

Table VII-5 Breakdown of Construction Cost of Irrigation and Drainage Systems

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
<u>Head race</u>						
A. Earthworks						
A.1	Excavation	m <sup>3</sup>	68,000	82,300	69,700	152,000
A.2	Embankment	m <sup>2</sup>	2,000	1,800	1,500	3,200
A.3	Sod facing	m <sup>3</sup>	13,000	-	2,600	2,600
A.4	Transportation	m	66,000	77,900	45,200	123,100
	<u>Sub-total</u>			<u>162,000</u>	<u>119,000</u>	<u>281,000</u>
B. Concrete works						
B.1	Concrete	m <sup>3</sup>	96	100	7,100	7,200
B.2	Reinforcement bars	tons	6	-	5,500	5,500
B.3	Forms for concrete	m <sup>2</sup>	430	-	2,000	2,000
B.4	Minor works	L.S.			1,300	1,300
	<u>Sub-total</u>			<u>100</u>	<u>15,900</u>	<u>16,000</u>
C. Miscellaneous						
				7,900	5,100	13,000
	<u>Total</u>			<u>170,000</u>	<u>140,000</u>	<u>310,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
<u>Block 1</u>						
A.	Irrigation canals	ha				
A.a	Main irrigation canal (4.0 km)					
A.a.1	Stripping of top soil	m <sup>3</sup>	3,200	2,900	1,900	4,800
A.a.2	Excavation	m <sup>3</sup>	700	400	500	900
A.a.3	Embankment	m	13,300	27,500	18,300	45,800
	<u>Sub-total</u>			<u>30,800</u>	<u>20,700</u>	<u>51,500</u>
A.b	Secondary irrigation canal (0.6 km)					
A.b.1	Stripping of top soil	m <sup>3</sup>	600	500	400	900
A.b.2	Excavation	m <sup>3</sup>	600	400	500	900
A.b.3	Embankment	m	400	700	400	1,100
	<u>Sub-total</u>			<u>1,600</u>	<u>1,300</u>	<u>2,900</u>
A.c	Distribution canal (13.6 km)					
A.c.1	Stripping of top soil	m <sup>3</sup>	7,200	6,500	4,300	10,800
A.c.2	Excavation	m <sup>3</sup>	100	100	100	200
A.c.3	Embankment	m	11,000	19,900	14,400	34,300
	<u>Sub-total</u>			<u>26,500</u>	<u>18,800</u>	<u>45,300</u>
A.d	Structures related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	15	12,400	9,800	22,200
A.d.2	Turnout on distribution canal	nos.	137	300	54,200	54,500
A.d.3	Cross regulator	nos.	3	1,800	1,800	3,600
A.d.4	Culvert (2), Drop (1), and Wasteway (2)	L.S.		100	2,600	2,900
	<u>Sub-total</u>			<u>14,600</u>	<u>68,400</u>	<u>83,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.e	Farm pond (1 no.)					
A.e.1	Stripping of top soil	m <sup>3</sup>	1,100	1,000	700	1,700
A.e.2	Excavation	m <sup>3</sup>	3,000	2,000	2,500	4,500
A.e.3	Embankment	m <sup>2</sup>	3,700	5,500	3,700	9,200
A.e.4	Sod facing	m	2,200	-	500	500
A.e.5	Inlet and outlet structures	nos.	2	100	2,000	2,100
	<u>Sub-total</u>			<u>8,600</u>	<u>9,400</u>	<u>18,000</u>
A.f	Miscellaneous			7,900	11,400	19,300
	<u>Total for item A</u>			<u>90,000</u>	<u>130,000</u>	<u>220,000</u>
B.	Drainage canals					
B.a	Main drain (5.8 km)	m <sup>3</sup>	23,000	15,200	19,100	34,300
B.a.1	Excavation					
B.b	Collector drain (21.0 km)	m <sup>3</sup>	31,500	20,800	26,100	46,900
B.b.1	Excavation					
B.c	Structures related to the drains					
B.c.1	Drain culvert	nos.	210	2,100	73,500	75,600
B.d	Miscellaneous			3,900	11,300	15,200
	<u>Total for item B</u>			<u>42,000</u>	<u>130,000</u>	<u>172,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
C.	Roads					
C.a	Tertiary roads (12.2 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	4,900	4,400	3,000	7,400
C.a.2	Excavation	m <sup>3</sup>	6,100	4,300	4,900	9,200
C.a.3	Embankment	m <sup>2</sup>	8,500	10,700	7,900	18,600
C.a.4	Laterite pavement, width 4 m	m	48,800	24,400	39,100	63,500
	<u>Sub-total</u>			<u>43,800</u>	<u>54,900</u>	<u>98,700</u>
C.b	Minor works		L.S.	2,200	3,100	5,300
	<u>Total for item C</u>			<u>46,000</u>	<u>58,000</u>	<u>104,000</u>
D.	On-farm development					
D.a	Site clearing for forest	ha	50	18,700	12,100	30,800
D.b	Field preparation	L.S.		18,000	22,000	40,000
D.c	Miscellaneous			3,300	5,900	9,200
	<u>Total for item D</u>			<u>40,000</u>	<u>40,000</u>	<u>80,000</u>
	<u>Total</u>			<u>218,000</u>	<u>358,000</u>	<u>576,000</u>
	<u>Block 2</u>					
A.	Irrigation canals	ha				
A.a	Main irrigation canal (7.4 km)					
A.a.1	Stripping of top soil	m <sup>3</sup>	7,700	6,900	4,600	11,500
A.a.2	Excavation	m <sup>3</sup>	21,400	14,100	17,700	31,800
A.a.3	Embankment	m	19,800	31,700	19,900	51,600
	<u>Sub-total</u>			<u>52,700</u>	<u>42,200</u>	<u>94,900</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
A.b	Secondary irrigation canal (1.4 km)					
A.b.1	Stripping of top soil	3 m <sup>3</sup>	1,200	1,100	700	1,800
A.b.2	Excavation	m <sup>3</sup>	900	600	800	1,400
A.b.3	Embankment	m	5,100	8,100	5,100	13,200
	<u>Sub-total</u>			<u>9,800</u>	<u>6,600</u>	<u>16,400</u>
A.c	Distribution canal (14.2 km)					
A.c.1	Stripping of top soil	3 m <sup>3</sup>	7,000	6,300	4,200	10,500
A.c.2	Excavation	m <sup>3</sup>	100	100	100	200
A.c.3	Embankment	m	10,900	17,100	14,200	31,300
	<u>Sub-total</u>			<u>23,500</u>	<u>18,500</u>	<u>42,000</u>
A.d	Structures related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	18	16,500	12,600	29,100
A.d.2	Turnout on distribution canal	nos.	131	300	56,800	57,100
A.d.3	Cross regulator	nos.	4	4,800	2,400	7,200
A.d.4	Culvert (1), Drop (1), Spillway (2) and Wasteway (2)	L.S.		100	4,400	4,500
	<u>Sub-total</u>			<u>21,700</u>	<u>76,200</u>	<u>97,900</u>
A.e	Farm pond (2 nos.)					
A.e.1	Stripping of top soil	3 m <sup>3</sup>	2,600	2,400	1,500	3,900
A.e.2	Excavation	m <sup>3</sup>	7,100	4,700	5,900	10,600
A.e.3	Embankment	m <sup>3</sup>	7,500	15,600	10,400	26,000
A.e.4	Sod facing	m	4,500	-	900	900
A.e.5	Inlet and outlet structures	nos.	4	200	3,700	3,900
	<u>Sub-total</u>			<u>22,900</u>	<u>22,400</u>	<u>45,300</u>
A.f	Miscellaneous					
				19,400	14,100	33,500
	<u>Total for Item A</u>			<u>150,000</u>	<u>180,000</u>	<u>330,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
B.	Drainage canals					
B.a	Main drain (3.7 km)	m <sup>3</sup>	13,000	8,600	10,800	19,400
B.a.1	Excavation					
B.b	Collector drain (23.5 km)	m <sup>3</sup>	32,900	21,700	27,300	49,000
B.b.1	Excavation					
B.c	Structures related to the drains	nos.	235	2,400	82,300	84,700
B.c.1	Drain culvert			3,300	11,600	14,900
B.d	Miscellaneous			36,000	132,000	168,000
	<u>Total for item B</u>					
C.	Roads					
C.a	Secondary roads (5.8 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	5,000	4,500	3,000	7,500
C.a.2	Excavation	m <sup>3</sup>	3,000	2,700	2,400	5,100
C.a.3	Embankment	m <sup>2</sup>	9,000	13,100	9,500	22,600
C.a.4	Laterite pavement, width 6 m	m	34,800	17,400	27,800	45,200
	<u>Sub-total</u>			37,700	42,700	80,400
C.b	Tertiary roads (5.9 km)					
C.b.1	Stripping of top soil	m <sup>3</sup>	2,400	2,200	1,500	3,700
C.b.2	Excavation	m <sup>3</sup>	3,000	2,100	2,400	4,500
C.b.3	Embankment	m <sup>2</sup>	4,200	5,300	3,900	9,200
C.b.4	Laterite pavement, width 4 m	m	23,600	11,800	18,900	30,700
	<u>Sub-total</u>			21,400	26,700	48,100
C.c	Minor works	L.S.		2,900	3,600	6,500
	<u>Total for item C</u>			62,000	73,000	135,000

