,689,800.00	911,689,800.00	10,355,404	NO.10
		Sub Total				911,689,800.00	911,689,800.00	10,355,404	
12.Operation and Maintenance Equipmen							0.00		NO.12
						659,590,000.00	659,590,000.00	7,491,935	
							0.00	0	
Total Civil Works				834,640,560.0		504,209,209,102.00	577,690,964,004.40	6,561,687,460	

Table-K.15(2/2) Estimation of Direct Cost for Ayung Dam

Works Description	Unit	Quantity	Foreign Currency (¥)		Local Currency (Rp)		Total (Rp)	Foreign (¥)	Remark
			Unit Price	Amount	Unit Price	Amount			Total of Bill No
7.Hydromechanical									NO.7
1) Diversion Gate	Set	1	1,750,000,000.0	1,750,000,000.0					
2) Penstock	Set	1	250,000,000.0	250,000,000.0					
		Sub Total		2,000,000,000.0			176,080,000,000.00	2,000,000,000	
11. Electric & Mechanical equipment(E & M)	LS	1	946,800,000.0	946,800,000.0					NO.11
		Sub Total		946,800,000.0			83,356,272,000.00	946,800,000	
13.Total Direct Cost				3,781,440,560.0		504,209,209,102.00	837,127,236,004.40	9,508,487,460	13
Total				3,781,440,560.0		504,209,209,102.00	(Rp : Billion) 8,371.3	(¥ : Billion) 95.1	

And, the details examination result of the contents to show in the Table-K.15 is shown in Appendix-2.

(5) Estimated Project Cost

Project Cost in consideration of Land Acquisition(3%), Administration (5%), Engineering Fee (10%), Contingency (10%) is shown in Table-K.16. Value inside ( ) is a rate toward the direct cost which shows in Table-K.12.

And, as for Contingency (10%), it was estimated as ten (10) percent of construction cost, land acquisition and compensation, administration expense and engineering services.

Table-K.16 Summary of Project Cost for Ayung Dam

No.	Works	Foreign Currency Portion (Y)	Local Currency Portion (Rp.)	Total Amount (Rp.)	Remarks Equivalent (¥)
0	Mobilization and Demobilization	720,552,500	24,250,200,000.00	87,687,642,100.00	995,997,752
1	General Items		45,343,977,772.00	45,343,977,772.00	515,038,366
2	Diversion Works	37,301,160	84,823,790,040.00	88,107,784,166.40	1,000,769,925
3	Concrete Gravity Dam	22,750,800	258,432,662,600.00	260,435,643,032.00	2,958,151,329
4	Artificial Concrete Abutment		913,094,400.00	913,094,400.00	10,371,358
5	Sabo Dam	15,600	2,079,321,000.00	2,080,694,424.00	23,633,512
6	Instrumentation	42,640,000	895,440,000.00	4,649,465,600.00	52,810,831
8	Road Works	7,495,100	58,949,368,370.00	59,609,236,974.00	677,069,934
9	Power Station	3,885,400	26,950,075,120.00	27,292,145,736.00	309,997,112
10	Electrical Works		911,689,800.00	911,689,800.00	10,355,404
12	Operation and Maintenance Equipment		659,590,000.00	659,590,000.00	7,491,935
	Total Civil Works	834,640,560	504,209,209,102.00	577,690,964,004.40	6,561,687,460
7	Hydro Mechanical Works	2,000,000,000		176,080,000,000.00	2,000,000,000
11	M&E	946,800,000		83,356,272,000.00	946,800,000
13	Total Direct Cost	3,781,440,560	504,209,209,102	837,127,236,004.40	9,508,487,460
				(Rp:Million)	(¥:Million)
Direct Cost (Rp:Million)		3,781	504,209	837,127	9,508
Land Acquisition (3%)		113	15,126	25,114	190
Administration (5%)		189	25,210	41,856	475
Engineering Fee (10%)		378	50,421	83,713	951
Subtotal		4,462	594,967	987,810	11,125
Contingency (10%)		446	59,497	98,781	1,112
Total		4,908	654,464	1,086,591	12,237

(6) Construction Schedule

1) Outline of Construction Method

The outline of construction method and work item based on the construction quantity, it is shown in the Table-K.17.

Table-K.17 Work Item of Construction Plan, Method and Quantity

No.	Work Item	Content and Construction Method	Construction Quantity
1	Temporary road and Improvement Work.	Construction of Temporary road	L=2,630m, B=7～8m
2	Diversion Work	Diversion tunnel is constructed on the left bank side to do excavation of the river bed. It is set up cofferdam at mouth and outflow of diversion tunnel and a river bed is made dry work.	L＝340m (Half-horse-shoe :7.5m×7.5m)
3	Dam Excavation	Before the diversion of river, it is made to finish excavation beyond the crown of dam. After the diversion of river、it is made to finish excavation under the crown of dam . Excavation is begun from the top, and onboard work and conveyance work is done on the river bed.	Excavation Quantity. =520,000 m^3
4	Gravity Dam (Concrete Works)	Gravity Dam is constructed with ELCM (Extended Layer construction method)	Concrete Works = 291,000 m^3
5	Drilling and Grouting Works	Consolidation grouting, curtain grouting and rim grouting are carried out.	Consolidation Grouting = 2,600m Curtain Grouting =29,500m
6	Slope Protection Works	Protection work is done for cut slope of the temporary road, cut slope of dam excavation and temporary cut slope of other excavation.	
7	Disposal Area Works	It is thrown away in the place beyond EL370, and soil is done. Disposal area is set up in the dam right bank upper reaches part, and it is in the place beyond EL370.	Capacity of Disposal Area =1,450,000m^3

Excavation Work and Concrete Work for Main Dam are as the following.

2) Excavation Work (Main Dam)

Excavation volume is 520,000m^3. Image figure of excavation work is shown in Figure-K.2.

