

XIV . DOCUMENT OF EXECUTION DESIGN

1. Outline of Design

Outline of the design in this survey is as follows. ( D-1=Drawing NO.1  
D-2=Drawing NO.2 D-3=Drawing NO.3 )

Design Outline of South Sulawesi Project NO.1

Item	Sort	Num- ber	Quantity	Detail UnitNO	Number of Drawing
<b>(Forest Hydrology)</b>					
1. Gauging①Processed					D-1 1',1
1 Gauging Dam	Concrete	1	197.6m <sup>3</sup>	D NO 1	D-1 2,4,6,16
2 Channel Zone	"	1	57.0m <sup>3</sup>	D NO 2	D-1 2,4,7
3 Dam	"	1	153.9m <sup>3</sup>	D NO 3	D-1 2,4,8
4 Channel Sidewall	"	1	171.1m <sup>3</sup>	D NO 4	D-1 2,4
Small Total		4	579.6m <sup>3</sup>		
2. Gauging②Non Process					D-1 1',1
1 Gauging Dam	Concrete	1	212.3m <sup>3</sup>	D NO 5	D-1 3,5,9,16
2 Channel Zone	"	1	55.4m <sup>3</sup>	D NO 6	D-1 3,5,10
3 Dam	"	1	179.4m <sup>3</sup>	D NO 7	D-1 3,5,11
4 Channel Sidewall	"	1	157.3m <sup>3</sup>	D NO 8	D-1 3,5
Small Total		4	604.4m <sup>3</sup>		
3. Gauging③Forest Area	Concrete	1	145.2m <sup>3</sup>	D NO 9	D-1 1',15
4. Slope Plot					D-1 1',1
Slope Plot①	" Steel	1	20.0m <sup>2</sup>	D NO10	D-1 17,19
Slope Plot②	" Steel	1	20.0m <sup>2</sup>	D NO11	D-1 17
Small Total		2	40.0m <sup>2</sup>		
5. Meteoro-observation					D-1 1'
Meteoro-observation		2	20.0m <sup>2</sup>		
Gauging	Concrete	9	1329.2m <sup>3</sup>		
Sub Total Slope Plot		2	40.0m <sup>2</sup>		
Meteoro-ovservation		2	20.0m <sup>2</sup>		
<b>(Erosion Control)</b>					
1. Stream Work					D-1 1',1
1 Erosion Control Dam①	Concrete	1	275.5m <sup>3</sup>	D NO12	D-1 12,13
2 Erosion Control Dam②	"	1	145.0m <sup>3</sup>	D NO13	D-1 12,14
Small Total		2	420.5m <sup>3</sup>		
2. Hillside Work	Quarry	1	5.00ha	U NO33	D-1 1',1,18,19
sub Total Stream Work	Concrete	2	420.5m <sup>3</sup>		
Hillside Work		1	5.00ha		

Design Outline of South Sulawesi Project NO.2

Item	Sort	Number	Quantity	Detail UnitNO	Number of Drawing
<b>(Nursery)</b>					
1. Nursery Except Build					D-2 1-①
1 Preparation		1	1.25ha	D N014	D-2 1-①
2 Seedling Bed (20*1.0)	Brick	200	0.40ha	D N015	D-2 1-①, 1-③, 1-④
3 Germination		1	100m <sup>2</sup>	D N016	D-2 1-①, 1-③
4 Soil Placing		1	50m <sup>2</sup>	D N017	D-2 1-①, 1-④
Small Total		1	1.25ha		
		200	0.40ha		
		1	100m <sup>2</sup>		
		1	50m <sup>2</sup>		
<b>2. Water Application</b>					
1 Water Supply (linch)	Pvc Pipe	1	310m	D N018	D-2 1-①
2 water Tank (1.0m <sup>3</sup> )	Concrete	2	6.8m <sup>3</sup>	D N018	D-2 1-①, 1-③
3 Pipe Culvert (8inch)	pvc pipe	1	4,015m	D N019	D-1 1', 21
4 Farm Pond	Concrete	1	22.0m <sup>3</sup>	D N020	see Detail N020
5 Intake Dam	Concrete	1	3.1m <sup>3</sup>	D N021	D-1 20
Small Total		1	310m		
		2	6.8m <sup>3</sup>		
		1	4,015m		
		1	22.0m <sup>3</sup>		
		1	3.1m <sup>3</sup>		
Preparation		1	1.25ha		
Seedling Bed		200	0.40ha		
Germination		1	100m <sup>2</sup>		
Sub Total Soil Placing		1	50m <sup>2</sup>		
Water Supply		1	310m		
Water Tank		2	6.8m <sup>3</sup>		
Pipe Culvert		1	4,015m		
Farm Pond		1	22.0m <sup>3</sup>		
Intake Dam		1	3.1m <sup>3</sup>		
<b>(Bridge)</b>					
1. Bridge①					D-2 2
1 Earth Work		1	25,553m <sup>3</sup>	D N022	D-2 3-①~6-①
2 Bridge Work①	Steel	1	20.0m	D N023	D-2 7-①~7-⑤
Small Work		1	25,553m <sup>3</sup>		
		1	20.0m		

Design Outline of South Sulawesi Project NO.3

Item	Sort	Number	Quantity	Detail UnitNO	Number of Drawing
2. Bridge②					D-2 2
1 Earth Work	Concrete	1	6,902m <sup>3</sup>	D N024	D-2 8-①~10-③
2 Overflow Road		1	15.0m	D N025	D-2 11-①
Small Total		1	6,902m <sup>3</sup>		
		1	15.0m		
3. Bridge③and④					D-2 2
1 Earth Work	Steel	1	11,182m <sup>3</sup>	D N026	D-2 12-①~14-⑥
2 Bridge Work③		1	14.0m	D N026	D-2 15-①~15-⑤
3 Bridge Work④		1	20.0m	D N027	D-2 16-①~16-⑤
Small Total		1	11,182m <sup>3</sup>		
		2	34.0m		
Earth Work		3	43,637m <sup>3</sup>		
Sub Total Overflow Road		1	15.0m		
Bridge Work		3	54.0m		
T O T A L	( Forest Hydrology)				
	Gauging	9	1329.2m <sup>2</sup>		
	Slope Plot	2	40.0m <sup>2</sup>		
	Meteoro-observation	2	20.0m <sup>2</sup>		
	(Erosion Control)				
	Stream Work	2	420.5m <sup>3</sup>		
	Hillside Work	1	5.00ha		
	(Nursery)				
	Preparation	1	1.25ha		
	Seedling Bed	200	0.40ha		
	Germination	1	100m <sup>2</sup>		
	Soil Placing	1	50m <sup>2</sup>		
	Water Supply	1	310m		
	Water Tank	2	6.8m <sup>3</sup>		
	Pipe Culvert	1	4,015m		
Farm Pond	1	22.0m <sup>3</sup>			
Intake Dam	1	3.1m <sup>3</sup>			
(Bridge)					
Earth Work	3	43,637m <sup>3</sup>			
Overflow Road	1	15.0m			
Bridge Work	3	54.0m			

Design Outline of South Sulawesi Project NO.4

Location	Sort of Building	Spot	Quantity	Breakdown of Construction	Number of Drawing
Building Field Station D-3 1~3	② Office ④ Grage ⑤ Machine Work Shop ⑥ Ware House ⑧ Seed Storage Room ⑨ Oil Bunker ⑩ Generator Room	1 1 1 1 1 1 1	m <sup>2</sup> 492 200 100 200 10 10 30	FieldStation ② ④ ⑤ ⑥ ⑧ ⑨ ⑩	D-3 4~7 D-3 8~11 D-3 12~13 D-3 14~16 D-3 19 D-3 18 D-3 17
SubTotal		7	1,042		
Building Model Area Nursery D-2 1	① Work Shop ② Compost Area ③ Grage ④ Ware House ⑤ Oil Bunker ⑥ Generator Room ⑦ Soil Placing	4 1 1 1 1 1 1	400 48 200 50 10 30 50	Model Area ① ② ③ ④ ⑤ ⑥ ⑦	D-3 23 D-3 24 D-3 25~26 D-3 23 D-3 18 D-3 17 D-3 23
SubTotal		10	788		
TOTAL		17	1,830		

2. Detailed Account of Design

ITEM	SUM (Rupiah)	SUM (¥)	DIGEST
(Forest Hydrology Facilities)	239,744,563	18,441,886	1yen = 13RP
(Erosion Control Facilities)	340,066,452	26,158,957	
(Nursery Facilities)	142,856,556	10,988,965	
( Bridge )	449,153,874	34,550,296	
Total Direct Construction Cost	1,171,821,445	90,140,104	
Indirect Construction Cost	224,245,555	17,249,657	
Total	1,396,067,000	107,389,761	
( Building )			
Field Station	301,864,000	23,220,307	
Model Area (Building in Nursery)	113,881,000	8,760,076	
Total	415,745,000	31,980,383	
G. Total	1,811,812,000	139,370,144	