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
D.	On-farm development					
D.a	Site clearing for forest	ha	20	7,500	4,900	12,400
D.b	Field preparation			29,300	35,700	65,000
D.c	Miscellaneous			3,200	9,400	12,600
	<u>Total for item D</u>			<u>40,000</u>	<u>50,000</u>	<u>90,000</u>
	<u>Total</u>			<u>288,000</u>	<u>435,000</u>	<u>723,000</u>
	<u>Block 3</u>					
A.	Irrigation canals	ha				
A.a	Main irrigation canal (3.6 km)					
A.a.1	Stripping of top soil	m <sup>3</sup>	3,700	3,300	2,200	5,500
A.a.2	Excavation	m <sup>3</sup>	3,900	2,500	3,200	5,700
A.a.3	Embankment	m	6,900	13,300	8,900	22,200
	<u>Sub-total</u>			<u>19,100</u>	<u>14,300</u>	<u>33,400</u>
A.b	Secondary irrigation canal (2.2 km)					
A.b.1	Stripping of top soil	m <sup>3</sup>	2,300	2,100	1,400	3,500
A.b.2	Excavation	m <sup>3</sup>	1,200	800	1,000	1,800
A.b.3	Embankment	m	3,700	7,400	5,000	12,400
	<u>Sub-total</u>			<u>10,300</u>	<u>7,400</u>	<u>17,700</u>
A.c	Distribution canal (19.3 km)					
A.c.1	Stripping of top soil	m <sup>3</sup>	8,200	7,400	4,900	12,300
A.c.2	Excavation	m <sup>3</sup>	300	200	200	400
A.c.3	Embankment	m	12,700	24,800	16,700	41,500
	<u>Sub-total</u>			<u>32,400</u>	<u>21,800</u>	<u>54,200</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
A.d	Structures related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	15	14,300	10,200	24,500
A.d.2	Turnout on distribution canal	nos.	148	300	75,500	75,800
A.d.3	Cross regulator	nos.	3	3,700	1,900	5,600
A.d.4	Spillway (2), Wasteway (3) and Syphon (1)		L.S.	100	7,700	7,800
	<u>Sub-total</u>			<u>18,400</u>	<u>95,300</u>	<u>113,700</u>
A.e	Farm pond (1 nos.)					
A.e.1	Stripping of top soil	m <sup>3</sup>	1,800	1,700	1,000	2,700
A.e.2	Excavation	m <sup>3</sup>	4,900	3,200	4,100	7,300
A.e.3	Embankment	m <sup>2</sup>	4,400	9,100	6,000	15,100
A.e.4	Sod facing	m	2,300	-	500	500
A.e.5	Inlet and outlet structures	nos.	2	100	2,000	2,100
	<u>Sub-total</u>			<u>14,100</u>	<u>13,600</u>	<u>27,700</u>
A.f	Miscellaneous			5,700	17,600	23,300
	<u>Total for item A</u>			<u>100,000</u>	<u>170,000</u>	<u>270,000</u>
B.	Drainage canals					
B.a	Main drain (6.2 km)					
B.a.1	Excavation	m <sup>3</sup>	24,500	16,200	20,400	36,600
B.b	Collector drain (9.6 km)					
B.b.1	Excavation	m <sup>3</sup>	12,500	8,300	10,400	18,700
B.c	Structures related to the drains					
B.c.1	Cross drain	nos.	2	100	11,100	11,200
B.c.2	Drain culvert	nos.	96	1,000	33,600	34,600
B.d	Miscellaneous			2,400	7,500	9,900
	<u>Total for item B</u>			<u>28,000</u>	<u>83,000</u>	<u>111,000</u>



Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
C.	Roads					
C.a	Secondary roads (7.3 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	4,000	3,600	2,400	6,000
C.a.2	Excavation	m <sup>3</sup>	3,000	2,100	2,400	4,500
C.a.3	Embankment	m <sup>2</sup>	6,000	7,600	5,600	13,200
C.a.4	Laterite pavement, width 6 m	m	43,800	21,900	35,100	57,000
	<u>Sub-total</u>			<u>35,200</u>	<u>45,500</u>	<u>80,700</u>
C.b	Tertiary roads (19.7 km)					
C.b.1	Stripping of top soil	m <sup>3</sup>	7,900	7,100	4,800	11,900
C.b.2	Excavation	m <sup>3</sup>	9,900	7,000	8,000	15,000
C.b.3	Embankment	m <sup>2</sup>	13,800	17,400	12,900	30,300
C.b.4	Laterite pavement, width 4 m	m	78,800	39,400	63,100	102,500
	<u>Sub-total</u>			<u>70,900</u>	<u>88,800</u>	<u>159,700</u>
C.c	Minor works		L.S.	5,900	6,700	12,600
	<u>Total for item C</u>			<u>112,000</u>	<u>141,000</u>	<u>253,000</u>
D.	On-farm development					
D.a	Site clearing for forest	ha	340	127,200	82,300	209,500
D.b	Field preparation			29,300	35,700	65,000
D.c	Miscellaneous			13,500	12,000	25,500
	<u>Total for item D</u>			<u>170,000</u>	<u>130,000</u>	<u>300,000</u>
	<u>Total</u>			<u>410,000</u>	<u>524,000</u>	<u>934,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)			Total
				Foreign Currency	Local Currency		
<u>Block 4</u>							
A.	Irrigation canals	ha					
A.a	Main irrigation canal (6.0 km)						
A.a.1	Stripping of top soil	m <sup>3</sup>	8,000	7,200	4,800	12,000	
A.a.2	Excavation	m <sup>3</sup>	18,100	12,000	15,000	27,000	
A.a.3	Embankment	m	13,400	25,000	16,800	41,800	
	<u>Sub-total</u>			<u>44,200</u>	<u>36,600</u>	<u>80,800</u>	
A.b	Distribution canal (21.3 km)						
A.b.1	Stripping of top soil	m <sup>3</sup>	11,200	10,100	6,700	16,800	
A.b.2	Excavation	m <sup>3</sup>	300	200	300	500	
A.b.3	Embankment	m	17,200	34,500	3,100	37,600	
	<u>Sub-total</u>			<u>44,800</u>	<u>10,100</u>	<u>54,900</u>	
A.c	Structures related to the irrigation canal						
A.c.1	Turnout on main and secondary canal	nos.	15	14,500	10,500	25,000	
A.c.2	Turnout on distribution canal	nos.	200	400	102,000	102,400	
A.c.3	Cross regulator	nos.	3	5,200	2,800	8,000	
A.c.4	Culvert (1), Spillway (1) and Wasteway (1)			100	2,500	2,600	
	<u>Sub-total</u>			<u>20,200</u>	<u>117,800</u>	<u>138,000</u>	
A.d	Farm pond (2 nos.)						
A.d.1	Stripping of top soil	m <sup>3</sup>	1,200	1,100	700	1,800	
A.d.2	Excavation	m <sup>3</sup>	3,100	2,100	2,600	4,700	
A.d.3	Embankment	m <sup>2</sup>	3,800	5,500	3,900	9,400	
A.d.4	Sod facing	m	2,500	-	500	500	

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
A.d.5	Inlet and outlet structures	nos.	4	200	3,900	4,100
	<u>Sub-total</u>			<u>8,900</u>	<u>11,600</u>	<u>20,500</u>
A.e	Miscellaneous			11,900	13,900	25,800
	<u>Total for item A</u>			<u>130,000</u>	<u>190,000</u>	<u>320,000</u>
B.	Drainage canals					
B.a	Main drain (7.0 km)					
B.a.1	Excavation	m <sup>3</sup>	26,600	17,600	22,100	39,700
B.b	Collector drain (16.0 km)					
B.b.1	Excavation	m <sup>3</sup>	23,200	15,400	19,300	34,700
B.c	Structures related to the dains					
B.c.1	Drain culvert	nos.	160	1,600	56,000	57,600
B.d	Miscellaneous			3,400	9,600	13,000
	<u>Total for item B</u>			<u>38,000</u>	<u>107,000</u>	<u>145,000</u>
C.	Roads					
C.a	Secondary roads (2.7 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	3,000	2,700	1,800	4,500
C.a.2	Excavation	m <sup>3</sup>	2,400	1,700	2,000	3,700
C.a.3	Embankment	m <sup>2</sup>	5,600	7,100	5,200	12,300
C.a.4	Laterite pavement, width 6 m	m <sup>2</sup>	16,200	8,100	13,000	21,100
	<u>Sub-total</u>			<u>19,600</u>	<u>22,000</u>	<u>41,600</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
C.b	Tertiary roads (18.3 km)					
C.b.1	Stripping of top soil	m <sup>3</sup>	7,300	6,600	4,400	11,000
C.b.2	Excavation	m <sup>3</sup>	9,200	6,500	7,400	13,900
C.b.3	Embankment	m <sup>2</sup>	12,800	16,200	11,900	28,100
C.b.4	Laterite pavement, width 4 m	m	73,200	36,600	58,600	95,200
	<u>Sub-total</u>			<u>65,900</u>	<u>82,300</u>	<u>148,200</u>
C.c	Minor works		L.S.	4,500	5,700	10,200
	<u>Total for item C</u>			<u>90,000</u>	<u>110,000</u>	<u>200,000</u>
D.	On-farm development					
D.a	Site clearing for forest	ha	360	134,600	87,100	221,700
D.b	Field preparation			27,000	33,000	60,000
D.c	Miscellaneous			18,400	9,900	28,300
	<u>Total for item D</u>			<u>180,000</u>	<u>130,000</u>	<u>310,000</u>
	<u>Total</u>			<u>438,000</u>	<u>537,000</u>	<u>975,000</u>

Item No.	Description	Unit	Quantity	Cost. (US\$)		Total
				Foreign Currency	Local Currency	
<u>Block 2</u>						
A.	Irrigation canals	ha				
A.a	Main irrigation canal (20.4 km)					
A.a.1	Stripping to top soil	m <sup>3</sup>	29,000	26,100	17,400	43,500
A.a.2	Excavation	m <sup>3</sup>	46,300	30,600	38,400	69,000
A.a.3	Embankment	m	46,900	77,400	53,200	130,600
A.a.4	Lining			70,800	908,500	979,300
	<u>Sub-total</u>			<u>204,900</u>	<u>1,017,500</u>	<u>1,222,400</u>
A.b	Secondary irrigation canal (5.2 km)					
A.b.1	Stripping of top soil	m <sup>3</sup>	4,600	4,100	2,800	6,900
A.b.2	Excavation	m <sup>3</sup>	7,200	4,800	6,000	10,800
A.b.3	Embankment	m	7,300	12,100	6,400	18,500
A.b.4	Lining			11,100	142,600	153,700
	<u>Sub-total</u>			<u>32,100</u>	<u>157,800</u>	<u>189,900</u>
A.c	Distribution canal (46.2 km)					
A.c.1	Stripping of top soil	m <sup>3</sup>	31,000	27,900	18,600	46,500
A.c.2	Excavation	m <sup>3</sup>	53,500	35,300	51,200	86,500
A.c.3	Embankment	m	54,200	89,500	63,600	153,100
	<u>Sub-total</u>			<u>152,700</u>	<u>133,400</u>	<u>286,100</u>
A.d	Structures related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	34	49,600	35,500	85,100
A.d.2	Turnout on distribution canal	nos.	526	1,000	286,300	269,300
A.d.3	Cross regulator	nos.	10	32,600	12,900	45,500