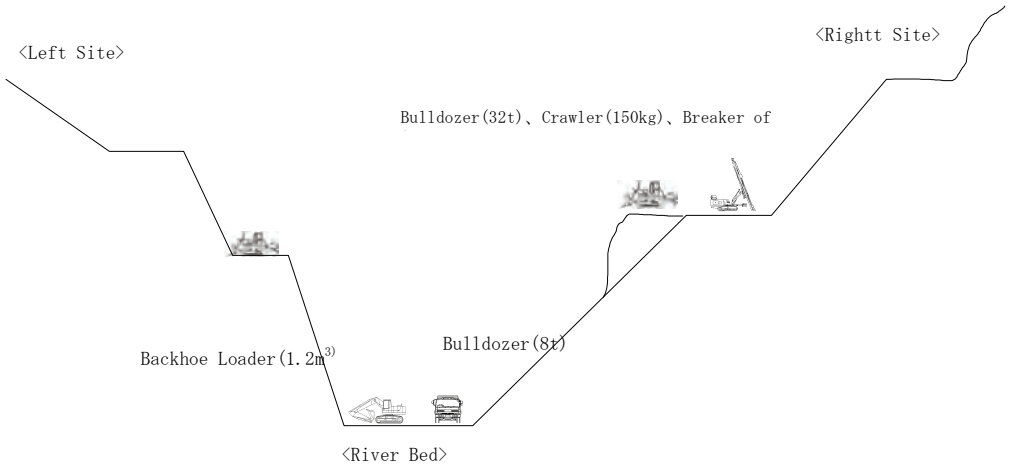


Figure-K.2 Image Figure of Dam Excavation Work

3) Concrete Work（Main Dam Work）

Dam concrete works are main dam work(EL.305m upper), artificial concrete plug(EL.275m～305m) and artificial concrete abutment work (around dam crown),and concrete volumes are about 291,000m^3. Outline of concrete works are shown in Table-K.18.

Table-K.18 Outline of Concrete Work (Main Dam)

Item	Concrete Lift	Placement Schedule	Monthly Construction Acceptable Day	Total Months of Construction Work	Mean Monthly Placement Quantity	Remark
Dam body concrete	1.5m	312 days	16 days	21.5 months	11,500 m^3	River bed 2 months
Artificial concrete plug	ditto	108	ditto	7.0	7,150	
Abutment on either bank	2.5	80	25	3.2	125	Placement is quantity /one-time

4) Construction Schedule

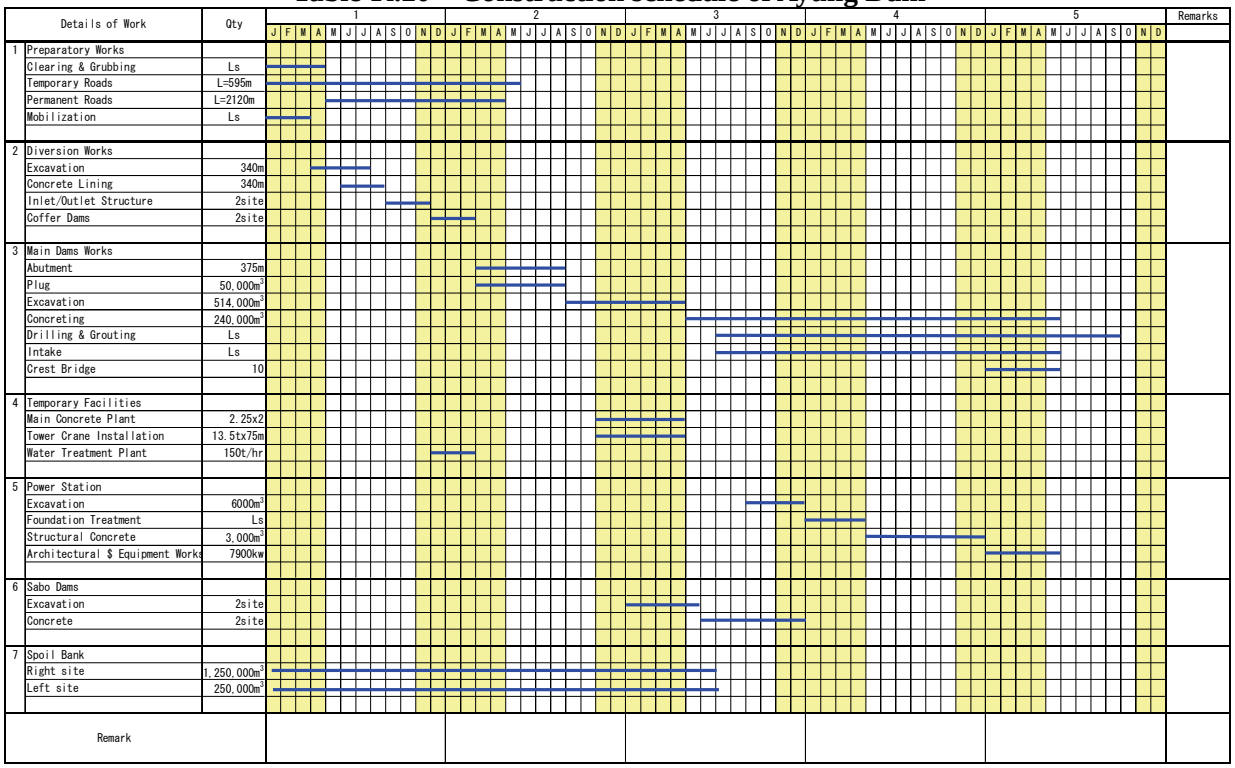
Concrete Work is 312 days in the total. As for the items, placements days of concrete are 222days, suspensions by the structure thing execution inside dam are 60 days and placements of concrete form are 30 days.
If acceptable days for placement of concrete are made 16 days, Total months from the upper table are 21. 5 months and the amount of average placement in month becomes 11,500 m3.Production equipment, the amount of bone material stock and a conveyance equipment are as the following in the Table-K.19.

Table-K.19 Outline of Construction for Dam Body Works (Concrete Work)

Equipment classification.	Item
1) Production equipment	・ 16 hours (Day and night execution) ・ Maximum one-day quantity = 1,200m^3 (around EL.332.0 m) ・ Maximum one-hour quantity=75 m^3/ hr
2) Stock and Supply of Aggregate	・ Daily Necessary Maximum Quantity. Coarse Aggregate＝2.860m^3/day, Fine Aggregate=360m^3/day ・ The bin which can keep capacity on 3 days of a maximum quantity is set up.
3) Conveying Equipment for Dam body execution	・ Main placement and Conveying Equipment: Tower Crane (13.5ｔ×75ｍ) 1 set ・ 4.5m^3 Vessel Dump ・ 9m^3 Gland Hopper ・ 10t Damp Truck

The construction schedule of Ayung Dam Project is shown in the Table-K.20 from the above examination.

Table-K.20 Construction schedule of Ayung Dam



K-3.3 Water Supply Project Cost for Southern Bali Area

(1) Methods of Estimation for Project Cost

・ Cost of the water supply project was done referring to the result of the details design examined by a local Indonesian consultant in September 2004 .
Materials of cost estimation at that time are shown in Appendix-1.
(Refer to the following report.)

Reference : LAPORAN AKHIR PEKERJAAN : PENYUSUNAN PERENCANAAN DETAIL INSTALASI PENGOLAHAN AIR(IPA)PENET SEP 2004

- The details design which examined by a local consultant is done in September2004.

Therefore, as for the cost in 2005, 15% of the price increases were anticipated.

(2) Unit Cost Used for Cost Estimate

Unit cost used for cost estimate is shown in the following.

1) List of Unit Cost for Machine Operation

The unit cost table of the machine operation is shown in Table-K.21.