Table of Working Cost Detail

NO.1	Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest
	Direct Construction Cost							D-1=NO1.DRAWING, D-2 = NO2.DRAWING D-3 = NO.3DRAWING
	( Forest Hydrology )							
	1 .Gauging ① Processed							D-1 1',1
	1 Gauging Dam	197 6	m <sup>3</sup>		32,388,478	NO. 1		D-1 2,4,6,16
	2 Channel Zone	57 0	m <sup>3</sup>		10,098,810	NO. 2		D-1 2,4,7
	3 Dam	153 9	m <sup>3</sup>		24,721,705	NO. 3		D-1 2,4,8
	4 Channel Sidewall	171 1	m <sup>3</sup>		27,846,923	NO. 4		D-1 2,4
	Small Total				95,055,916			7,311,993 PF
	2.Gauging② Non Process							D-1 1',1
	1 Gauging Dam	212 3	m <sup>3</sup>		32,876,934	NO. 5		D-1 3,5,9,16
	2 Channel Zone	55 4	m <sup>3</sup>		8,680,274	NO. 6		D-1 3,5,10
	3 Dam	179 4	m <sup>3</sup>		35,094,062	NO. 7		D-1 3,5,11

Table of Working Cost Detail

NO.2	Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest
	4 Channel Side wall	157	3 m <sup>3</sup>		26,479,614	NO. 8		D-1 3,5
	Small Total				103,130,884			7,933,144 ₱
	3.Gauging③ Forest Area							D-1 1'
	Gauging Dam	145	2 m <sup>3</sup>		23,461,186	NO. 9		D-1 15 1,804,706 ₱
	4.Slope Plot							D-1 1',1
	Slope Plot ①	1	0 spot		9,038,053	NO.10		D-1 17,19 ( Processed Block )
	Slope Plot ②	1	0 spot		8,558,524	NO.11		D-1 17 ( Non Processed Block )
	Small Total				17,596,577			1,353,582 ₱
	5.Meteoro-observation							D-1 1'
	Meteoro-observation	2	0 spot		500,000			38,461 ₱
	Sub Total				239,744,563			13,441,886 ₱

Table of Working Cost Detail

Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest
( Erosion Control )							
1 .Stream Work							D-1 1',1
1 Erosion Control Dam①	275	5 m <sup>3</sup>		42,384,504	NO.12		D-1 12,13
2 Erosion Control Dam②	145	0 m <sup>3</sup>		23,426,588	NO.13		D-1 12,14
Small Total				65,811,092			5,062,391 ₱
2 .Hillside Work	5	0 ha	54,851,072	274,255,360		NO.33	D-1 1',1,18,19
Sub Total				340,066,452			26,158,957 ₱
( Nursery )							
1 .Nursery Except Build							D-2 1-①
1 Preparation	1	25 ha		2,041,951	NO.14		D-2 1-①
2 Seedling Bed(20*1.0m)	0	40 ha		42,082,960	NO.15		20*1.0m*200beds D-2 1-①-③-④
3 Germination	100	0 m <sup>2</sup>		524,450	NO.16		D-2 1-①,1-③



Table of Working Cost Detail									
NO.4	Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest	
	4 Soil Placing	50	0	m <sup>2</sup>	147,660	NO.17		D-2 1-①, 1-④	
	Small Total				44,797,021				3,445,924 ₱
	2. Water Application								
	1 Water Supply (1 inch)	310	0	m	2,668,604	NO.18		D-2 1-①	
	2 Water Tank (1.0 m <sup>2</sup> )	2	0	spots	1,162,106	NO.18		6.8m <sup>3</sup> D-2 1-①, 1-③	
	3 Pipe Culvurt (8 inch)	4,015	0	m	88,637,111	NO.19		D-1 1', 21	
	4 Farm Pond	22	0	m <sup>3</sup>	5,339,069	NO.20		1 spot	See NO.20 Detail
	5 Intake Dam	3	1	m <sup>3</sup>	252,645	NO.21		1 spot D-1 20	
	Small Total				98,059,535				7,543,041 ₱
	Sub Total				142,856,556				10,988,965 ₱

NO.5 Table of Working Cost Detail							
Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest
( Bridge )							
1. Bridge ①							D-2 2
1 Earth Work	25,553	0 m <sup>3</sup>		201,788,871	NO.22		D-2 3-①~6-①
2 Bridge Work ①	20	0 m		40,797,658	NO.23		D-2 7-①~7-⑤
Small Work				242,586,529			18,680,502 ₪
2. Bridge ②							D-2 2
1 Earth Work	6,902	0 m <sup>3</sup>		59,862,842	NO.24		D-2 8-①~10-③
2 Overflow Road	15	0 m		6,564,218	NO.25		D-2 11-①
Small Total				66,427,060			5,109,773 ₪

Table of Working Cost Detail

NO.6	Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest
	3 .Bridge ③ and ④							D-2 2
	1 Earth Work	11,182.0	m <sup>3</sup>		84,976,646	NO.26		D-2 12-①~14-⑥
	2 Bridge Work ③	14.0	m		26,844,859	NO.26		D-2 15-①~15-⑤
	3 Bridge Work ④	20.0	m		28,318,780	NO.27		D-2 16-①~16-⑤
	Small Total				140,140,285			10,780,021 ₪
	Sub Total				449,153,874			34,550,296 ₪
	Total Direct Construction Cost				1,171,821,445			90,140,104 ₪

NO.7 Table of Working Cost Detail.									
Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Detail	NO.Unit	Digest		
Indirect Construction Cost									
Common Temporary Expense									
Plant Transport, Setting	6 2	ton		3,550,080		NO.20	1,775,040 RP per 3.1 ton		
Transport of Machines	84 2	ton		6,768,179		NO.21			
Working Road	300 0	m	10,000	3,000,000					
Cost of Preparation	1 0	set		11,718,214			Total D.CONST.COST×1%		
Building Repairs	1 0	set		23,438,428			Total D.CONST.COST×2%		
Sub Total				48,472,901				3,728,684 ₱	
Overhead				175,772,654			Total D.CONST.COST×15%	13,520,973 ₱	
Total Indirect Construction Cost				224,245,555				17,249,657 ₱	

Table of Working Cost Detail

Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Breakdown of Construction	Digest
TOTAL				1,386,067,000		107,389,761 ₪
( Building )						Including common expense and overhead
FIELD STATION						D-3 1~3
Office (1 house)	492 0	m <sup>2</sup>		159,900,000	Field Station ②	D-3 4~7
Garage (1 house)	200 0	m <sup>2</sup>		52,098,000	Field Station ④	D-3 8~11
Machine Work Shop 1house	100 0	m <sup>2</sup>		36,615,000	Field Station ⑤	D-3 12~13
Warehouse (1 house)	200 0	m <sup>2</sup>		30,799,000	Field Station ⑥	D-3 14~16
Seed Storage Room 1house	10 0	m <sup>2</sup>		4,666,000	Field Station ⑧	D-3 19
Oil Bunker (1 house)	10 0	m <sup>2</sup>		4,550,000	Field Station ⑨	D-3 18
Generator Room (1 house)	30 0	m <sup>2</sup>		13,236,000	Field Station ⑩	D-3 17
Sub Total				301,864,000		23,220,307 ₪

Table of Working Cost Detail

NO.9	Work	Amount	Unit	Price(RP)	Sum (RP)	NO.Breakdown of Construction	Digest
	MODEL AREA = NURSERY						D-2 1
	Work Shop (4 houses)	400 0	m <sup>2</sup>		23,480,000	Model Area ①	D-3 23
	Compost Area (1house)	48 0	m <sup>2</sup>		8,925,000	Model Area ②	D-3 24
	Garage (1 house )	200 0	m <sup>2</sup>		52,043,000	Model Area ③	D-3 25~26
	Warehouse (1 house )	50 0	m <sup>2</sup>		9,215,000	Model Area ④	D-3 23
	Oil Bunker (1 house )	10 0	m <sup>2</sup>		4,550,000	Model Area ⑤	D-3 18
	Generator Room (1house)	30 0	m <sup>2</sup>		13,236,000	Model Area ⑥	D-3 17
	Soil Placing (1house)	50 0	m <sup>2</sup>		2,432,000	Model Area ⑦	D-3 23
	Sub Total				113,881,000		8,760,076 ₱
	TOTAL				415,745,000		31,980,383 ₱
	GRAND TOTAL				1,811,812,000		139,370,144 ₱

No.1 1-1 Gauging Dam Detail						
(Structure)						
See structure						
D-1 2.4.6.16						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	197.6	m <sup>3</sup>				
Concrete	197.6	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	23,762,131	No.1	
Filling Concrete	8.5	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	1,022,156	No.1	
Earth Excavation	337.4	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	3,955,171	No.10	
Frame Hire	179.2	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	2,114,990	No.9	
Concrete Joint Finishing	96.2	m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	479,066	No.6	
Scaffolding Hire	96.8	m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	589,502	No.11	
Water Conveyance	100.0	m	per 100.0m 287,087	287,087	No.8	
General Workers	5.0	Man	5,675	28,375		Finishing
Stage Observation Room	1.0	Set		150,000		
Total				32,388,478		