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.d.4	Culvert (1), Drop (7), Spillway (4) Wasteway (3) and Syphon (2)	L.S.		100	17,700	17,800
	<u>Sub-total</u>			<u>83,300</u>	<u>334,400</u>	<u>417,700</u>
A.e	Farm pond (30 nos.) including regulating pond					
A.e.1	Stripping of top soil	m <sup>3</sup>	12,000	11,000	6,700	17,700
A.e.2	Excavation	m <sup>3</sup>	61,800	40,800	51,300	92,100
A.e.3	Embankment	m <sup>2</sup>	41,700	86,800	57,600	144,400
A.e.4	Sod facing	m	18,500	-	3,700	3,700
A.e.5	Inlet and outlet structures	nos.	63	7,000	66,100	73,100
	<u>Sub-total</u>			<u>145,600</u>	<u>185,400</u>	<u>331,000</u>
A.f	Miscellaneous			81,400	181,500	262,900
	<u>Total for item A</u>			<u>700,000</u>	<u>2,010,000</u>	<u>2,710,000</u>
B.	Drainage canals					
B.a	Main drain (18.8 km)	m <sup>3</sup>	94,000	104,200	68,000	172,200
B.a.1	Excavation					
B.b	Collector drain (34.7 km)	m <sup>3</sup>	55,500	36,700	46,100	82,800
B.b.1	Excavation					
B.c	Structures related to the drains					
B.c.1	Cross drain	nos.	17	700	15,900	16,600
B.c.2	Drain culvert	nos.	253	3,500	129,000	132,500
B.d	Miscellaneous			10,900	26,000	36,900
	<u>Total for item B</u>			<u>156,000</u>	<u>285,000</u>	<u>441,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
C.	Roads					
C.a	Secondary roads (33.8 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	16,200	14,600	9,700	24,300
C.a.2	Excavation	m <sup>3</sup>	25,500	17,900	20,400	38,300
C.a.3	Embankment	m <sup>2</sup>	30,000	37,800	27,900	65,700
C.a.4	Laterite pavement, width 6 m	m <sup>2</sup>	202,800	101,400	162,200	263,600
	<u>Sub-total</u>			<u>171,700</u>	<u>220,200</u>	<u>391,900</u>
C.b	Tertiary roads (36.2 km)					
C.b.1	Stripping of top soil	m <sup>3</sup>	14,500	13,100	8,700	21,800
C.b.2	Excavation	m <sup>3</sup>	18,100	12,700	14,500	27,200
C.b.3	Embankment	m <sup>2</sup>	25,300	31,900	23,500	55,400
C.b.4	Laterite pavement, width 4 m	m <sup>2</sup>	144,800	72,400	115,800	188,200
	<u>Sub-total</u>			<u>130,100</u>	<u>162,500</u>	<u>292,600</u>
C.c	Minor works		L.S.	18,200	19,300	37,500
	<u>Total for item C</u>			<u>320,000</u>	<u>402,000</u>	<u>722,000</u>
D.	On-farm development					
D.a	Site clearing for forest	ha	250	93,500	60,500	154,000
D.b	Field preparation			90,000	110,000	200,000
D.c	Miscellaneous			16,500	19,500	36,000
	<u>Total for item D</u>			<u>200,000</u>	<u>190,000</u>	<u>390,000</u>
	<u>Total</u>			<u>1,376,000</u>	<u>2,887,000</u>	<u>4,263,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
<u>Block 6</u>						
A.	Irrigation canals	ha				
A.a	Main irrigation canal (10.5 km)					
A.a.1	Stripping of top soil	m <sup>3</sup>	18,500	16,700	11,100	27,800
A.a.2	Excavation	m <sup>3</sup>	61,500	40,600	51,100	91,700
A.a.3	Embankment	m <sup>3</sup>	30,700	51,400	35,500	86,900
A.a.4	Lining	m		44,100	567,300	611,400
	<u>Sub-total</u>			<u>152,800</u>	<u>665,000</u>	<u>817,800</u>
A.b	Secondary irrigation canal (8.4 km)					
A.b.1	Stripping of top soil	m <sup>3</sup>	11,000	9,900	6,600	16,500
A.b.2	Excavation	m <sup>3</sup>	16,800	11,100	14,000	25,100
A.b.3	Embankment	m	28,200	30,800	21,500	52,300
A.b.4	Lining	m		26,600	342,300	368,900
	<u>Sub-total</u>			<u>78,400</u>	<u>384,400</u>	<u>462,800</u>
A.c	Distribution canal (27.2 km)					
A.c.1	Stripping of top soil	m <sup>3</sup>	19,000	17,100	11,400	28,500
A.c.2	Excavation	m <sup>3</sup>	2,400	1,600	2,000	3,600
A.c.3	Embankment	m	30,200	54,200	38,100	92,300
	<u>Sub-total</u>			<u>72,900</u>	<u>51,500</u>	<u>124,400</u>
A.d	Structures related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	25	36,500	26,300	62,800
A.d.2	Turnout on distribution canal	nos.	294	600	150,000	150,600
A.d.3	Cross regulator	nos.	8	12,100	10,600	22,700



Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.d.4	Culvert (3), Drop (4), Spillway (3) Wasteway (3) and Syphon (2)		L.S.	100	14,400	14,500
	<u>Sub-total</u>			<u>49,300</u>	<u>201,300</u>	<u>250,600</u>
A.e	Farm pond (22 nos.)					
A.e.1	Stripping of top soil	m <sup>3</sup>	7,700	7,000	4,300	11,300
A.e.2	Excavation	m <sup>3</sup>	38,800	25,600	32,200	57,800
A.e.3	Embankment	m <sup>2</sup>	27,000	56,100	37,300	93,400
A.e.4	Sod facing	m <sup>2</sup>	10,500	-	2,100	2,100
A.e.5	Inlet and outlet structures	nos.	46	2,100	37,600	39,700
	<u>Sub-total</u>			<u>90,800</u>	<u>113,500</u>	<u>204,300</u>
A.f	Miscellaneous			45,800	134,300	180,100
	<u>Total for item A</u>			<u>490,000</u>	<u>1,550,000</u>	<u>2,040,000</u>
B.	Drainage canals					
B.a	Main drain (15.0 km)					
B.a.1	Excavation	m <sup>3</sup>	74,500	82,500	54,000	136,500
B.b	Collector drain (16.6 km)					
B.b.1	Excavation	m <sup>3</sup>	25,000	16,500	20,700	37,200
B.c	Structures related to the drains					
B.c.1	Cross drain	nos.	7	600	122,000	122,600
B.c.2	Drain culvert	nos.	197	1,700	56,700	58,400
B.c	Miscellaneous			9,700	24,600	34,300
	<u>Total for item B</u>			<u>111,000</u>	<u>278,000</u>	<u>389,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
C.	Roads					
C.a	Secondary roads (22.2 km)					
C.a.1	Stripping of top soil	m <sup>3</sup>	10,700	9,700	6,500	16,200
C.a.2	Excavation	m <sup>3</sup>	18,200	12,800	14,600	27,400
C.a.3	Embankment	m <sup>2</sup>	24,400	30,700	22,700	53,400
C.a.4	Laterite pavement, width 6 m	m <sup>2</sup>	133,200	66,600	106,600	173,200
	<u>Sub-total</u>			<u>119,800</u>	<u>150,400</u>	<u>270,200</u>
C.b	Tertiary roads (19.4 km)					
C.b.1	Stripping of top soil	m <sup>3</sup>	7,800	7,000	4,700	11,700
C.b.2	Excavation	m <sup>3</sup>	9,700	6,800	7,800	14,600
C.b.3	Embankment	m <sup>2</sup>	13,600	17,200	12,700	29,900
C.b.4	Laterite pavement, width 4 m	m <sup>2</sup>	77,600	38,800	62,100	100,900
	<u>Sub-total</u>			<u>69,800</u>	<u>87,300</u>	<u>157,100</u>
C.c	Minor works		L.S.	9,400	12,300	21,700
	<u>Total for item C</u>			<u>199,000</u>	<u>250,000</u>	<u>449,000</u>
D.	On-farm development					
D.a	Site clearing for forest	ha	270	101,000	65,400	166,400
D.b	Field preparation			67,500	82,500	150,000
D.c	Miscellaneous			21,500	12,100	33,600
	<u>Total for item D</u>			<u>190,000</u>	<u>160,000</u>	<u>350,000</u>
	<u>Total</u>			<u>990,000</u>	<u>2,238,000</u>	<u>3,228,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
<u>Block 7</u>						
A.	Irrigation canals	ha				
A.a.	Main irrigation canal (16.0 km)					
A.a.1	Stripping of top soil	m <sup>3</sup>	23,000	20,700	13,800	34,500
A.a.2	Excavation	m <sup>3</sup>	28,200	25,300	31,800	57,100
A.a.3	Embankment	m	49,600	76,700	53,200	129,900
A.a.4	Lining			62,400	808,300	870,700
	<u>Sub-total</u>			<u>185,100</u>	<u>907,100</u>	<u>1,092,200</u>
A.b.	Secondary irrigation canal (4.6 km)					
A.b.1	Stripping of top soil	m <sup>3</sup>	4,000	3,600	2,400	6,000
A.b.2	Excavation	m <sup>3</sup>	6,800	4,500	5,700	10,200
A.b.3	Embankment	m	8,800	13,200	9,500	22,700
A.b.4	Lining			11,200	143,900	155,100
	<u>Sub-total</u>			<u>32,500</u>	<u>161,500</u>	<u>194,000</u>
A.c.	Distribution canal (31.6 km)					
A.c.1	Stripping of top soil	m <sup>3</sup>	26,000	23,400	15,600	39,000
A.c.2	Excavation	m <sup>3</sup>	42,500	28,100	35,300	63,400
A.c.3	Embankment	m	55,100	85,200	59,100	144,300
	<u>Sub-total</u>			<u>136,700</u>	<u>110,000</u>	<u>246,700</u>
A.d.	Structure related to the irrigation canal					
A.d.1	Turnout on main and secondary canal	nos.	32	46,700	33,600	80,300
A.d.2	Turnout on distribution canal	nos.	415	800	211,700	212,500
A.d.3	Cross regulator	nos.	9	29,700	11,700	41,400
A.d.4	Culvert (3), Drop (3), Spillway (3) Wasteway (4) and Syphon (2)			100	14,200	14,300

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
	<u>Sub-total</u>			<u>77,300</u>	<u>271,200</u>	<u>348,500</u>
A.e	Farm pond (28 nos.)					
A.e.1	Stripping of top soil	m <sup>3</sup>	10,490	9,700	5,900	15,600
A.e.2	Excavation	m <sup>3</sup>	53,640	35,400	44,500	79,900
A.e.3	Embankment	m <sup>2</sup>	36,240	75,300	50,000	125,300
A.e.4	Sod facing	m	12,800	-	2,600	2,600
A.e.5	Inlet and outlet structures	nos.	59	2,700	42,400	45,100
	<u>Sub-total</u>			<u>123,100</u>	<u>145,400</u>	<u>268,500</u>
A.f	Miscellaneous			55,300	154,800	210,100
	<u>Total for item A</u>			<u>610,000</u>	<u>1,750,000</u>	<u>2,360,000</u>
B.	Drainage canals					
B.a	Main drain (12.6 km)					
B.a.1	Excavation	m <sup>3</sup>	58,000	64,300	42,000	106,300
B.b	Collector drain (23.7 km)					
B.b.1	Excavation	m <sup>3</sup>	35,500	23,400	29,500	52,900
B.c	Structures related to the drains					
B.c.1	Cross drain	nos.	13	300	57,300	57,600
B.c.2	Drain culvert	nos.	226	2,600	113,000	115,600
B.d	Miscellaneous			8,400	23,200	31,600
	<u>Total for item B</u>			<u>99,000</u>	<u>265,000</u>	<u>364,000</u>