Table-K.21 Unit Price List of Machine Operation

Machine List	Standard, Quality, Size	Unit Cost (Rp)	Unit
Backhoe Loader Operation	0.1m^3 (Struck Capacity)	200,000	
Backhoe Loader Operation	0.3m^3(Struck Capacity)	275,000	h
Backhoe Loader Operation	0.7m^3(Struck Capacity)	350,000	h
Backhoe Loader Operation	1.2m^3(Struck Capacity)	700,000	h
Bulldozer Operation	15 t	300,000	h
Bulldozer Operation	21 t	400,000	h
Dump Truck Operation	4 t (take on)	85,000	h
Dump Truck Operation	10 t (take on)	125,000	h
Dump Truck Operation	15 t (take on)	150,000	h
Truck Operation	4 t (take on)	75,000	h
Truck Operation	10 t (take on)	125,000	h
Truck Crane Operation	4.8 t ~4.9 t (hanging)	350,000	h
Truck Crane Operation	10 t ~11 t (hanging)	400,000	h
Truck Crane Operation	15 t (hanging)	450,000	h
Truck Crane Operation	20 t (hanging)	500,000	h
Truck Crane Operation	35 t (hanging)	550,000	h
Truck with crane	5t	600,000	h
Vibration roller	1t	1,800,000	day
Vibration roller	10t	2,800,000	day
Tire roller	10t	2,000,000	day
Generator	10KVA	200,000	day
Generator	30KVA	200,000	day
Generator	60KVA	600,000	day
Generator	100KVA	600,000	day
Trailer	20t	2,400,000	day
Trailer	30t	3,200,000	day

2) List of Labor Cost

List of Labor Cost is shown in Table-K.22.

Table-K.22 List of Labor Cost

Job Description	Unit Cost (Rp. /day)
Foreman	75,000
Special Worker	50,000
Worker	41,000
Brock Work	41,000
Scaffolding work	50,000
Formwork	75,000
Reinforcing-Bar Placer	75,000
Welder	75,000
Light Worker	41,000

3) Estimated Cost Table from Local Consultant and Execution Dealer.

Estimate from Local Consultant and Execution Dealer is shown in Table-K.23.

Table-K.23 Estimated cost table from local consultant and execution dealer.

Calculation for unit price	Unit	Estimated cost from Local Consultant	Estimated cost from constructor		Remarks
		Include. Indirect	Exclude indirect	Include indirect	
General					
Cleaning & stripping	m^2		5,000.00	7,692.31	
Earthwork					
Excavation common	m^3	19,525.00	40,000.00	61,538.46	
ditto weathered rock	m^3	38,395.00	60,000.00	92,307.69	
ditto hard rock	m^3		80,000.00	123,076.92	The value estimated in the ratio.
backfill common	m^3	30,125.00	25,000.00	38,461.54	
ditto weathered rock	m^3		30,000.00	46,153.85	
ditto hard rock	m^3		35,000.00	53,846.15	
Masonry					
mortal 1:4	m^3	351,328.45	246,000.00	378,461.54	
mortal 1:2	m^3	431,271.50			
	m^2	83,872.00	58,727.00		
Concreting (include. material)					
K125	m^3	353,034.00	488,000.00	750,769.23	
K225	m^3	438,086.00	537,000.00	826,153.85	
K350			573,000.00	881,538.46	
finishing	m^2	50,721.61			
Rebar					
	kg	7,896.60	6,995.00	10,761.54	
Formwork					
foundation	m^2		125,000.00	192,307.69	
wall	m^2	97,383.00	122,000.00	187,692.31	
column	m^2		67,800.00	104,307.69	
scaffolding					
scaffolding	m^2		24,400.00	37,538.46	
Concrete (rebar, form, sca)	m^3		1,873,000	2,881,538	
CI Piping (material, inst.)	m		5,907,000	9,087,692	
(ϕ600mm)					
Building					
pump pit (intake)	m^2		5,542,880	8,527,508	
Chlorination room	m^2		5,146,960	7,918,400	
work shop	m^2		3,959,200	6,091,077	
pump pit (distribute)	m^2		5,146,960	7,918,400	

4) Unit Cost of Water Pipe Bridge

Unit Cost of Water Pipe Bridge is shown in the Table-K.24. And Unit Cost of Truss of Water Pipe Bridge and Abutment is shown in Table-K.25 (1) and Table-K.25 (2).

Table-K.24 Unit Cost of Water Pipe Bridge

Water Pipe Bridge	distance	unit price (Rp)	Amount (Rp)	abutment (Rp)	pier (Rp)	Cost (Rp)
6,940,129	10m	6,940,129	69,401,286	61,432,886	0	130,834,172
	15m	6,940,129	104,101,929	61,432,886	0	165,534,815
	20m	6,940,129	138,802,572	61,432,886	0	200,235,458
	25m	6,940,129	173,503,215	61,432,886	0	234,936,101
	35m	6,940,129	242,904,501	61,432,886	0	304,337,387
	40m	6,940,129	277,605,144	61,432,886	30,700,000	369,738,030
	50m	6,940,129	347,006,430	61,432,886	30,700,000	439,139,316
	95m	6,940,129	659,312,217	61,432,886	61,400,000	782,145,103
	100m	6,940,129	694,012,860	61,432,886	61,400,000	816,845,746

Table-K.25 (1)(1/2) Unit Cost of Truss for Water Pipe Bridge

Item No. :Truss for water pipe bridge					Location : Bali				
Element Abbrev. M :Material, L :Labor, E :Equipment, T :Transportation									
Element	Description	Quantity	Unit	Foreign (¥) Portion		Local(Rp)Portion		Combined U.P. Total (Rp.)	
				Rate (¥)	Amount (¥)	Rate (Rp.)	Amount (Rp.)		
	Per 10.0m								
	10m								
1.	Material								

Table-K.25 (1)(2/2) Unit Cost of Truss for Water Pipe Bridge

Item No. :Truss for water pipe bridge						Location : Bali			
Element Abbrev. M :Material, L :Labor, E :Equipment, T :Transportation									
Element	Description		Quantity	Unit	Foreign (¥) Portion		Local(Rp)Portion		Combined U.P. Total (Rp.)
					Rate (¥)	Amount (¥)	Rate (Rp.)	Amount (Rp.)	
1.	I350×250×9×14		3,124.0	kg	77	240,548			21,177,846
	L65×65×6		34.9	kg	70	2,445			215,267
	miscellaneous		1.0	LS				0	0
	transportation & others					416,733		0	36,689,173
	(1.715* material cost)							0	0
	Total							0	58,082,286
2.	Labor & Machine		(amended)						
2-1	cut & weld	welder	2.75	md			75,000.0	206,250.00	206,250
	30.8m	labour	2.75	md			41,000.0	112,750.00	112,750
	1.6m/h	truck crane20t	2.75	day			4,000,000.0	11,000,000.00	11,000,000
	Total							0.00	11,319,000
	Ground Total								69,401,286
	@/m								6,940,129
Total									69,401,286
Exchange to (¥)								@/m	78,829