No.2 1-2 Channel Zone Work Detail					
(Structure) See structure					
D-1 2.4.7					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	57.0 m <sup>3</sup>				
Concrete	57.0 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	6,854,460	No.1	
Earth Excavation	153.9 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	1,804,092	No.10	
Frame Hire	78.7 m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	928,848	No.9	
Concrete Joint Finishing	36.2 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	180,272	No.6	
Scaffolding Hire	40.2 m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	244,813	No.11	
Water Hole	1.9 m	30,500	57,950		Fuji Boyd (round frame) 300ø/m
General Workers	5.0 Man	5,675	28,375		Finishing
Total			10,098,810		



No.3 1-3 Dam		Detail				
(Structure) See structure						
D-1 2.4.8						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	153.9	m <sup>3</sup>				
Concrete	153.9	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	18,507,044	No.1	
Earth Excavation	277.5	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	3,252,993	No.10	
Frame Hire	137.4	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,621,649	No.9	
Concrete Joint Finishing	36.2	m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	180,272	No.6	
Scaffolding Hire	67.3	m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	409,850	No.11	
Water Conveyance				-		Use that in 1-1
General Workers	5.0	Man	5,675	28,375		Finishing
Filling Concrete	6.0	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	721,522	No.1	
Total				24,721,705		

No.4 1-4 Channel Sidewall		Detail			
(Structure) See structure		D-1 2, 4			
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	171.1 m <sup>3</sup>				
Concrete	171.1 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	20,575,408	No.1	
Earth Excavation	214.7 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	2,516,820	No.10	
Frame Hire	340.3 m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	4,016,356	No.9	
Concrete Joint Finishing	121.6 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	605,555	No.6	
Bed Preparation	134.1 m <sup>2</sup>	567	76,034		One general worker per 10m <sup>2</sup>
General Workers	10.0 Man	5,675	56,750		Finishing
Total			27,846,923		

No. 5 2-1 Gauging Dam		Detail				
(Structure) See structure						
D-1 3, 5, 9, 16						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	212.3	m <sup>3</sup>				
Concrete	212.3	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	25,529,860	No.1	
Filling Concrete	6.0	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	721,522	No.1	
Earth Excavation	341.6	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	4,004,406	No.10	
Frame Hire	95.4	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,125,948	No.9	
Concrete Joint Finishing	104.3	m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	519,403	No.6	
Scaffolding Hire	83.8	m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	510,333	No.11	
Water Conveyance	100.0	m	per 100.0m 287,087	287,087	No.8	
General Workers	5.0	Man	5,675	28,375		Finishing
Stage Observation Room	1.0	Set		150,000		
Total				32,876,934		

No. 6 2-2 Channel Zone Work Detail						
(Structure) See structure						
D-1 3.5.10						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	55.4	m <sup>3</sup>				
Concrete	55.4	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	6,662,054	No.1	
Earth Excavation	138.7	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	1,625,910	No.10	
Concrete Joint Finishing	16.2	m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	80,674	No.6	
Scaffolding Hire	38.5	m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	234,461	No.11	
Water Hole	1.6	m	30,500	48,800		Fuji Boyd (round frame) 300øm
General Workers	5.0	Man	5,675	28,375		
Total				8,680,274		

No. 7 2-3 Dam		Detail			
(Structure) See structure					
D-1 3.5.11					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	179.4 m <sup>3</sup>				
Concrete	179.4 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	21,573,513	No.1	
Earth Excavation	114.0 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	1,336,365	No.10	
Rock Excavation	109.0 m <sup>3</sup>	79,450	8,660,050	No.17	
Frame Hire	162.4 m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,916,709	No.9	
Concrete Joint Finishing	75.1 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	373,990	No.6	
Scaffolding Hire	79.4 m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	483,538	No.11	
Water Conveyance					Use that in 2-1
General Workers	5.0 Man	5,675	28,375		Finishing
Filling Concrete	6.0 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	721,522	No.1	
Total			35,094,062		

No. 8 2-4 Channel Sidewall		Detail			
(Structure) See structure		D-1 3,5			
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	157.3 m <sup>3</sup>				
Concrete	157.3 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	18,915,907	No.1	
Earth Excavation	149.1 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	1,747,824	No.10	
Rock Excavation	64.6 m <sup>3</sup>	79,450	5,132,470	No.17	
Concrete Joint Finishing	111.8 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	556,752	No.6	
Bed Preparation	123.3 m <sup>2</sup>	567	69,911		One general worker per 10m <sup>2</sup>
General Workers	10.0 Man	5,675	56,750		Finishing
Total			26,479,614		

No. 9 3-1 Gauging Dam		Detail			
(Structure) See structure					
B-1 15					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	145.2 m <sup>3</sup>				
Concrete	145.2 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	17,460,837	No.1	
Filling Concrete	6.0 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	721,522	No.1	
Earth Excavation	239.7 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	2,809,883	No.10	
Frame Hire	133.3 m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,573,259	No.9	
Concrete Joint Finishing	69.2 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	344,609	No.6	
Scaffolding Hire	61.2 m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	372,701	No.11	
General Workers	5.0 Man	5,675	28,375		Finishing
Stage Observation Room	1.0 Set		150,000		
Total			23,461,186		

No.10 4-1 Slope Plot (Lysimeter) Detail						
(Structure) See plane D-1 17.19						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	15.3	m <sup>3</sup>				
Concrete	15.3	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	1,839,881	No.1	
Frame Hire	135.8	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,602,765	No.9	
Earth Excavation (A)	16.91	m <sup>3</sup>	per 10.0m <sup>2</sup> 117,225	198,227	No.10	Socket for water and soil, and sedimentation basin
Light Steel Sheet Pile	60.0	m	per 20.0m 1,493,187	4,479,561	No.22	
General Workers	10.0	Man	5,675	56,750		Finishing
Earth Excavation (B)	24.0	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	281,340	No.10	Enclosure of the incline 20m×0.80m ×0.50m (width)×3
Miscellaneous Work	1.0	Set		100,000		Shack etc.
Stone Terracing Work	60.0	m	per 10.0m 76,994	461,964	No.30	3×20m
Potting Seedling Planting A	30.0		per 100 21,848	6,554	No.31	
Potting Seedling Planting B	42.0		per 100 26,218	11,011	No.32	
Total				9,038,053		



No.11 4-2 Slope Plot (Lysimeter) Detail						
(Structure) See plane						
D-1 17						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	15.3	m <sup>3</sup>				
Concrete	15.3	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	1,839,881	No.1	
Frame Hire	135.8	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,602,765	No.9	
Earth Excavation (A)	16.91	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	198,227	No.10	Socket for water and soil, and sedimentation basin
Light Steel Sheet Pile	60.0	m	per 20.0m 1,493,187	4,479,561	No.22	
General Workers	10.0	Man	5,675	56,750		Finishing
Earth Excavation (B)	24.0	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	281,340	No.10	Enclosure of the incline 20m×0.80m ×0.50m (width)×3
Miscellaneous Work	1.0	Set		100,000		Shack etc.
Total				8,558,524		

No. 12 1-4 Stream Dam ①		Detail.			
(Structure) See structure		D-1 12.13			
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	275.5 m <sup>3</sup>				
Concrete	275.5 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	33,129,894	No.1	
Filling Concrete	6.6 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	793,674	No.1	
Earth Excavation	311.2 m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	3,648,042	No.10	
Frame Hire	258.6 m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	3,052,100	No.9	
Concrete Joint Finishing	117.4 m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	584,640	No.6	
Scaffolding Hire	128.9 m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	784,988	No.11	
General Workers	5.0 Man	5,675	28,375		Finishing
Contraction Joint	10.1 m <sup>2</sup>	27,885	281,638		ERASUTAITO thickness of 1cm
Water Stop	4.9 m	16,562	81,153		Vinyl Chloride: width-20cm; thickness- 5mm
Total			42,384,504		

No.13 1-2 Stream Dam ②		Detail				
(Structure)						
See structure						
0-1 12.14						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	145.0	m <sup>3</sup>				
Concrete	145.0	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	17,436,786	No.1	
Filling Concrete	5.4	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	649,369	No.1	
Earth Excavation	223.3	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	2,617,634	No.10	
Frame Hire	160.0	m <sup>2</sup>	per 10.0m <sup>2</sup> 118,024	1,888,384	No.9	
Concrete Joint Finishing	41.8	m <sup>2</sup>	per 10.0m <sup>2</sup> 49,799	208,159	No.6	
Scaffolding Hire	79.0	m <sup>2</sup>	per 10.0m <sup>2</sup> 60,899	481,102	No.11	
General Workers	5.0	Man	5,675	28,375		Finishing
Water Stop	2.0	m	16,562	33,124		Vinyl Chloride: width-20cm; thickness- 5mm
Contraction Joint	3.0	m <sup>2</sup>	27,885	83,655		ERASUTAITO thickness of 1cm
Total				23,426,588		

NO.14 1-1 Nursery Preparation Detail					
(Structure)					
Area : 1.25 ha				D-2 1-①,1-④	
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Soil Preparation	12,525 m <sup>2</sup>	per 100m <sup>2</sup> 16,303	2,041,951	NO.34	
Total			2,041,951		