Item No.	Description	Unit	Quantity	Cost (US\$)			Total
				Foreign Currency	Local Currency		
C.	Roads						
C.a	Secondary roads (19.2 km)						
C.a.1	Stripping of top soil	m <sup>3</sup>	9,300	8,400	5,600	14,000	
C.a.2	Excavation	m <sup>3</sup>	14,300	10,000	11,500	21,500	
C.a.3	Embankment	m <sup>2</sup>	18,000	22,700	16,800	39,500	
C.a.4	Laterite pavement, width 6 m	m <sup>2</sup>	115,200	57,600	92,200	149,800	
	<u>Sub-total</u>			<u>98,700</u>	<u>126,100</u>	<u>224,800</u>	
C.b	Tertiary roads (28.3 km)						
C.b.1	Stripping of top soil	m <sup>3</sup>	11,300	10,200	6,800	17,000	
C.b.2	Excavation	m <sup>3</sup>	14,200	10,000	11,400	21,400	
C.b.3	Embankment	m <sup>2</sup>	19,800	25,000	18,400	43,400	
C.b.4	Laterite pavement, width 4 m	m <sup>2</sup>	113,200	56,600	90,600	147,200	
	<u>Sub-total</u>			<u>101,800</u>	<u>127,200</u>	<u>229,000</u>	
C.c	Minor works		L.S.	10,500	12,700	23,200	
	<u>Total for item C</u>			<u>211,000</u>	<u>266,000</u>	<u>477,000</u>	
D.	On-farm development						
D.a	Site clearing for forest	ha	800	104,700	67,800	172,500	
D.b	Field preparation			76,500	93,500	170,000	
D.c	Miscellaneous			18,800	58,700	77,500	
	<u>Total for item D</u>			<u>200,000</u>	<u>220,000</u>	<u>420,000</u>	
	<u>Total</u>			<u>1,120,000</u>	<u>2,501,000</u>	<u>3,621,000</u>	

Table VII-6 Breakdown of Construction Cost of Gate Structures

sheet 1.

Item No.	Work	Unit	Quantity	Foreign Currency	Cost (US\$)		Total
					Local Currency	Total	
<u>No. 1 Gate</u>							
A.	Cofferdam and care of water		L.S.	-	30,000		30,000
B.	Earthworks						
B.1	Excavation	m <sup>3</sup>	9,000	15,400	6,000		21,400
B.2	Embankment	m <sup>3</sup>	12,000	17,700	12,200		29,900
B.3	Backfilling	m <sup>3</sup>	2,000	600	1,000		1,600
B.4	Sod facing	m <sup>2</sup>	2,000	-	400		400
	<u>Sub-total</u>			<u>33,700</u>	<u>19,600</u>		<u>53,300</u>
C.	Concrete works						
C.1	Foundation pile	m	300	300	8,700		9,000
C.2	Concrete	m <sup>3</sup>	1,533	900	119,300		120,200
C.3	Reinforcement bars	tons	170	-	154,700		154,700
C.4	Forms for concrete	m <sup>2</sup>	3,900	-	18,300		18,300
C.5	Gravel for foundation	m <sup>3</sup>	360	1,000	7,800		8,800
	<u>Sub-total</u>			<u>2,200</u>	<u>308,800</u>		<u>311,000</u>
D.	Metal works						
D.1	Gate and hoist	set	4	216,000	30,000		246,000
D.2	Hand rail and others		L.S.	1,000	3,000		4,000
	<u>Sub total</u>			<u>217,000</u>	<u>33,000</u>		<u>250,000</u>
E.	Miscellaneous						
				<u>27,100</u>	<u>28,600</u>		<u>55,700</u>
	<u>Total</u>			<u>280,000</u>	<u>420,000</u>		<u>700,000</u>

Item No.	Work	Unit	Quantity	Foreign Currency	Cost (US\$)		Total
					Local Currency		
<u>No. 2 Gate</u>							
A.	Cofferdam and care of water		L.S.	-	15,000		15,000
B.	Earthworks						
B.1	Excavation	m <sup>3</sup>	6,000	11,000	4,300		15,300
B.2	Embankment	m <sup>3</sup>	9,500	14,200	9,900		24,100
B.3	Backfilling	m <sup>3</sup>	1,500	500	800		1,300
B.4	Sod facing	m <sup>2</sup>	1,500	-	300		300
	<u>Sub-total</u>			<u>25,700</u>	<u>15,300</u>		<u>41,000</u>
C.	Concrete works						
C.1	Foundation pile	m	200	200	5,800		6,000
C.2	Concrete	m <sup>3</sup>	332	200	25,500		25,700
C.3	Reinforcement bars	tons	36	-	32,800		32,800
C.4	Forms for concrete	m <sup>2</sup>	830	-	3,900		3,900
C.5	Gravel for foundation	m <sup>3</sup>	110	300	2,300		2,600
	<u>Sub-total</u>			<u>700</u>	<u>70,300</u>		<u>71,000</u>
D.	Metal works						
D.1	Gate and hoist	set	2	64,000	6,100		70,100
D.2	Hand rail and others	L.S.		300	1,600		1,900
	<u>Sub-total</u>			<u>64,300</u>	<u>7,700</u>		<u>72,000</u>
E.	Miscellaneous						
				<u>9,300</u>	<u>11,700</u>		<u>21,000</u>
	<u>Total</u>			<u>100,000</u>	<u>120,000</u>		<u>220,000</u>

Table VII-7 Breakdown of Construction Cost of Main Road

	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.	Main road ( 60 Km)					
A.1	Stripping of top soil	m <sup>3</sup>	68,000	61,200	40,800	102,000
A.2	Excavation	m <sup>3</sup>	80,000	56,000	64,000	120,000
A.3	Embankment	m <sup>3</sup>	240,000	348,000	252,000	600,000
A.4	Gravel pavement	m <sup>2</sup>	480,000	240,000	1,344,000	1,584,000
A.5	Miscellaneous			34,800	89,200	124,000
	<u>Sub-total</u>			<u>740,000</u>	<u>1,790,000</u>	<u>2,530,000</u>
B.	Bridge (12 nos.)					
B.1	Excavation	m <sup>3</sup>	15,000	18,000	15,000	33,000
B.2	Embankment	m <sup>3</sup>	2,000	1,800	1,400	3,200
B.3	Backfilling	m <sup>3</sup>	5,000	1,500	2,500	4,000
B.4	Foundation pile	m	720	800	20,900	21,700
B.5	Concrete	m <sup>3</sup>	5,820	3,500	460,000	463,500
B.6	Reinforcement bars	tons	600	-	546,000	546,000
B.7	Forms for concrete	m <sup>2</sup>	16,000	-	75,200	75,200
B.8	Miscellaneous			4,400	109,000	113,400
	<u>Sub-total</u>			<u>30,000</u>	<u>1,230,000</u>	<u>1,260,000</u>
	<u>Total</u>			<u>770,000</u>	<u>3,020,000</u>	<u>3,790,000</u>



Table VII-8 Breakdown of Rehabilitation Cost of  
Natural Drains

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A	Earthworks.					
A.1	Excavation	m <sup>3</sup>	330,000	445,000	198,000	643,000
A.2	Miscellaneous			35,000	32,000	67,000
	<u>Total</u>			<u>480,000</u>	<u>230,000</u>	<u>710,000</u>