Table-K.25 (2) Unit Cost of Abutment for Water Pipe Bridge

Item No. :Abutment for water pipe bridge						Location :Bali			
Element Abbrev. M :Material, L :Labor, E :Equipment, T :Transportation									
Element	Description	Quantity	Unit	Foreign (¥) Portion		Local(Rp)Portion		Combined U.P. Total (Rp)
				Rate (¥)	Amount (¥)	Rate (U$)	Amount (U$)	
	Per 1.0							
	1	abutment						
1.	Material + Labor & Machine							
	Concrete type 250	16.4	m^3			537,000	8,806,800	8,806,800
	re-bar	2,463.5	kg		0	6,995	17,232,183	17,232,183
	formwork	30.9	m^2			125,000	3,862,500	3,862,500
	scaffolding	33.4	m^2			24,400	814,960	814,960
							0	0
	Total						0	30,716,443
2.	Labor & Machine	(amended)						0
2-1			md			75,000.0	0.00	0
			md			41,000.0	0.00	0
			day			4,000,000.0	0.00	0
	Ground Total							30,716,443
	@/m^3							1,872,954
Total								30,716,443
Exchange to (¥)							@/m^3	348,892

5) The cost of Penet Water Treatment Plant (by Local Consultant)

The cost of Penet Water Treatment Plant examined by Local Consultant in Sep 2004 is shown in the Appendix -1 .

(3) Main Quantities

The main quantity of Water Supply Project Cost for Southern Bali Area is shown in Table-K.26.

The details quantity of each examination system is shown in Table-K.27 to. Table-K.29

Table-K.26(1/2) Main Contents of South Bali Area Water Supply Project

System Name	Unit	West System	East System	Central System
River Name		Penet river	Petanu River	Ayung River
Intake weir		Height×Wide×Length	Height×Wide×Length	Height×Wide×Length
		7.3m×19m×28m	7.8m×20m×30m	6.6m×17m×25m
Treatment Plant (Water Supply Capacity)	liter/sec	300	300	600
Waterline Pipe φ600	km	8.8	31.0	non

Table-K.26(2/2) Main Contents of South Bali Area Water Supply Project

System Name / River Name		Unit	West System / Penet river	East System / Petanu River	Central System / Ayung River
Water Pipe Bridge	L=10m	site	1	1	
	L=15m	〃	1	—	
	L=20m	〃	3	3	
	L=25m	〃	—	5	non
	L=35m	〃	—	2	
	L=50m	〃	—	1	
	L=95m	〃	—	1	
	L=100m	〃	—	1	

Table-K.27 Quantity of West System

Works Description	Works Item		Unit	Quantity	Remarks
Common Temporary Work			Ls	1.0	
Intake & Conduit					Height×Wide×Length
	Intake Weir& Pump Pit	Temporary Work	Ls	1.0	7.3m×19m×28m
		Earths Works(Excavation)	m^3	2400.0	
		Earths Works(Backfill)	m^3	1300.0	
		Earths Works(Bank)	m^3	3400.0	
		Concrete Works	m^3	500.0	
		Masonry Works	m^3	1800.0	
		Intake(Pump Pit)	m^3	110.0	10m×11m×4.0m
	Waterline Pipe φ600		m	200.0	
		Other (Mechanical Equipment)	Ls	1.0	
Treatment Plant Facilities					
	Treatment Plant(Civil Works) Other Building Work	Temporary Work	Ls	1.0	
		Earths Works(Excavation)	m^3	4579	
		Earths Works(Bank・Backfill)	m^3	1585	
		Concrete Works	m^3	1870	
		Wall Structure Works: Receiving well: 35 ㎡	m^2	35.0	5m×7m
		Wall Structure Works: Flocculation Tank	m^2	110.0	9m×6m×2sites
		Wall Structure Works: Chemical Reservoir	m^2	200.0	14m×7m×2sites
		Wall Structure Works: Sand Filter	m^2	445.0	25.5m×17.5m
		Wall Structure Works: Clear Water Reservoir	m^2	495.0	33m×15m
		Wall Structure Works: Sludge Drying Bed	m^2	495.0	33m×15m
		Wall Structure Works: Other (Mechanical Equipment)	Ls	1.0	
		Wall Structure Works: Pipes Setting	Ls	1.0	
		Office & Laboratory	m^2	165.0	15m×11m×7.6m
		Chemical Room	m^2	235.0	20m×9m×3.9m
					11m×5m×7.6m
		Mechanical & Electric Room	m^2	120.0	11m×11m×5.3m
		Workshop	m^2	50.0	8m×6m
		Guard House	m^2	15.0	3m×4.5m
Transmission Facility					
	Waterline Pipeφ600 Water Pipe Bridge		m	8800.0	
		L=10m	Site	1.0	
		L=15m	Site	1.0	
		L=20m	Site	3.0	
Electrical & Mechanical Cost (E & M)			Ls	1.0	

Table-K.28(1/2) Quantity of East System

Works Description	Works Item		Unit	Quantity	Remarks
Common Temporary Work			Ls	1.0	
Intake & Conduit					Height×Width×Length
	Intake Weir& Pump Pit	Temporary Work	Ls	1.0	7.8×20×30m
		Earths Works(Excavation)	m^3	3300.0	
		Earths Works(Backfill)	m^3	2000.0	
		Earths Works(Bank)	m^3	5200.0	
		Concrete Works	m^3	650.0	
		Masonry Works	m^3	2700.0	
		Intake(Pump Pit)	m^2	110.0	10m×11m×4.0m
	Waterline Pipe φ600		m	200.0	
		Other (Mechanical Equipment)	Ls	1.0	

Table-K.28(2/2) Quantity of East System

Works Description	Works Item			Unit	Quantity	Remarks
Treatment Plant Facilities						
	Treatment Plant (Civil Works)	Temporary Work		Ls	1.0	
		Earths Works(Excavation)		m^3	4579	
		Earths Works(Bank・Backfill)		m^3	1585	
		Concrete Works		m^3	1870	
		Wall Structure Works	Receiving well: 35 m^2	m^2	35.0	5m×7m
			Flocculation Tank	m^2	110.0	9m×6m×2sites
			Chemical Reservoir	m^2	200.0	14m×7m×2sites
			Sand Filter	m^2	445.0	25.5m×17.5m
			Clear Water Reservoir	m^2	495.0	33m×15m
			Sludge Drying Bed	m^2	495.0	33m×15m
			Other (Mechanical Equipment)	Ls	1.0	
			Pipes Setting	Ls	1.0	
	Other Building Work	Office & Laboratory		m^2	165.0	15m×11m×7.6m
		Chemical Room		m^2	235.0	20m×9m×3.9m
						11m×5m×7.6m
		Mechanical & Electric Room		m^2	120.0	11m×11m×5.3m
		Workshop		m^2	50.0	8m×6m
		Guard House		m^2	15.0	3m×4.5m
Transmission Facility						
	Waterline Pipeφ600			m	31,000.0	
	Water Pipe Bridge	L=10m,50m,95m,100m		Site	1	
		L=20m		Site	3	
		L=25m		Site	5	
		L=35m		Site	2	
Electrical & Mechanical Cost (E & M)				Ls	1.0	