NO.15 1-2 Seedling Bed Preparation Detail					
(Structure)					
Area : 4,000 m <sup>2</sup>				D-2 1-①,1-③,1-④	
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Bricks	4,000 m <sup>2</sup>	per 10m <sup>2</sup> 29,532	11,812,000	NO.35	
Bordering Boards	8,400 m	per 10m 14,214	11,939,760	NO.36	
Sun-shade	8,000 m <sup>2</sup>	per 100m <sup>2</sup> 229,130	18,330,400	NO.37	
Total			42,082,960		

NO.16 Germination Room		Detail			
(Structure)					
Area : 100 m <sup>2</sup>					
D-2 1-①,1-③					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Bricks	100 m <sup>2</sup>	per 10m <sup>2</sup> 29,532	295,320	NO.35	
Sun-Shade	100 m <sup>2</sup>	per 100m <sup>2</sup> 229,130	229,130	NO.37	
Total			524,450		

NO.17 1-4 Soil Placing		Detail			
(Structure)					
Area : 50 m <sup>2</sup>					
D-2 1-①,1-④					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Soil Placing	50 m <sup>2</sup>	per 10m <sup>2</sup> 29,532	147,660	NO.35	
Total			147,660		

NO.18 2 Water Application		Detail			
(Structure)					
D-2 1-①,1-③					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Water Supply	310 m	per 10m 86,084	2,668,604	NO.38	2-1
Water Tank	2 set	581,053	1,162,106	NO.39	2-2
Total			3,830,710		

No. 19 2-3 Pipe Culvert Channel Detail						
(Structure)						
Internal diameter 8", thickness 5mm, 4m lengths						
0-1 1,21						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Hard Vinyl Chloride Pipe	4,015	m	per 100.0m 2,156,120	86,568,218	No.19	
Concrete Water Collection Box	6.0	m <sup>3</sup>	166,581	999,486	No.12	10 boxes each of 0.30m <sup>3</sup>
Frame Hire	61.6	m <sup>2</sup>	per 10.0m <sup>2</sup> 152,828	941,420	No.16	20 frames each of 3.08m <sup>3</sup>
Gravel Paving	1.3	m <sup>3</sup>	32,971	42,862	No.13	10 loads of 0.125m <sup>3</sup>
General Workers	15.0	Man	5,675	85,125	-	Gravel, small transport, paving, finishing
Total				88,637,111		

No.20 2-4 Nursery Farm Pond		Detail				
(Structure)	Internal diameter 10.0×10.0×1.0 metres; thickness of sides 0.15m; base thickness 0.15m; gravel pavement thickness 0.20m Concrete volume (10.30m×10.30m×1.15m)-(10.0m×10.0m×1.0m) = 22.0m <sup>3</sup> Volume of gravel paving (10.30m×10.30m×0.20m) = 21.22m <sup>3</sup> Area of wooden frame (1.15m×10.30×4 + 10.0m×10.0m×4) = 87.38m <sup>2</sup>					
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Farm Pond	1					
Concrete	22.0	m <sup>3</sup>	166,581	3,664,782	No.12	
Frame Hire	87.4	m <sup>2</sup>	per 10.0m <sup>2</sup> 128,085	1,119,462	No.16	No.16 - 24,743
Gravel Paving	21.2	m <sup>3</sup>	32,971	69,898	No.13	(Transport by ban-poonr)
General Workers	11.5	Man	5,675	65,262	-	Gravel, small transport, paving, finishing
Earth Excavation	35.8	m <sup>3</sup>	per 10.0m <sup>3</sup> 117,225	419,665	No.10	
Total				5,339,069		



No. 21 2-5 Intake Dam		Detail			
(Structure) See structure					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Volume	3.1 m <sup>3</sup>				
Concrete	3.1 m <sup>3</sup>	166,581	51,640	No.12	
Rock Excavation	1.2 m <sup>3</sup>	79,450	95,340	No.17	
Frame Hire	5.8 m <sup>2</sup>	per 10.0m <sup>2</sup> 152,828	88,640	No.16	
General Workers	3.0 Man	5,675	17,025		Finishing
Total			252,645		

NO.22 1-1 Earth Work		Detail			
(Structure)					
For NO.1 Bridge					
D-2 3-①~6-①					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Ordinary Soil Removal	20,084 m <sup>3</sup>	per 100m <sup>3</sup> 297,619	59,773,800	NO.41	
Rock Removal	4,871 m <sup>3</sup>	per 10m <sup>3</sup> 127,372	62,042,901	NO.43	
Banking	598 m <sup>3</sup>	per 10m <sup>3</sup> 40,635	2,429,973	NO.45	
Levelling	650 m	per 100m 86,719	563,674	NO.46	
Gravel Paving	988 m <sup>3</sup>	62,626	61,874,488	NO.47	
Quarry Stone Masonry	1 set		3,731,063	D-28	45.0 m
Concrete Side Dich	1 set		762,651	D-29	
Culvert(C M P)	1 set		10,610,321	D-30	
Total			201,788,871		

NO.23 1-2 Bridge ①		Detail			
(Structure)					
NO.1 Bridge		Length of Girder : 20.0 m		D-2 7-①~7-⑤	
Slab : Reinforce Concrete					
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table NO.	Remarks
Girder Construction	1 set		993,903	D-31	
Slab	1 set		9,546,405	D-35	
Paving	4.1 m <sup>3</sup>	per 10m <sup>3</sup> 1,202,537	493,040	NO.56	Plain Concrete
Scaffolding	150.8 m <sup>2</sup>	per 10m <sup>2</sup> 35,943	542,020	NO.65	
Timbering	768.0 m <sup>3</sup>	per 100m <sup>3</sup> 815,058	6,259,645	NO.62	
Painting	125.0 m <sup>2</sup>	per 100m <sup>2</sup> 250,149	312,686	NO.53	
Railing	42.0 m	per 100m 130,820	54,944	NO.54	
Abutment	1 set		16,508,473	D-36	
Girder Transport	1 set		661,050	D-37	
Temporary Road and Bridge	1 set		5,425,492	D-38	
Total			40,797,658		

No. 24 2-1 Bart Work		Detail			
(Structure)		For No. 2 Bridge (Overflow Road)			
		D-2 8-①~10-3			
Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Ordinary Soil Removal	5,845 m <sup>3</sup>	per 100m <sup>3</sup> 297,619	17,395,831	U-41	
Banking	1,057 m <sup>3</sup>	per 10m <sup>3</sup> 40,635	4,295,120	U-45	
Gravel Paving	347 m <sup>3</sup>	62,626	21,731,222	U-47	
Road Paving	630 m <sup>2</sup>	per 10m <sup>2</sup> 198,010	12,474,630	U-67	Broken Stone Consolidation
Culvert (CMP)	21 m	188,859	3,966,039	U-52	ø1.0
Total			59,862,842		

No.25 2-2 Overflow Road		Detail				
(Structure)						
Boulder concrete, CMP diameter 1.0m Length 15.0m						
0-2 11-①						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Boulder Concrete	29.5	m <sup>3</sup>	per 10m <sup>3</sup> 925,132	2,729,139	U-55	
Frame	106.5	m <sup>2</sup>	per 100m <sup>2</sup> 1,217,120	1,296,233	U-64	
Excavation	24.5	m <sup>3</sup>	per 10m <sup>3</sup> 127,372	312,061	U-43	Rock Excavation
Broken Stone Pavement	60.0	m <sup>2</sup>	per 10m <sup>3</sup> 198,010	1,188,060	U-67	
CMP	5.5	m	188,859	1,038,725	U-52	ø1.0m
Total				6,564,218		

No. 26 3 No. 3, No. 4 Bridge		Detail				
(Structure) No. 3 and No. 4 Bridge						
D-2 12-①~14-⑥, 15-①~15-⑤						
Item	Quantity	Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
Ordinary Soil Removal	9,378	m <sup>3</sup>	per 100m <sup>3</sup> 297,619	27,910,710	U-41	3-1
Banking	1,804	m <sup>3</sup>	per 10m <sup>3</sup> 40,635	7,330,554	U-45	
Gravel Paving	680	m <sup>3</sup>	62,626	42,585,680	U-47	
Sub Total				77,826,944		
Culvert CMP ø0.6	30	m	125,008	3,750,240	U-51	
Culvert CMP ø1.0	18	m	188,859	3,399,462	U-52	
Sub Total				7,149,702		
Total				84,976,646		
No. 3 Bridge	L=14.0m					3-2
Girder Construction	1	Set		772,702	D-39	
Slab	1	Set		6,922,383	D-42	
Paving	2.9	m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	348,736	U-56	
Scaffolding	105.6	m <sup>2</sup>	per 10m <sup>3</sup> 35,943	379,558	U-65	
Timbering	403.2	m <sup>3</sup>	per 100m <sup>2</sup> 815,058	3,286,314	U-62	
Painting	84.9	m <sup>2</sup>	per 100m <sup>2</sup> 250,149	212,377	U-53	
Railing	30.0	m	per 100m 130,820	39,246	U-54	
Abutment	1	Set		10,070,721	D-43	
Girder Transportation	1	Set		661,050	D-37	
Temporary Road, Temporary Bridge	1	Set		4,151,772	D-44	
Total				26,844,859		