Table VII-9 Breakdown of Construction Cost of Settlement Compound

Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.	Land clearing and grading					
A.1	Site clearing	ha	30	11,200	7,300	18,500
A.2	Excavation	m <sup>3</sup>	6,000	4,200	4,800	9,000
A.3	Embankment	m <sup>3</sup>	4,000	3,600	2,900	6,500
	<u>Sub-total</u>			<u>19,000</u>	<u>15,000</u>	<u>34,000</u>
B.	Road in the Settlement					
B.1	Excavation	m <sup>3</sup>	2,000	1,400	1,600	3,000
B.2	Embankment	m <sup>3</sup>	1,000	900	700	1,600
B.3	Laterite pavement	m <sup>3</sup>	50,000	25,000	40,000	65,000
	<u>Sub-total</u>			<u>27,300</u>	<u>42,300</u>	<u>69,600</u>
C.	Outdoor drainage					
C.1	Excavation	m <sup>3</sup>	4,000	2,800	3,200	6,000
C.2	Others	L.S.		25,000	30,000	55,000
	<u>Sub-total</u>			<u>27,800</u>	<u>33,200</u>	<u>61,000</u>
D.	Miscellaneous			5,900	9,500	15,400
	<u>Total</u>			<u>80,000</u>	<u>100,000</u>	<u>180,000</u>

Table VII-10 Breakdown of Construction Cost of Offices and Residences

Item No.	Description	Required Number	Total Floor Space (m <sup>2</sup> )	Construction Cost (US\$)
1	Project office, 800 m <sup>2</sup>	1	800	160,000
2	Cooperative office, 200 m <sup>2</sup>	3	600	110,000
3	Guest house, 150 m <sup>2</sup>	5	750	180,000
4	Rest house, 300 m <sup>2</sup>	4	1,200	180,000
5	Clinic, 200 m <sup>2</sup>	1	200	40,000
6	Residences for superintendent, 150 m <sup>2</sup> (for 1 family)	7	1,050	420,000
7	" for senior officer, 100 m <sup>2</sup> (for 1 family)	36	3,600	1,030,000
8	" for junior officer, 100 m <sup>2</sup> (for 2 families)	34	3,400	800,000
9	" for assistant officer, 100 m <sup>2</sup> (for 10 persons)	67	6,700	1,280,000
	<u>Total</u>		<u>18,300</u>	<u>4,200,000</u>

Note: All buildings will be completed with electric, plumbing, sewerage and drainage

Table VII-11 Breakdown of Procurement Cost of Factory Plant  
(CIF Tema, July 1975)

Item No.	Description	Price (US\$1,000)		Total
		Foreign Currency	Local Currency	
A.	Factory Plant			
A.1	Cane handling department	430		430
A.2	Cane milling department	2,960		2,960
A.3	Raw sugar producing department	4,500		4,500
A.4	Refined sugar producing department	2,330		2,330
A.5	Steam generating department	2,460		2,460
A.6	Electric power generating department	1,120		1,120
	<u>Sub-total</u>	<u>13,800</u>		<u>13,800</u>
B.	Building and equipment			
B.1	Factory building and sugar warehouse	1,030		1,030
B.2	Repair shop	230		230
B.3	Laboratory	30		30
B.4	Other auxiliary equipments	250		250
B.5	Piping and electric wiring materials	1,110		1,110
B.6	Spare parts	750		750
	<u>Sub-total</u>	<u>3,400</u>		<u>3,400</u>
	<u>Total</u>	<u>17,200</u>		<u>17,200</u>

Note: Inland transportation costs are included in Table

Table VII-12 Breakdown of Construction Cost of Factory Foundation

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
<b>A. Land levelling</b>						
A.1	Excavation	m <sup>3</sup>	20,000	14,500	16,500	31,000
A.2	Embankment	m <sup>3</sup>	12,000	14,500	12,500	27,000
	<u>Sub-total</u>			<u>29,000</u>	<u>29,000</u>	<u>58,000</u>
<b>B. Foundation of factory</b>						
B.1	Excavation	m <sup>3</sup>	7,500	5,000	6,300	11,300
B.2	Foundation pile	m	5,630	5,700	163,300	169,000
B.3	Concrete	m <sup>3</sup>	6,400	4,000	482,600	486,600
B.4	Reinforcement bars	tons	388	-	352,600	352,600
B.5	Forms for concrete	m <sup>2</sup>	4,240	-	20,000	20,000
B.6	Gravel for foundation	m <sup>3</sup>	1,760	4,700	37,900	42,600
B.7	Miscellaneous			9,600	28,300	37,900
	<u>Sub-total</u>			<u>29,000</u>	<u>1,091,000</u>	<u>1,120,000</u>
<b>C. Construction of cane yard</b>						
C.1	Concrete	m <sup>3</sup>	500	300	37,700	38,000
C.2	Forms for concrete	m <sup>2</sup>	100	-	500	500
C.3	Gravel for foundation	m <sup>3</sup>	850	2,300	18,300	20,600
C.4	Miscellaneous			400	2,500	1,900
	<u>Sub-total</u>			<u>3,000</u>	<u>59,000</u>	<u>62,000</u>
	<u>Total</u>			<u>61,000</u>	<u>1,179,000</u>	<u>1,240,000</u>

Table VII-13 Breakdown of Construction Cost of Factory Buildings

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
A.	Factory Building /1					
A.a	Erection of steel structure	tons	1,200	-	144,000	144,000
A.b	Painting	L.S.		-	28,800	28,800
A.c	Roofing	L.S.		-	13,700	13,700
A.d	Walling	L.S.		-	16,800	16,800
A.e	Other minor works	L.S.		-	8,700	8,700
	<u>Sub-total</u>			-	<u>212,000</u>	<u>212,000</u>
B.	Sugar warehouse /1					
B.a	Erection of steel structure	tons	220	-	26,400	26,400
B.b	Painting	L.S.		-	5,300	5,300
B.c	Roofing	L.S.		-	5,300	5,300
B.d	Walling (inside and outside)	L.S.		-	15,700	15,700
B.e	Other minor works	L.S.		-	2,300	2,300
	<u>Sub-total</u>			-	<u>55,000</u>	<u>55,000</u>
C.	Laboratory and factory office					
			L.S.	-	15,000	15,000
D.	Temporary works					
			L.S.	-	13,400	13,400
E.	Site transportation					
			L.S.	-	20,000	20,000
F.	Others (Lodging facilities, warehouse, etc.)					
			L.S.	-	15,500	15,500
G.	Supervision					
			L.S.	-	39,100	39,100
	<u>Total</u>			-	<u>370,000</u>	<u>370,000</u>

Note: /1 The material costs of the factory building and the sugar warehouse are estimated in the procurement cost of the factory plant.