Table-K.29 Quantity of Central System

Works Description	Works Item			Unit	Quantity	Remarks
Common Temporary Work				Ls	1.0	
Intake & Conduit						Height×Width×Length
	Intake Weir & Pump Pit	Temporary Work		Ls	1.0	11.5×60×30m
		Earths Works(Excavation)		m^3	10,800	
		Earths Works(Backfill)		m^3	5,850	
		Earths Works(Bank)		m^3	15,300	
		Concrete Works		m^3	2,250	
		Masonry Works		m^3	8,100	
		Intake(Pump Pit)		m^2	495	10m×11m×4.0m
	Waterline Pipe φ600			m	250.0	
		Other (Mechanical Equipment)		Ls	1.0	
Treatment Plant Facilities						
	Treatment Plant (Civil Works)	Temporary Work		Ls	1.0	
		Earths Works(Excavation)		m^3	4579	
		Earths Works(Bank・Backfill)		m^3	1585	
		Concrete Works		m^3	1870	
		Wall Structure Works	Receiving well : 35 m^2	m^2	35.0	5m×7m
			Flocculation Tank	m^2	110.0	9m×6m×2sites
			Chemical Reservoir	m^2	200.0	14m×7m×2sites
			Sand Filter	m^2	445.0	25.5m×17.5m
			Clear Water Reservoir	m^2	495.0	33m×15m
			Sludge Drying Bed	m^2	495.0	33m×15m
			Other (Mechanical Equipment)	Ls	1.0	
			Pipes Setting	Ls	1.0	
	Other Building Work	Office & Laboratory		m^2	165.0	15m×11m×7.6m
		Chemical Room		m^2	235.0	20m×9m×3.9m
						11m×5m×7.6m
		Mechanical & Electric Room		m^2	120.0	11m×11m×5.3m
		Workshop		m^2	50.0	8m×6m
		Guard House		m^2	15.0	3m×4.5m
Electrical & Mechanical Cost (E & M)				Ls	1.0	

(4) Estimated Construction Cost

The construction cost of each examination system is shown in Table-K.30 to. Table-K.32

Table-K.30 (1) Direct Cost of West System

Works Description		Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Common Temporary Work			Ls	1.0	2,321,630,732.00	2,321,630,732.00	
						Sub Total	2,321,630,732.00
Intake & Conduit							Height × Width ×Length
	Intake weir & Pump Pit	Temporary Work	Ls	1.0	7,000,000.00	7,000,000.00	7.3m×19m×28m
		Earths Works(Excavation)	m^3	2400.0	19,525.00	46,860,000.00	
		Earths Works(Backfill)	m^3	1300.0	30,125.00	39,162,500.00	
		Earths Works(Bank)	m^3	3400.0	109,769.00	373,214,600.00	
		Concrete Works	m^3	500.0	695,923.00	347,961,500.00	
		Masonry Works	m^3	1800.0	357,318.00	643,172,400.00	10m×11m×4.0m (Above Ground)
		Intake(Pump Pit)	m^2	110.0	7,103,017.00	781,331,870.00	10m×11m×7.5m (Under Ground)
	Waterline Pipe φ600		m	200.0	4,273,398.00	854,679,600.00	
		Other (Mechanical Equipment)	Ls	1.0	243,055,545.00	243,055,545.00	
						Sub Total	3,336,438,015.00
Treatment Plant Facilities							
	Treatment Plant	Temporary Work	Ls	1.0	56,568,687.00	56,568,687.00	
	Receiving well	Earths Works (Excavation)	m^3	11.0	19,525.00	214,775.00	
		Earths Works (Bank・Backfill)	m^3	7.0	147,796.00	1,034,572.00	
		Concrete Works	m^3	28.0	3,213,336.00	89,973,408.00	
		Wall Structure Works: 35 m^2	m^2	35.0	708,061.00	24,782,135.00	5m×7m
						Sub Total	172,573,577.00
	Flocculation Tank	Earths Works (Excavation)	m^3	72.0	19,525.00	1,405,800.00	
		Earths Works (Bank・Backfill)	m^3	30.0	97,785.00	2,933,550.00	
		Concrete Works	m^3	90.0	1,889,796.00	170,081,640.00	
		Wall Structure Works：110m^2	m^2	110.0	647,893.00	71,268,230.00	9m×6m×2sites
						Sub Total	245,689,220.00
	Chemical Reservoir	Earths Works (Excavation)	m^3	315.0	19,525.00	6,150,375.00	
		Earths Works (Bank・Backfill)	m^3	190.0	25,886.00	4,918,340.00	
		Concrete Works	m^3	187.0	2,550,179.00	476,883,473.00	
		Wall Structure Works: 200 m^2	m^2	200.0	2,058,874.00	411,774,800.00	14m×7m×2sites
						Sub Total	899,726,988.00
	Sand Filter	Earths Works (Excavation)	m^3	405.0	19,525.00	7,907,625.00	
		Earths Works (Bank・Backfill)	m^3	71.0	37,530.00	2,664,630.00	
		Concrete Works	m^3	425.0	2,854,641.00	1,213,222,425.00	
		Wall Structure Works: 442 m^2	m^2	445.0	958,807.00	426,669,115.00	25.5m×17.5m
						Sub Total	1,650,463,795.00
		Other (Mechanical Equipment)	Ls	1	1,339,654,556.00	1,339,654,556	
		Pipes Setting	Ls	1	76,091,259.00	76,091,259	
						Sub Total	1,415,745,815.00
						Total	4,384,199,395.00