No. 27 No. 3, No. 4 Bridge Detail

(Structure) No. 3 and No. 4 Bridge

D-2 16-①~16-⑤

Item	Quantity Unit	Unit Cost (Rupiah)	Amount (Rupiah)	Unit Cost Table No.	Remarks
No.4 Bridge	L=20.0m				
Girder Construction	1 Set		993,903	D-31	
Slab	1 Set		9,546,405	D-35	
Paving	4.1 m <sup>3</sup>	per 10.0m <sup>3</sup> 1,202,537	493,040	U-56	
Scaffolding	150.8 m <sup>2</sup>	per 10m <sup>3</sup> 35,943	542,020	U-65	
Timbering	480.0 m <sup>3</sup>	per 100m <sup>2</sup> 815,058	3,912,278	U-62	
Painting	125.0 m <sup>2</sup>	per 100m <sup>2</sup> 250,149	312,686	U-53	
Railing	42.0 m	per 100m 130,820	54,944	U-45	
Abutment	1 Set		10,273,990	D-45	
Girder Transportation	1 Set		661,050	D-37	
Temporary Road	1 Set		1,528,464	D-46	
Total			28,318,780		
Total			140,140,285		

Construction Expenses

Construction Site	Facility	Number of Buildings	Area	Construction Expenses	Remarks
Field Station	Office (4 laboratories)	1	492	159,900,000	
	Garage	1	200	52,098,000	
	Machine Workshop	1	100	36,615,000	
	Warehouse	1	200	30,799,000	
	Seed Storage Room	1	10	4,666,000	
	Oil Bunker	1	10	4,550,000	
	Electric Generator	1	30	13,236,000	<del>301,864</del>
Model Area	Nursery Work Areas	4	400	5,870,000 X 4 23,480,000	
	Compost Area	1	48	8,925,000	
	Garage	1	200	52,043,000	
	Warehouse	1	50	9,215,000	
	Oil Bunker	1	10	4,550,000	
	Electric Generator	1	30	13,236,000	
	Soil Placing	1	50	2,432,000	<del>113,881</del>
	Total			415,745,000	



Field Station 2

Breakdown of Construction Expenses (Office)

Item	Summary	Amount	Remarks
Temporary Works		8,058,010	
Earthworks		956,080	
Reinforced Concrete Works		53,873,330	
Steel-frame Works		5,564,440	
Framing Work		9,630,448	
Tiling		16,390,180	
Carpentry		3,601,108	
Roofing		8,855,584	
Finish Carpentry		5,564,410	
Painting		28,600	
Water Supply and Sewage		8,763,870	
Electrical Work		13,707,600	
Sub-total		134,993,660	
Common Temporary Expenses 3%		4,049,809	
Miscellaneous Works		20,856,531	139,043,460 x 0.15
Total		159,900,000	

Field Station 4

Breakdown of Construction Expenses (Garage 200m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		4,330,914	
Foundation Work		19,654,303	
Steel-frame Works		10,724,041	
Framing Works		1,781,496	
Roofing		2,510,620	
Metal-works		1,308,080	
Plastering		1,434,472	
Finish Carpentry		1,445,340	
Miscellaneous Works		793,000	
Sub Total		43,983,266	
Common Temporary Expenses		1,319,497	
Miscellaneous Expenses		6,795,237	
Total		52,098,000	

Field Station 5

Breakdown of Construction Expenses (Machine Workshop 100m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		2,443,114	
Foundation Works		10,716,060	
Steel-frame Works		8,576,293	
Roofing		6,218,892	
Metal-works		1,146,546	
Plastering		299,572	
Finish Carpentry		926,760	
Miscellaneous Works		585,000	
Sub Total		30,912,237	
Common Temporary Expenses		927,367	
Miscellaneous Expenses		4,775,396	31,839,604
Total		36,615,000	

## Field Station 6

Breakdown of Construction Works (Warehouse 200m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		4,143,886	
Foundation Work		9,878,074	
Brick-work		2,427,084	
Carpentry		4,881,987	
Roofing		1,623,640	
Plastering		1,280,448	
Finish Carpentry		1,108,925	
Painting		94,800	
Miscellaneous Works		562,850	
Sub Total		26,001,694	
Common Temporary Expenses	3%	780,050	
Miscellaneous Expenses		4,017,256	26,781,744×0.15
Total		30,799,000	m <sup>2</sup> = 11,850

## Field Station 8

Breakdown of Construction Expenses (Seed Storage Room 10m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		356,559	
Foundation Works		918,232	
Framing Work		1,299,348	
Steel-framing Works		271,370	
Carpentry		164,630	
Roofing		142,556	
Plastering		668,304	
Finish Carpentry		118,045	
Sub Total		3,939,044	
Common Temporary Expenses	3%	118,171	
Miscellaneous Expenses	15%	608,785	4,057,215
Total		4,666,000	m <sup>2</sup> = 35,900

Field Station 9, Model Area 5

Breakdown of Construction Works (Oil Bunker 10m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		356,559	
Foundation Work		960,362	
Framing Work		1,299,348	
Steel-frame Works		271,370	
Carpentry		12,134	
Roofing		142,556	
Plastering		672,984	
Finish Carpentry		125,860	
Sub Total		3,841,173	
Common Temporary Expenses	3%	115,235	
Miscellaneous Expenses		5,935,592	3,956,408×0.15
Total		4,550,000	m <sup>2</sup> = 35,000

Field Station 10, Model Area 6

Breakdown of Construction Expenses (Electric Generator 30m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		1,206,177	
Foundation Works		2,748,365	
Framing Work		2,247,300	
Carpentry		48,805	
Steel-frame works		2,041,852	
Metal-works		441,742	
Plastering		1,243,007	
Finish Carpentry		286,855	
Miscellaneous Works		910,000	
Sub Total		11,174,103	
Common Temporary Expenses		335,223	
Miscellaneous Expenses		1,726,674	
Total		13,236,000	

Model Area 1

Breakdown of Construction Works (Workshop 200m<sup>2</sup> Potting House

Item	Digest	Amount (₹)	Remarks
Temporary Works		3,749,228	
Foundation Work		729,478	
Metal-work		1,016,600	
Carpentry		2,130,273	
Roofing		2,149,917	
Sub Total		9,775,496	
Common Temporary Expenses	3%	293,264	
Miscellaneous Expenses		1,671,240	10,068,760×0.15
Total		11,740,000	m <sup>2</sup> = 4,500

$$5,870,000 \times 4 = 23,480,000 \text{ Rupiahs}$$

Model Area 2

Breakdown of Construction Expenses (Compost Area 48m<sup>2</sup>)

Item	Digest	Amount (₹)	Remarks
Temporary Works		1,362,807	
Foundation Works		3,272,386	
Brick-work		1,062,360	
Carpentry		791,853	
Roofing		355,936	
Plastering		677,040	
Painting		11,850	
Sub Total		7,534,232	
Common Temporary Expenses	3%	226,026	
Miscellaneous Expenses		1,164,742	7,760,258×0.15
Total		8,925,000	m <sup>2</sup> = 14,300

Model Area 3

Breakdown of Construction Works (Garage 200m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		4,330,914	
Foundation Work		19,654,303	
Steel-frame Works		10,724,041	
Framing Work		1,781,496	
Roofing		2,510,620	
Metal-works		1,308,080	
Plastering		1,434,472	
Finish Carpentry		1,399,140	
Miscellaneous Works		793,000	
Sub Total		43,936,066	
Common Temporary Expenses		1,318,081	
Miscellaneous Expenses		6,788,853	
Total		52,043,000	