Table. VII-14 Breakdown of Cost of Erection and Installation

Description	Unit	Quantity	Cost (US\$)			Total
			Foreign Currency	Local Currency		
A. Erection and installation						
Supervisors to be dispatched by Contractor		L.S.	1,100,000	-		1,100,000
Erection and installation by local contractor		L.S.	-	2,400,000		2,400,000
B. Inland transportation		tons	approx.7,000	450,000		450,000
<u>Total</u>			<u>1,100,000</u>	<u>2,850,000</u>		<u>3,950,000</u>

Table VII-15 Breakdown of Construction Cost of Water Supply System

Item No.	Description	Unit	Quantity	Cost (US\$)		Total
				Foreign Currency	Local Currency	
A.	Pumping Station (No. 9)					
A.a	Earthworks					
A.a.1	Excavation	m <sup>3</sup>	900	1,000	900	1,900
A.a.2	Embankment and Backfilling	m <sup>3</sup>	300	200	300	500
	<u>Sub-total</u>			<u>1,200</u>	<u>1,200</u>	<u>2,400</u>
A.b	Substructure of building					
A.b.1	Foundation pile	m <sup>3</sup>	200	200	5,800	6,000
A.b.2	Concrete	m <sup>3</sup>	170	100	13,500	13,600
A.b.3	Reinforcement bars	tons	20	-	18,200	18,200
A.b.4	Forms for concrete	m <sup>2</sup>	480	-	2,300	2,300
A.b.5	Gravel for foundation	m <sup>3</sup>	20	100	400	500
	<u>Sub-total</u>			<u>400</u>	<u>40,200</u>	<u>40,600</u>
A.c	Building works		L.S.	-	34,000	34,000
A.d	Mechanical and electrical works					
A.d.1	Pump and motor	sets	4	22,000	-	22,000
A.d.2	Control panel and others		L.S.	40,000	-	40,000
A.d.3	Crane	set	1	5,000	-	5,000
A.d.4	Installation		L.S.	13,000	8,000	21,000
	<u>Sub-total</u>			<u>80,000</u>	<u>8,000</u>	<u>88,000</u>
A.e	Penstock construction		L.S.	20,000	6,200	26,200

Sheet 1



Item No.	Description	Unit	Quantity	Cost (US\$)		
				Foreign Currency	Local Currency	Total
A.f	Miscellaneous			18,400	10,400	28,800
	<u>Total for Item A</u>			<u>120,000</u>	<u>100,000</u>	<u>220,000</u>
B.	Water reservoir and supply channel					
B.a	Earthworks					
B.a.1	Stripping of top soil	m <sup>3</sup>	600	600	400	1,000
B.a.2	Excavation	m <sup>3</sup>	600	400	600	1,000
B.a.3	Embankment.	m <sup>3</sup>	2,600	5,700	4,300	10,000
	<u>Sub-total</u>			<u>6,700</u>	<u>5,300</u>	<u>12,000</u>
B.b	Concrete works					
B.b.1	Concrete	m <sup>3</sup>	102	100	7,200	7,300
B.b.2	Reinforcement bars	ton	1	-	900	900
B.b.3	Forms for concrete	m <sup>2</sup>	20	-	100	100
B.b.4	Concrete block lining	m <sup>2</sup>	1,300	1,200	9,800	11,000
	<u>Sub-total</u>			<u>1,300</u>	<u>18,000</u>	<u>19,300</u>
B.c	Minor works		L.S.	3,000	5,700	8,700
	<u>Total for Item B</u>			<u>11,000</u>	<u>29,000</u>	<u>40,000</u>
	<u>Grand total</u>			<u>131,000</u>	<u>129,000</u>	<u>260,000</u>

(Unit: US\$1,000)

Table VII-16 Breakdown of Annual Fund Requirement

Description	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	Total
<b>A. Infrastructure</b>												
1) Preparatory works	-	690	-	-	-	-	-	-	-	-	-	690
2) Pumping stations	-	-	2,003	1,877	590	590	-	-	-	-	-	5,060
3) Irrigation & drainage systems	-	410	4,277	4,455	2,583	1,845	350	-	-	-	-	13,920
4) Roads	-	650	1,940	1,840	1,000	700	-	-	-	-	-	6,130
5) Settlement compound	-	-	-	180	-	-	-	-	-	-	-	180
6) Offices and quarters	-	700	900	900	800	800	100	-	-	-	-	4,200
7) Engineering & administration	640	178	420	420	200	200	72	-	-	-	-	2,130
8) Contingency	-	392	1,420	1,442	863	615	78	-	-	-	-	4,810
<b>Total</b>	<b>640</b>	<b>3,020</b>	<b>10,960</b>	<b>11,114</b>	<b>6,036</b>	<b>4,750</b>	<b>600</b>	-	-	-	-	<b>37,120</b>
<b>B. Sugar plant</b>												
1) Procurement of factory plant	-	-	8,600	8,600	-	-	-	-	-	-	-	17,200
2) Factory foundation	-	-	620	620	-	-	-	-	-	-	-	1,240
3) Construction of factory building	-	-	-	370	-	-	-	-	-	-	-	370
4) Erection and installation	-	-	188	3,347	415	-	-	-	-	-	-	3,950
5) Water supply system	-	-	-	260	-	-	-	-	-	-	-	260
6) Engineering & administration	-	-	178	290	422	-	-	-	-	-	-	890
7) Contingency	-	-	1,464	2,051	65	-	-	-	-	-	-	3,580
<b>Total</b>	-	-	<b>11,050</b>	<b>15,538</b>	<b>902</b>	-	-	-	-	-	-	<b>27,490</b>
<b>C. Initial farm investment</b>												
1) Farm building	-	-	118	88	131	116	120	-	-	-	-	573
2) Farm machinery	-	-	310	480	1,111	1,299	1,420	-	-	-	-	4,620
3) Pilot farm facilities	-	215	-	-	-	-	-	-	-	-	-	215
4) Expatriate assistance	-	132	363	462	429	363	396	231	66	66	66	2,574
5) Initial farm operation	-	4	204	466	-	-	-	-	-	-	-	674
6) O & M equipment	-	-	-	-	82	90	28	-	-	-	-	200
7) Contingency	-	53	146	221	266	274	289	35	10	10	10	1,314
<b>Total</b>	-	404	1,141	1,717	2,019	2,142	2,253	266	76	76	76	10,170
<b>Grand total</b>	<b>640</b>	<b>3,424</b>	<b>23,151</b>	<b>28,369</b>	<b>8,957</b>	<b>6,892</b>	<b>2,853</b>	<b>266</b>	<b>76</b>	<b>76</b>	<b>76</b>	<b>74,780</b>