Table-K.30 (2)(1/2) Direct Cost of West System

Works Description	Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Clear Water Reservoir	Temporary Work		1.0	23,011,430.00	23,011,430.00	
	Earths Works (Excavation)	m^2	2686.0	19,525.00	52,444,150.00	
	Earths Works (Bank･Backfill)	m^2	682.0	115,870.00	79,023,340.00	
	Concrete Works	m^2	660.0	1,928,921.00	1,273,087,860.00	
	Wall Structure Works：495 m^2	m^2	495.0	273,112.00	135,190,440.00	33m×15m
	Other (Mechanical Equipment)	Ls	1.0	384,444,084.00	384,444,084.00	
	Pipes Setting	Ls	1.0	41,597,162.00	41,597,162.00	
					Sub Total	1,988,798,466.00
Sludge Drying Bed	Temporary Work	Ls	1.0	14,011,430.00	14,011,430.00	
	Earths Works (Excavation)	m^2	810.0	19,525.00	15,815,250.00	
	Earths Works (Bank・Backfill)	m^2	325.0	136,985.00	44,520,125.00	
	Concrete Works	m^2	300.0	1,102,725.00	330,817,500.00	
	Wall Structure Works：495 m^2	m^2	495.0	121,463.00	60,124,185.00	33m×15m
	Other (Mechanical Equipment)	Ls	1.0	90,783,038.00	90,783,038.00	
					Sub Total	556,071,528.00	

Table-K.30 (2)(2/2) Direct Cost of West System

Works Description	Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Chemical Room	Temporary Work	Ls	1.0	1,772,001.00	1,772,001.00	
	Earths Works (Excavation)	m^2	280.0	19,525.00	5,467,000.00	
	Earths Works (Bank・Backfill)	m^2	280.0	146,993.00	41,158,040.00	
	Concrete Works	m^2	180.0	1,564,646.00	281,636,280.00	
	Other (Mechanical Equipment)	Ls	1.0	16,969,476.00	16,969,476.00	20m×9m×3.9m (Height)
	Building work	m^2	235.0	463,557.00	108,935,895.00	11m×5m×7.6m (Height)
				Sub Total	455,938,692.00	
Other Building Work						
	Office & Laboratory	m^2	165.0	1,599,817.00	263,969,805.00	15m×11m×7.6m (Height)
	Mechanical & Electric Room	m^2	120.0	922,784.00	110,734,080.00	11m×11m×5.3m (Height)
	Workshop	m^2	50.0	1,471,762.00	73,588,100.00	8m×6m
	Guard House	m^2	15.0	3,688,905.00	55,333,575.00	3m×4.5m
				Sub Total	503,625,560.00	
Transmission Facility						
	Waterline Pipeφ600	m	8800.0	2,075,128.00	18,261,126,400.00	
	Water Pipe Bridge L=10m	Site	1.0	130,834,172.00	130,834,172.00	
	Water Pipe Bridge L=15m	Site	1.0	165,534,815.00	165,534,815.00	
	Water Pipe Bridge L=20m	Site	3.0	200,235,458.00	600,706,374.00	
				Sub Total	19,158,201,761.00	
Eleectrical & Mechanical Cost (E & M)		Ls	1.0	43,779,792,725.50	43,779,792,725.50	
					Sub Total	43,779,792,725.50
				1 Total	76,484,696,874.50	
Direct Cost (2005year Cost=①×1.15)				Direct Cost	87,957,401,406	
		88.04 Rp/¥			999,062,000	(¥)
					9.99	Billion (¥)

Table-K.31 (1)(1/2) Direct Cost of East System

Works Description		Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Common Temporary Work			Ls	1.0	2,321,630,732.00	2,321,630,732.00	
						Sub Total	2,321,630,732.00
Intake & Conduit							Height×Wide×Lenght
	Intake weir & Pump Pit	Temporary Work	Ls	1.0	7,000,000.00	7,000,000.00	7.8m×20m×30m
		Earths Works (Excavation)	m^3	3300.0	19,525.00	64,432,500.00	
		Earths Works (Backfill)	m^3	2000.0	30,125.00	60,250,000.00	
		Earths Works (Bank)	m^3	5200.0	109,769.00	570,798,800.00	
		Concrete Works	m^3	650.0	695,923.00	452,349,950.00	
		Masonry Works	m^3	2700.0	357,318.00	964,758,600.00	10m×11m×4.0m (Above Ground)
		Intake(Pump Pit)	m^2	110.0	7,103,017.00	781,331,870.00	10m×11m×7.5m (Under Ground)
	Waterline Pipe φ600		m	200.0	4,273,398.00	854,679,600.00	
		Other (Mechanical quipment)	Ls	1.0	243,055,545.00	243,055,545.00	
						Sub Total	3,998,656,865.00
Treatment Plant Facilities							
	Treatment Plant	Temporary Work	Ls	1.0	56,568,687.00	56,568,687.00	
	Receiving well	Earths Works (Excavation)	m^3	11.0	19,525.00	214,775.00	
		Earths Works (Bank・Backfill)	m^3	7.0	147,796.00	1 ,034,572.00	
		Concrete Works	m^3	28.0	3,213,336.00	89,973,408.00	
		Wall Structure Works: 35m^2	m^2	35.0	708,061.00	24,782,135.00	5m×7m
						Total	172,573,577.00
	Flocculation Tank	Earths Works (Excavation)	m^3	72.0	19,525.00	1,405,800.00	
		Earths Works (Bank・Backfill)	m^3	30.0	97,785.00	2,933,550.00	
		Concrete Works	m^3	90.0	1,889,796.00	170,081,640.00	
		Wall Structure Works: 110m^2	m^2	110.0	647,893.00	71,268,230.00	9m×6m×2sites
						Total	245,689,220.00

Table-K.31 (1)(2/2) Direct Cost of East System

Works Description		Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Common Temporary Work			Ls	1.0	2,321,630,732.00	2,321,630,732.00	
						Sub Total	2,321,630,732.00
Treatment Plant Facilities							
	Chemical Reservoir	Earths Works(Excavation)	m^3	315.0	19,525.00	6,150,375.00	
		Earths Works (Bank・Backfill)	m^3	190.0	25,886.00	4,918,340.00	
		Concrete Works	m^3	187.0	2,550,179.00	476,883,473.00	
		Wall Structure Works: 200 ㎡	m^2	200.0	2,058,874.00	411,774,800.00	14m×7m×2sites
						Total	899,726,988.00
	Sand Filter	Earths Works (Excavation)	m^3	405.0	19,525.00	7,907,625.00	
		Earths Works (Bank・Backfill)	m^3	71.0	37,530.00	2,664,630.00	
		Concrete Works	m^3	425.0	2,854,641.00	1,213,222,425.00	
		Wall Structure Works：442 ㎡	m^2	445.0	958,807.00	426,669,115.00	25.5m×17.5m
						Total	1,650,463,795.00
		Other （Mechanical Equipment）	Ls	1	1,339,654,556.00	1,339,654,556	
		Pipes Setting	Ls	1	76,091,259.00	76,091,259	
						Total	1,415,745,815.00
						Sub Total	4,384,199,395.00