Model Area 4

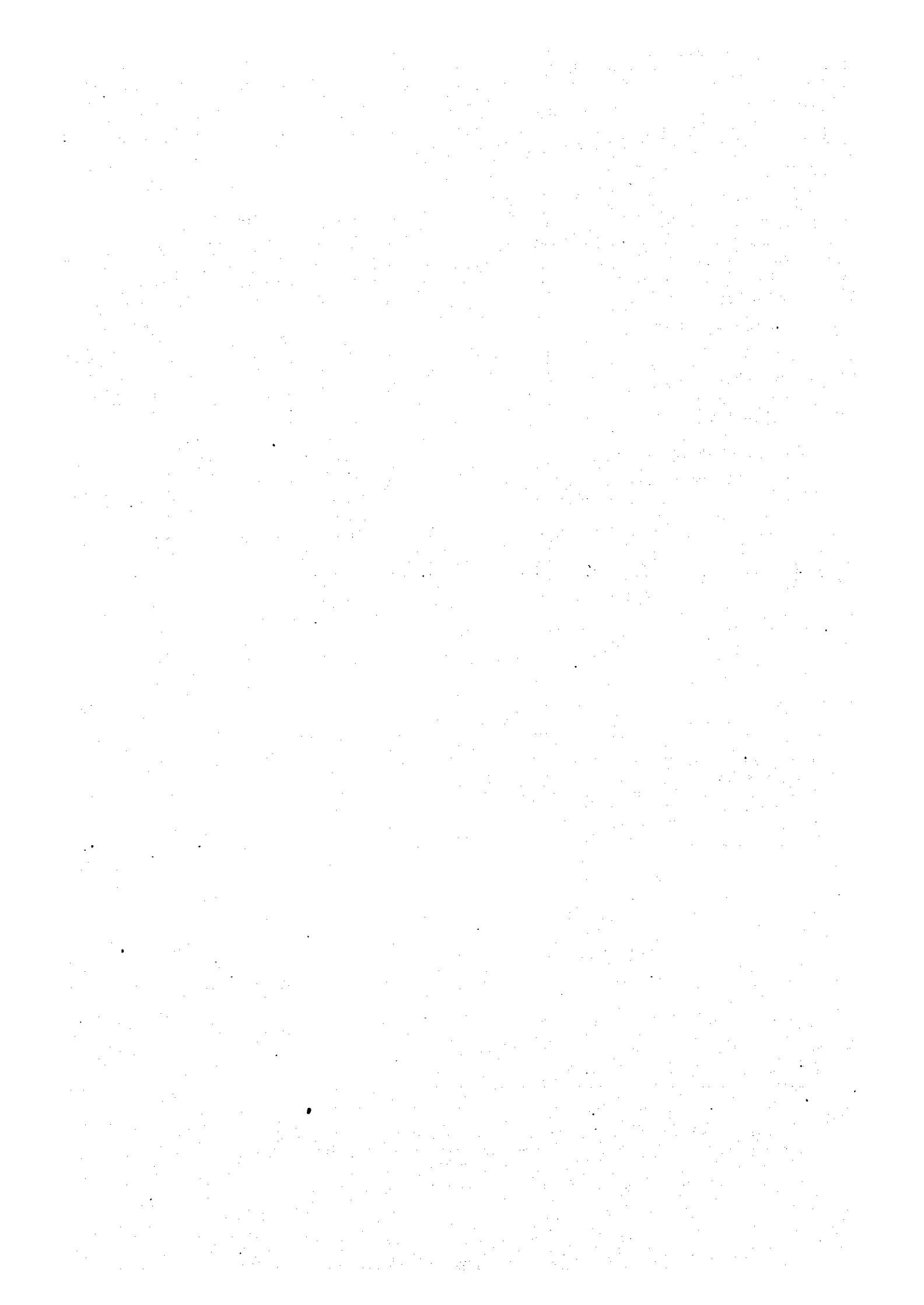
Breakdown of Construction Expenses (Warehouse 50m<sup>2</sup>)

Item	Digest	Amount (¥)	Remarks
Temporary Works		1,310,821	
Foundation Works		2,316,606	
Brick-work		547,524	
Carpentry		1,486,258	
Roofing		550,588	
Plastering		600,912	
Finish Carpentry		655,480	
Painting		23,700	
Miscellaneous Works		287,900	
Sub Total		7,779,789	
Common Temporary Expenses	3%	233,393	
Miscellaneous Expenses		1,201,818	8,013,182×0.15
Total		9,215,000	m <sup>2</sup> = 15,000

Model Area 7

Breakdown of Construction Works (Soil Placing 50m<sup>3</sup>)

Item	Digest	Amount (₩)	Remarks
Temporary Works		1,076,496	
Foundation Work		156,793	
Metal-works		221,000	
Carpentry		598,258	
Sub Total		2,052,547	
Common Temporary Expenses	3%	61,576	
Miscellaneous Expenses		317,877	2,114,123
Total		2,432,000	





X V. ANNEX-1 CONTRACT (PLAN)

Construction of .....

.....

This Contract is executed on this ..... day of .....  
at the JICA ..... Office between

THE JICA OFFICE

by .....  
as representative of the JICA Office, hereinafter called "the JICA" of the  
one part, and .....  
whose office is situated at .....  
.....  
Tel. .... represented by ..... Age ....  
Nationality ..... Title .....  
authorized to act on behalf of .....  
according to Power of Attorney No. .... dated .....  
which is attached to this Contract, hereinafter called "the Contractor",  
of the other part.

Both parties mutually agree as follows:

Article 1

The JICA agrees to employ the contractor and the Contractor agrees to  
perform the Works for the execution of .....  
.....  
.....  
located at .....  
.....Total ..... items, for the total  
of ..... (.....)  
under the terms of this Contract as follows:

1.2 As a security for the faithful performance of the Works under  
this Contract, the contractor has on the execution of this Contract  
deposited a performance bond with the JICA ..... (.....  
.....) in cash, or in lieu thereof a Bank Guarantee issued  
by the ..... bearing the number .....  
and dated ..... in the amount of .....



(.....) which represents 5 (five) percent of the Contract Price.

The JICA will return the Performance Bond in cash or the Bank Guarantee to the Contractor at the end of the 12 (twelve) months after final acceptance of the Works by the JICA as stipulated in Article 11 of this Contract, provided that the completed Works shall not show any defect or damage caused through the fault of the Contractor, or through the fault of any subsequent Contractor in the case of termination of Contract by the JICA under Articles 5 and 6.

Should the Contractor be in default, the JICA shall have the right to demand payment from all or any part of the performance Bond.

#### Article 2

The JICA warrants to effect payment for the Works mentioned in Article 1 to the Contractor at the interval of 40 days by paying 90 (ninety) percent of the installment payments for the Works executed upon satisfactory acceptance of the Works by the Inspection Committee. The remaining 10 (ten) percent, being a Retention Money, will be paid to the Contractor after the entire Works have been satisfactorily completed and finally accepted by the JICA.

#### Article 3

In execution of the Works mentioned in Article 1, the Contractor agrees to furnish all materials, equipment, vehicles, labors and skilled workers including all the facilities incidental to the construction of the said Works. If for any reasons the Contractor should not be able to successfully complete the Works he shall be deemed to be in default. Any equipment brought to the site for use on the Works shall not be removed without prior approval of the Inspection Committee.

#### Article 4

As part of the obligation between the parties, the Contractor agrees that all parts of the Works constructed by the Contractor as well as all construction equipment, materials and supplies etc., which are specifically brought onto the site for the performance of the Works called for in Article 1 shall become the property of the JICA. Any damage caused to the above construction equipment and supplies etc. as a consequence of force majeure, shall be the responsibility of the Contractor, who shall properly repair or replace such damaged items. The Contractor's responsibility under this Article shall expire upon final acceptance of the Works as are provided for in Article 11.

After successful completion and final acceptance of the Works by the JICA, the Contractor will be allowed to remove the equipment, surplus materials and or supplies from the site.

Article 5 Completion Time

The Contractor agrees to satisfactorily complete the Works within ..... days (Completion time) following the date on which this Contract is executed which will become due on ....., and he agrees to commence the Works at the site on or before .....

If the Contractor fails to commence the Works by the above named date, or should in the course of the construction by the Contractor any event occur which may reasonably cause the JICA to believe that the Contractor will not be able to complete the Works within the specified period, or the Contractor fails to complete the Work by the specified date, or should the Contractor fail to meet any of the Contract requirements, then the JICA shall have the right to terminate this Contract.

In case the Contractor is in default as aforementioned irrespective of whether the Contract is terminated by the JICA or the Contractor is permitted to work beyond the specified completion date as specified in Article 5 or Article 6, the Contractor agrees to be responsible to the JICA as follows:

a. Pay a penalty of .....  
.....  
.....) per day counting from the date following the completion date specified in Article 5 and Article 6, until the Works are satisfactorily completed either by the Contractor or by any subsequent Contractor as stipulated in Article 7.

b. Reimburse to the JICA any losses sustained by the JICA either as direct damage or as a consequence of the Contractor having failed to meet the Contract requirements.

c. All construction Works and equipment, supplies etc. remaining at the site shall become the property of the JICA.

The JICA has the sole right to decide whether to impose on the Contractor only the penalty, or to claim for damages and to confiscate also the construction equipment and supplies etc. as stated in b and c above. The money due to the JICA as the result of the JICA exercising its right under this Article may be retained and deducted by JICA from any money due to the Contractor but yet unpaid.

#### Article 6 Suspension Time and Extension Time

In the event that the Inspection Committee considered that the performance of Work is difficult on account of meteorological conditions, the Inspection Committee shall have the right to order the Contractor to suspend the Work temporarily. The suspension time shall last as long as the Inspection Committee thinks fit and shall not be counted as part of the Completion time period. No payment of whatever kind, except the amount stipulated in the Item 38 of the Bill of Quantities, shall be made by JICA to the Contractor during such suspension time.

In the event that the Inspection Committee considered that such meteorological conditions no longer hinder the performance of the Work, the Inspection Committee shall order the Contractor to resume the Work. In such event the Contractor shall resume the Work on or before the day specified by JICA. The failure of the Contractor to do so shall be subject to the right of JICA to terminate the Contract and also to exercise the rights under the Article 5 (a), (b) and (c).

If suspension time has been actually ordered by the Instruction Committee, extra 14 days shall be given as extension time to the completion time of 120 days by the Inspection Committee.

#### Article 7

After the Contract has been terminated in accordance with the foregoing Article 5, 6 the JICA may employ another contractor to carry on the remaining part of the Works, payment for which will be made out of the remaining Contract cost. Should the remaining funds be sufficient to effect payment to the new contractor until the Works are satisfactorily completed, the difference between the remaining portion of the Contract cost and the actual cost incurred by the JICA in engaging the new contractor to complete the Works, shall be deemed as a loss sustained by the JICA and the Contractor shall pay to the JICA such difference in cost. However, the Contractor shall be liable for such damages caused by his failure to meet the Contract requirements in respect of the time spent in finding a new contractor and in carrying out the construction until the Works are satisfactorily completed. the penalty for delay will also be enforced on a daily basis at the rate specified in Article 5 counting from the specified completion date until the Works are actually completed.

#### Article 8

The Contractor shall furnish to the Inspection Committee a daily

statement throughout the course of the construction showing the number of ..... and alien laborers engaged on the job. If the number of laborers is less than 75 percent of the total labor forces the Contractor shall be fined at the rate of ..... per one laborer per shift for each number of ..... laborers short of 75 per cent.

#### Article 9

The Contractor shall arrange for his employees to have identification cards to identify themselves when payment of wages is made.

Such identification card shall bear the employee's photograph where available. If no photograph is available the card shall bear the employee's signature, and if any of the employees cannot sign his name, the identification card shall bear his fingerprints to be certified by 2 witnesses.

Each employee's identification card shall show the wage rate at which he is hired or agreed upon.

#### Article 10

Upon termination of his employment for any reason, the employee's identification card shall be collected by the Contractor. Should it not be possible to collect the identification card from any employee whose service is terminated, the Contractor shall promptly notify the JICA of the name of such employee.

#### Article 11

Within a period of 1 year after satisfactory completion and final acceptance of the Works by the JICA, whether completed by the Contractor or by the new Contractor in case of termination of Contract under Article 5, any damage to the Works which may be caused by the Contractor's fault, either because of defective or craftsmanship or the use of inferior materials, shall be made good as necessary to the satisfaction of the JICA at no extra cost to the JICA in respect of the materials and labors, unless otherwise the Contractor can prove to the satisfaction of the JICA that such damage was done by the new Contractor in case of termination of Contract under Article 5 and 6. Should the Contractor fail to make good recovery of the damage or defect aforementioned within 15 days after the receipt of written request to do so from the JICA, the JICA shall have the right to employ another person to carry out such work as may be necessary at the Contractor's expenses.

#### Article 12

If, prior to or during the course of construction, any discrepancies are found in the Drawings or Technical Specification, etc. attached to this Contract, the Contractor shall follow the ruling given by the Inspection Committee or Sub-Inspection Committee. If the ruling of the Inspection Committee shall correspond to any details of the Drawings it shall be deemed as final. However, if the details of the said discrepancies have been omitted in the Drawings, but such details are required for satisfactory completion of the Works, the Contractor shall perform such work at no additional cost to JICA.

#### Article 13

The JICA reserves the right to furnish the Contractor through the Inspection Committee or Sub-Inspection Committee at a reasonable time ahead of construction with such additional details and construction drawings and other information as may be necessary for the successful completion of the Works. Such additional drawings and information shall form part of the Contract documents and shall not entitle the Contractor to any additional payments. The Contractor shall not execute any part of the Works without having detailed construction drawings. He shall also keep such drawings at the site at all time ready for inspection by the JICA or the Inspection Committee.

#### Article 14

The Contractor shall supervise the performance of the Works all the time or he shall appoint a construction engineer to inspect the construction operation at the Works. Such construction engineer shall be authorized to act on behalf of the Contractor in his absence. All the instructions given to him shall be deemed as given to the Contractor. Such construction engineer shall be the person accepted by the JICA and the Contractor shall not replace obtaining prior approval of the JICA.

#### Article 15

An Inspection Committee or a representative to be stationed at the site will be appointed by the JICA. The Inspection Committee or its representative shall at all times have access to the Works whether it is in preparation or progress, and the Contractor shall promptly furnish all facilities to and cooperate with the Inspection Committee or its representative as may be necessary for the proper inspection of the Works. If the Inspection Committee or its representative shall determine

that any part of the Works is not being carried out in accordance with the Drawings and Specifications, it shall have the right to suspend such Works. The Contractor shall have no claim against the JICA for the extension of time due to suspensions of the Works under this Article.

Notwithstanding the presence of the Inspection Committee or its representative on the site as aforesaid, the Contractor will not be relieved of his responsibility to observe the Contract requirements and for the acceptability of the finished Works. The Contractor agrees to correct any part of the Works which is found not to have been performed in a faithful manner and any work which is not properly performed within the time specified in writing by the Inspection Committee.

#### Article 16

The Inspection Committee or its representative may request the Contractor to remove any of the Contractor's foremen or engineer if it is evident that each foreman or engineer is not suitable or is incapable of handling his crews, and the Contractor shall promptly replace any such foreman or engineer. No extra cost or claim for extension of time will be allowed because of such replacement.

#### Article 17

The Contractor shall not sub-let any portion of the Works under this Contract without obtaining prior written approval of the JICA. If the subcontractor shall be required JICA shall decide which portion of the work may be assigned to the subcontractor. However the Contractor shall fully remain responsible for the works done by the subcontractor.

#### Article 18

The JICA shall have the right to make variations of, or increase or decrease the quantity of Works in the Drawings and Specifications without thereby invalidating the Contract. Adjustment of payment for such work shall be made in accordance with the unit price stipulated in the Bill of Quantities.

#### Article 19

Submission of invoices for payment shall be made by the Contractor through the inspection Committee or its representative. Payments will be made within reasonable time after the Inspection Committee has verified the correctness of the invoices.

#### Article 20

The Contractor shall furnish his own workshop and warehouse and



provided sanitary conveniences on the site and shall also dispose of debris and garbage every day.

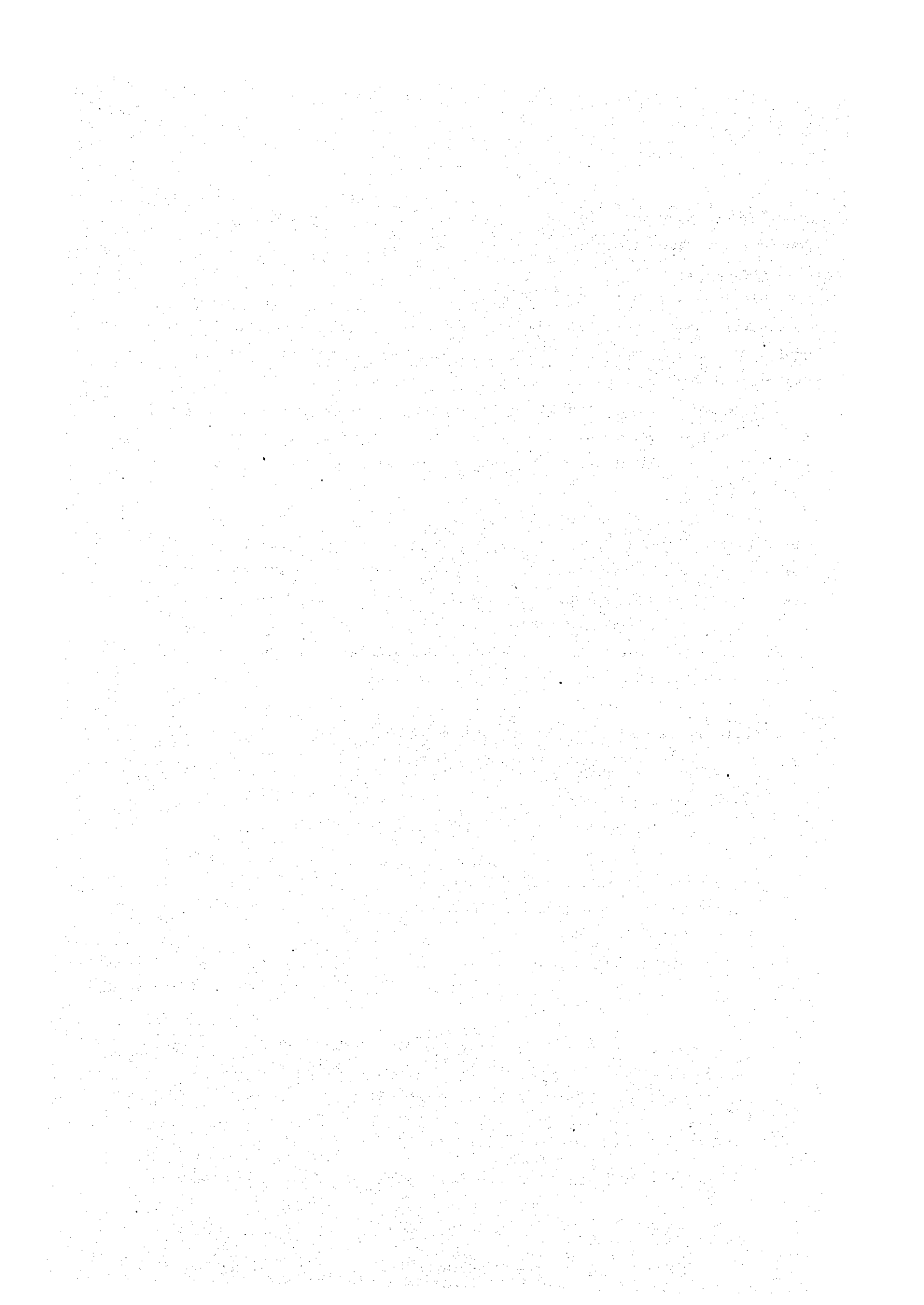
Article 21

Within 7 days after final acceptance of the Works by the JICA, the Contractor shall remove from the site all plants, temporary buildings, equipment rubbish, concrete forms and similar materials and shall leave the site of Work in a clean and orderly condition.