Table-31 (2)(1/2) Direct Cost of East System

Works Description	Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Clear Water Reservoir	Temporary Work		1.0	23,011,430.00	23,011,430.00	
	Earths Works (Excavation)	m^2	2686.0	19,525.00	52,444,150.00	
	Earths Works (Bank・Backfill)	m^2	682.0	115,870.00	79,023,340.00	
	Concrete Works	m^2	660.0	1,928,921.00	1,273,087,860.00	
	Wall Structure Works：495m^2	m^2	495.0	273,112.00	135,190,440.00	33m×15m
	Other（Mechanical Equipment）	Ls	1.0	384,444,084.00	384,444,084.00	
	Pipes Setting	Ls	1.0	41,597,162.00	41,597,162.00	
					Sub Total	1,988,798,466.00
Sludge Drying Bed	Temporary Work	Ls	1.0	14,011,430.00	14,011,430.00	
	Earths Works (Excavation)	m^2	810.0	19,525.00	15,815,250.00	
	Earths Works (Bank・Backfill)	m^2	325.0	136,985.00	44,520,125.00	
	Concrete Works	m^2	300.0	1,102,725.00	330,817,500.00	
	Wall Structure Works：495m^2	m^2	495.0	121,463.00	60,124,185.00	33m×15m
	Other（Mechanical Equipment）	Ls	1.0	90,783,038.00	90,783,038.00	
					Sub Total	556,071,528.00
Chemical Room	Temporary Work	Ls	1.0	1,772,001.00	1,772,001.00	
	Earths Works(Excavation)	m^2	280.0	19,525.00	5,467,000.00	
	Earths Works (Bank・Backfill)	m^2	280.0	146,993.00	41,158,040.00	
	Concrete Works	m^2	180.0	1,564,646.00	281,636,280.00	
	Other（Mechanical Equipment）	Ls	1.0	16,969,476.00	16,969,476.00	20m×9m×3.9m(Height)
	Building work	m^2	235.0	463,557.00	108,935,895.00	11m×5m×7.6m(Height)
					Sub Total	455,938,692.00

Table-31 (2)(2/2) Direct Cost of East System

Works Description	Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks
Other Building Work						
	Office & Laboratory	m^2	165.0	1,599,817.00	263,969,805.00	15m×11m×7.6m(Height)
	Mechanical & Electric Room	m^2	120.0	922,784.00	110,734,080.00	11m×11m×5.3m(Height)
	Workshop	m^2	50.0	1,471,762.00	73,588,100.00	8m×6m
	Guard House	m^2	15.0	3,688,905.00	55,333,575.00	3m×4.5m
					Sub Total	503,625,560.00
Transmission Facility						
	Waterline Pipeφ600	m	31,000.0	2,075,128.00	64,328,968,000.00	
	Water Pipe Bridge L=10m	site	1.0	130,834,172.00	130,834,172.00	
	Water Pipe Bridge L=20m	site	3.0	200,235,458.00	600,706,374.00	
	Water Pipe Bridge L=25m	site	5.0	234,936,101.00	1,174,680,505.00	
	Water Pipe Bridge L=35m	site	2.0	304,337,387.00	608,674,774.00	
	Water Pipe Bridge L=50m	site	1.0	439,139,316.00	439,139,316.00	
	Water Pipe Bridge L=95m	site	1.0	782,145,103.00	782,145,103.00	
	Water Pipe Bridge L=100m	site	1.0	816,845,746.00	816,845,746.00	
					Sub Total	68,881,993,990.00
Eleectrical & Mechanical Cost (E & M)		Ls	1.0	43,779,792,725.50	43,779,792,725.50	
					Sub Total	43,779,792,725.50
				① Total	126,870,707,953.50	
Direct Cost (2005year Cost=①×1.15)				Direct Cost	145,901,314,147	
		88.04	Rp/¥		1,657,216,000	(¥)
					16.57	billion (¥)

Table-K.32 (1)(1/2) Direct Cost of Central System

Works Description		Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks	
Common Temporary Work			Ls	1.0	2,321,630,732.00	2,321,630,732.00	300liter／sec	600liter／sec
						Sub Total	2,321,630,732.00	4,643,261,464.00
Intake & Conduit							Height×Wide×Lenght	Hight×Wide×Leght
	Intake weir & Pump Pit	Temporary Work	Ls	1.0	7,000,000.00	7,000,000.00	6.6m×17m×25m	6.6m×17m×25m
		Earths Works (Excavation)	m^3	10,800	19,525.00	210,870,000.00		
		Earths Works (Backfill)	m^3	5,850	30,125.00	176,231,250.00		
		Earths Works (Bank)	m^3	15,300	109,769.00	1,679,465,700.00		
		Concrete Works	m^3	2,250	695,923.00	1,565,826,750.00		
		Masonry Works	m^3	8,100	357,318.00	2,894,275,800.00	10m×11m×4.0m (Above Ground)	
		Intake (Pump Pit)	m^2	495	7,103,017.00	3,515,993,415.00	10m×11m×7.5m (Under Ground)	
	Waterline Pipe φ600		m	200.0	4,273,398.00	854,679,600.00		
		Other(Mechanical Equipment)	Ls	1.0	243,055,545.00	243,055,545.00		
						Sub Total	11,147,398,060.00	11,147,398,060.00
Treatment Plant Facilities								
	Treatment Plant	Temporary Work	Ls	1.0	56,568,687.00	56,568,687.00		
	Receiving well	Earths Works (Excavation)	m^3	11.0	19,525.00	214,775.00		
	Receiving well	Earths Works (Bank・Backfill)	m^3	7.0	147,796.00	1,034,572.00		
	Receiving well	Concrete Works	m^3	28.0	3,213,336.00	89,973,408.00		
	Receiving well	Wall Structure Works：35m^2	m^2	35.0	708,061.00	24,782,135.00	5m×7m	
						Total	172,573,577.00	
	Flocculation Tank	Earths Works (Excavation)	m^3	72.0	19,525.00	1,405,800.00		
	Flocculation Tank	Earths Works (Bank・Backfill)	m^3	30.0	97,785.00	2,933,550.00		
	Flocculation Tank	Concrete Works	m^3	90.0	1,889,796.00	170,081,640.00		
	Flocculation Tank	Wall Structure Works：110m^2	m^2	110.0	647,893.00	71,268,230.00	9m×6m×2sites	
						Total	245,689,220.00	

Table-K.32 (1)(2/2) Direct Cost of Central System

Works Description		Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks	
Treatment Plant Facilities								
	Chemical Reservoir	Earths Works (Excavation)	m^3	315.0	19,525.00	6,150,375.00		
		Earths Works (Bank・Backfill)	m^3	190.0	25,886.00	4,918,340.00		
		Concrete Works	m^3	187.0	2,550,179.00	476,883,473.00		
		Wall Structure Works ：200m^2	m^2	200.0	2,058,874.00	411,774,800.00	14m×7m×2sites	
						Total	899,726,988.00	
	Sand Filter	Earths Works(Excavation)	m^3	405.0	19,525.00	7,907,625.00		
		Earths Works (Bank・Backfill)	m^3	71.0	37,530.00	2,664,630.00		
		Concrete Works	m^3	425.0	2,854,641.00	1,213,222,425.00		
		Wall Structure Works：442m^2	m^2	445.0	958,807.00	426,669,115.00	25.5m×17.5m	
						Total	1,650,463,795.00	
		Other（Mechanical Equipment）	Ls	1	1,339,654,556.00	1,339,654,556		
		Pipes Setting	Ls	1	76,091,259.00	76,091,259		
						Total	1,415,745,815.00	
						Sub Total	4,384,199,395.00	8,768,398,790.00

Table-K.32 (2)(1/2) Direct Cost of Central System

Works Description	Works Item	Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks	
Clear Water Reservoir	Temporary Work		1.0	23,011,430.00	23,011,430.00		
	Earths Works (Excavation)	m^2	2686.0	19,525.00	52,444,150.00		
	Earths Works (Bank・Backfill)	m^2	682.0	115,870.00	79,023,340.00		
	Concrete Works	m^2	660.0	1,928,921.00	1,273,087,860.00		
	Wall Structure Works：495 m^2	m^2	495.0	273,112.00	135,190,440.00	33m×15m	
	Other (Mechanical Equipment)	Ls	1.0	384,444,084.00	384,444,084.00		
	Pipes Setting	Ls	1.0	41,597,162.00	41,597,162.00		
					Sub Total	1,988,798,466.00	3,977,596,932.00
Sludge Drying Bed	Temporary Work	Ls	1.0	14,011,430.00	14,011,430.00		
	Earths Works (Excavation)	m^2	810.0	19,525.00	15,815,250.00		
	Earths Works (Bank・Backfill)	m^2	325.0	136,985.00	44,520,125.00		
	Concrete Works	m^2	300.0	1,102,725.00	330,817,500.00		
	Wall Structure Works：495 m^2	m^2	495.0	121,463.00	60,124,185.00	33m×15m	
	Other (Mechanical Equipment)	Ls	1.0	90,783,038.00	90,783,038.00		
					Sub Total	556,071,528.00	1,112,143,056.00
Chemical Room	Temporary Work	Ls	1.0	1,772,001.00	1,772,001.00		
	Earths Works (Excavation)	m^2	280.0	19,525.00	5,467,000.00		
	Earths Works (Bank・Backfill)	m^2	280.0	146,993.00	41,158,040.00		
	Concrete Works	m^2	180.0	1,564,646.00	281,636,280.00		
	Other (Mechanical Equipment)	Ls	1.0	16,969,476.00	16,969,476.00	20m×9m×3.9m (Hight)	
	Building work	m^2	235.0	463,557.00	108,935,895.00	11m×5m×7.6m (Hight)	
					Sub Total	455,938,692.00	911,877,384.00

Table-K.32 (2)(2/2) Direct Cost of Central System

Works Description	Works Item		Unit	Quantity	Unit Price (Rp)	Amount (Rp)	Remarks	
Other Building Work								
	Office & Laboratory		m^2	165.0	1,599,817.00	263,969,805.00	15m×11m×7.6m (Hight)	
	Mechanical & Electric Room		m^2	120.0	922,784.00	110,734,080.00	11m×11m×5.3m (Hight)	
	Workshop		m^2	50.0	1,471,762.00	73,588,100.00	8m×6m	
	Guard House		m^2	15.0	3,688,905.00	55,333,575.00	3m×4.5m	
						Sub Total	503,625,560.00	1,007,251,120.00
Transmission Facility								
	Waterline Pipeφ600		m	0.0	2,075,128.00	0.00		
	Water Pipe Bridge	L=10m	site	0.0	69,401,286.00	0.00		
		L=15m	site	0.0	100,242,817.00	0.00		
		L=20m	site	0.0	133,657,090.00	0.00		
						Sub Total	0.00	
Electrical & Mechanical Cost (E & M)			Ls	1.0	43,779,792,725.50	43,779,792,725.50		
						Sub Total	43,779,792,725.50	87,559,585,451.00
					Grand Total	65,137,455,158.50	65,137,455,158.50	119,127,512,257.00
Direct Cost (2005year Cost=①×1.15)					Direct Cost	74,908,073,432	Direct Cost	136,996,639,096
			88.04 Rp/¥			850,841,000	(¥)	1,556,073,000
						8.51	billion (¥)	15.56

(5) Estimated Project Cost

Project Cost of Southern Bali Area Water Supply Project is shown in the Table-K.33.

Table-K.33 Project Cost of South Bali Area Water Supply Project

Works Description		West System (Penet River)	East System (Petanu river)	Central System (Ayung River)
(Development discharge)		300 liter/sec	300 liter/sec	600 liter/sec
Item		Cost (Rp)	Cost (Rp)	Cost (Rp)
Common Temporary Work		2,321,630,732.00	2,321,630,732.00	4,643,261,464.00
Intake & Conduit		3,336,438,015.00	3,998,656,865.00	11,147,398,060.00
Treatment Plant		4,384,199,395.00	4,384,199,395.00	8,768,398,790.00
Clear Water Reservoir		1,988,798,466.00	1,988,798,466.00	3,977,596,932.00
Sludge Drying Bed		556,071,528.00	556,071,528.00	1,112,143,056.00
Chemical Room		455,938,692.00	455,938,692.00	911,877,384.00
Other Building Work		503,625,560.00	503,625,560.00	1,007,251,120.00
Transmission Facilities		19,158,201,761.00	68,881,993,990.00	0.00
Machine & Electric Room (E & M)		43,779,792,725.50	43,779,792,725.50	87,559,585,451.00
Direct Cost (2004year Cost)	①	76,484,696,874.50	126,870,707,953.50	119,127,512,257.00
Direct Cost (2005year Cost=①×1.15)	②	87,957,401,406	145,901,314,147	136,996,639,096
Direct Cost 2005year (million Rp)	②	87,957	145,901	136,996
			Grand Total	370,854
Land Aquistion (2%) ②×0.02	③	1,759	2,918	7,707
Administration (5%) ②×0.05	④	4,398	7,295	6,850
Enginering Fee (10%) ②×0.1	⑤	8,796	14,590	13,700
Subtotal(②+③+④+⑤)	⑥	102,910	170,704	165,252
Contingency (10%)	⑦	10,291	17,070	16,525
Total (⑥+⑦)	⑧	113,201	187,774	181,778
			Grand Total	482,753
Direct Cost (Rp)	②	87,957,401,405.68	145,901,314,146.53	136,996,639,095.55
¥Conversion 88.04 Rp/¥				
(¥)		999,000,000	1,657,000,000	1,556,000,000
(¥:billion)		9.99	16.57	15.56