This Contract is executed in two identical counterparts, one for each party. Both the JICA and the Contractor have set their signature and affixed the seals thereto in the presence of the witnesses.

Article 22

In the event of any dispute arising from the interpretation and performance of the terms of this Contract, both parties agree to make the best attempt with sincerity and goodwill to negotiate and amicably settle such dispute, in failing which the parties agree to refer such dispute to arbitration by 2 arbitrators, each of which is to be appointed by each party. If either party fails to appoint its arbitrator within 7 days or should the arbitrators fail, within 15 days after their appointment, to agree upon the decision of the dispute or no decision is reached on the appoint of an umpire, then the dispute shall be brought before the Court in ..... for decision under the laws and procedures of .....



XVI ANNEX-2 WATER SUPPLY SYSTEM BY PUMPING

WATER SUPPLY SYSTEM BY PUMPING

A. MECHANICAL WORKS

1) Materials Cost

- Lift Pump 40 MSH x 70 /min x 150 MH x 3Ø x 380 V x 7.5 kW (10 HP)	4 set	Rp. 9,390,000.-	Rp. 37,560,000.-
- Galvanized Steel Pipe BS 1387/Medium Class 40 A x 6 M	118 Pcs	Rp. 58,000.-	Rp. 6,844,000.-
- Ditto Fitting	1 Lot		Rp. 2,080,000.-
- Ditto support	1 Lot		Rp. 1,389,000.-
- Gate Valve BC 40 A	4 Pcs	Rp. 27,000.-	Rp. 108,000.-
- Check Valve BC 40 A	4 Pcs	Rp. 38,000.-	Rp. 152,000.-
- Flexible Tube BC 40 A	8 Pcs	Rp. 105,000.-	Rp. 840,000.-
- Y-Strainer BC 40 A	4 Pcs	Rp. 113,000.-	Rp. 452,000.-
- Miscellaneous Materials	1 Lot		Rp. 1,495,000.-

Sub Total			Rp. 50,920,000.-
1 Lot			Rp. 4,030,000.-
3 Set	Rp. 4,550,000.-		Rp. 13,650,000.-

2) Labour Cost

3) Storage Tank (10 M3)

1) - 3) Total			Rp. 68,600,000.-
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B. ELECTRICAL WORKS

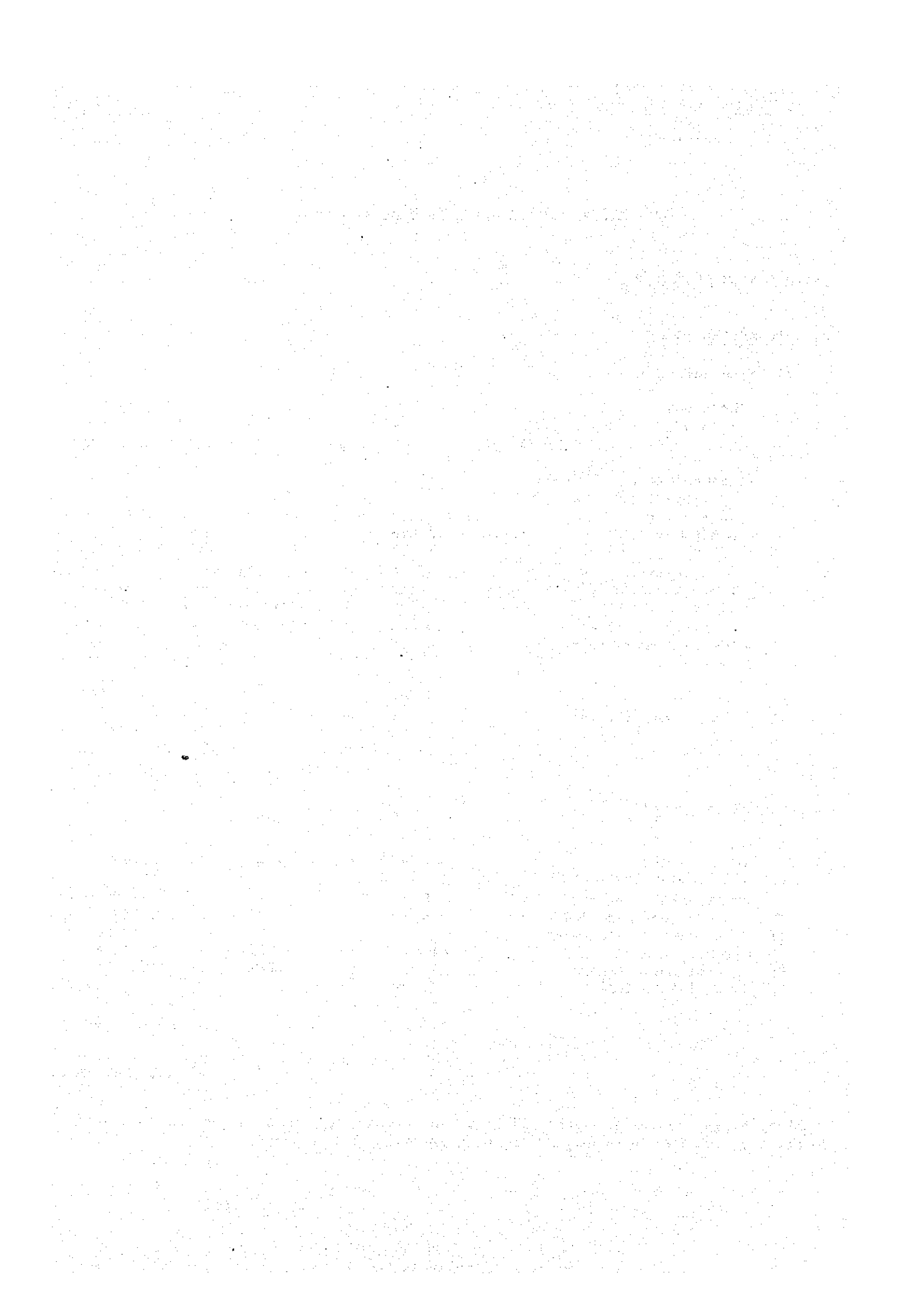
1) Generator Set 50 KVA 3Ø 380 V 1500 rpm	2 Unit	Rp.29,900,000.-	Rp. 59,800,000.-
2) Oil Storage System and Supply System 30 M3	1 Lot		Rp. 14,950,000.-
3) Control Panel for Pump	1 Set		Rp. 2,240,000.-
4) Cabling Works for Pump NYFGBY 4 c x 16 mm	640 M	Rp. 22,400.-	Rp. 14,336,000.-
5) Control Cable Works	960 M	Rp. 11,900.-	Rp. 11,424,000.-
6) Installation Cost	1 Lot		Rp. 5,450,000.-

Total Rp.108,200,000.-

A + B TOTAL Rp.176,800,000.-

(13,600,000 YEN)

Cost by piping system is Rp.88,637,111. And pumping system needs operation coast every day. Therefore piping should be adopted in this project.



XVII. ANNEX-3 LABOR MATERIALS, ETC. UNIT COST TABLE

Item	Cost (Rp.)	Unit	Remarks
Sand	17,025	m <sup>3</sup>	
Gravel	19,295	m <sup>3</sup>	
Cement	4,825	Bag	(40 kg)
Nail	2,270	kg	
Iron Wire	2,270	kg	
Rainforce Bar	750,000	Ton	φ 9 mm - 22 mm
Wood, Timber	386,320	m <sup>3</sup>	
Gasoline	365		
Light Oil	230		
Driver	7,380	Day	
General Worker	5,675	Day	
Carpenter	8,510	Day	
Mason	7,380	Day	
Rainforce-Worker	7,380	Day	
Electrician	7,380	Day	
Painter	7,380	Day	
Foreman	11,350	Day	
Buldozer	56,750	Hour	15 ton
Truck	11,350	Hour	8 ton
Crane	45,400	Day	10 ton
Tractor	122,700	Day	
Truck	90,800	Day	4 ton
Vibrator	6,810	Day	
Back-Hoe	238,350	Day	
Concrete Mixer	20,000	Day	
Plywood	18,160	Sheet	12 mm x 4" x 8"
Paint	4,540	kg	

