

**ANNEX U. PHYSICAL PLANS AND COST  
ESTIMATE**

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**Table U-1 Disbursement Schedule of the Cost for Development Plan for Mid-Term (Year 2003 to 2007)**  
( Full Development Case )

(Unit: US\$)

Sector and Sub-Sector	Development Components	Contents and Quantities	Disbursement Schedule from 2003 to 2007 (US\$)					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
<b>1. Agriculture Development</b>								
1.1 Irrigation	a. Irrigation facility	1. Canal rehabilitation etc.	3,745,000	3,745,000	3,745,000	3,745,000	3,745,000	18,725,000
		1.1 Total	3,745,000	3,745,000	3,745,000	3,745,000	3,745,000	18,725,000
		Donor	2,996,000	2,996,000	2,996,000	2,996,000	2,996,000	14,980,000
		Community	749,000	749,000	749,000	749,000	749,000	3,745,000
1.2 Farm road	a. New construction	L=110km	1,639,000	1,639,000	1,639,000	1,639,000	1,639,000	8,195,000
		1.2 Total	1,639,000	1,639,000	1,639,000	1,639,000	1,639,000	8,195,000
		Donor	1,393,000	1,393,000	1,393,000	1,393,000	1,393,000	6,965,000
		Community	246,000	246,000	246,000	246,000	246,000	1,230,000
1.3 Farm mechanization, training and hiring station	a. Training and hiring facility and manpower for farm mechanization	1. Experimental and training field land and building for station	1,667,000	0	0	0	0	1,667,000
	b. Consolidation of repair and maintenance workshop	2. Training and hiring machinery and equipment	2,334,000	0	0	0	0	2,334,000
		3. Repair and maintenance workshop	167,000	0	0	0	0	167,000
		4. Station support facility	167,000	0	0	0	0	167,000
		1.3 Total	4,335,000	0	0	0	0	4,335,000
		Donor	4,002,000	0	0	0	0	4,002,000
		Community	333,000	0	0	0	0	333,000
1.4 Agricultural extension and material subsidization	a. Strengthening agro-extension activity	1. Motor cycles	20,000					20,000
	b. Subsidization of inputs (seeds, fertilizer, pesticides, etc)	2. Training	228,000	228,000	228,000	228,000	228,000	1,140,000
		3. Materials	107,000	107,000	107,000	107,000	107,000	535,000
		1.4 Total	355,000	335,000	335,000	335,000	335,000	1,695,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
1.5 Micro credit finance	a. Water user's association	1. Micro-finance for a.	570,000	570,000	570,000	570,000	570,000	2,850,000
	b. Agro-cooperatives	2. Micro-finance for b.	400,000	400,000	400,000	400,000	400,000	2,000,000
	c. Household processing groups	3. Micro-finance for c.	100,000	100,000	100,000	100,000	100,000	500,000
		1.5 Total	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		Donor	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		1. Sector Total	11,144,000	6,789,000	6,789,000	6,789,000	6,789,000	38,300,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
		Donor	9,461,000	5,459,000	5,459,000	5,459,000	5,459,000	31,297,000
		Community	1,328,000	995,000	995,000	995,000	995,000	5,308,000
<b>2. Livestock Development</b>								
	a. Expansion of veterinary service	1. Capacity building	157,000	107,000	257,000	347,000	347,000	1,215,000
	b. Intensification of Bali Cattle Production	2. Procurement of Materials etc.	52,000	54,000	13,000	15,000	22,000	156,000
	c. Promotion of Animal Traction	3. Capital outlay	0	1,271,000	491,000	306,000	0	2,062,000
	d. Integration of Food & Feed Crops in smallholder Farms for Pigs and Poultry							
	e. Buffalo Dairy							
	f. Increases of Goat Production							
	g. Improvement of Horse Production							
		2. Sector Total	209,000	1,432,000	761,000	662,000	369,000	3,433,000
		Donor	209,000	1,182,000	671,000	622,000	369,000	3,053,000
		Community	0	250,000	90,000	40,000	0	380,000
<b>3. Forestry Development</b>								
3.1 Reforestation (Rehabilitation of critical land)	a. Government management	1. Reforestation	695,500	695,500	695,500	695,500	695,500	3,477,500
	b. Administration	2. Contingency (10% of above)	69,600	69,600	69,600	69,600	69,600	348,000
		3.1 Total	765,100	765,100	765,100	765,100	765,100	3,825,500
		Donor	459,100	459,100	459,100	459,100	459,100	2,295,500
		Community	306,000	306,000	306,000	306,000	306,000	1,530,000
3.2 Regreening (Community forestry development)	a. Community management	1. Regreening	1,550,250	1,550,250	1,774,500	2,063,750	2,288,000	9,226,750
	b. Tree crop plantation	2. Candle-nuts planting	494,000	494,000	494,000	494,000	494,000	2,470,000
	c. Inter crop trials	1+2.	2,044,250	2,044,250	2,268,500	2,557,750	2,782,000	11,696,750
	d. Candle-nuts promotion	3. Contingency (10% of above)	204,400	204,400	226,900	255,800	278,200	1,169,700
	e. Fuel wood promotion	3.2 Total	2,248,650	2,248,650	2,495,400	2,813,550	3,060,200	12,866,450
	f. Administration	Donor	2,248,650	2,248,650	2,495,400	2,813,550	3,060,200	12,866,450
		3. Sector Total	3,013,750	3,013,750	3,260,500	3,578,650	3,825,300	16,691,950
		Donor	2,707,750	2,707,750	2,954,500	3,272,650	3,519,300	15,161,950
		Community	306,000	306,000	306,000	306,000	306,000	1,530,000
<b>4. Fishery Development</b>								
4.1 Fishing vessels	a. Development of an open boat		800,000	0	0	0	0	800,000
4.2 Fishing operation	a. Fishing gears improvement (to be included by technical cooperation)		0	0	0	0	0	0
4.3 Fishing survey	a. Fishing landing survey (to be included by technical cooperation)		0	0	0	0	0	0
4.4 Fish marketing	a. Credit fund (Promotion of small-scale fishery enterprises)		1,400,000	0	0	0	0	1,400,000
4.5 Fishery administration	a. Base line survey for CBFM (to be included by technical cooperation)							
		4. Sector Total	2,200,000	0	0	0	0	2,200,000
		Donor	2,200,000	0	0	0	0	2,200,000
		Community	0	0	0	0	0	0
<b>5. Capacity Building</b>								
5.1 National government and regional level	a. Central level		1,061,000	36,000	36,000	36,000	36,000	1,205,000
	b. Regional level		2,041,000	286,000	286,000	286,000	286,000	3,185,000
		5.1 Total	3,102,000	322,000	322,000	322,000	322,000	4,390,000
		Government	2,590,000	322,000	322,000	322,000	322,000	3,878,000
		Community	512,000	0	0	0	0	512,000
5.2 Beneficiaries level	a. Water users' associations		314,000	314,000	314,000	314,000	314,000	1,570,000
	b. Community group for forestry development		150,000	150,000	150,000	150,000	150,000	750,000
	c. Cooperatives for fishery development		85,000	85,000	85,000	85,000	85,000	425,000
		5.2 Total	549,000	549,000	549,000	549,000	549,000	2,745,000
		Government	549,000	549,000	549,000	549,000	549,000	2,745,000
		5. Sector Total	3,651,000	871,000	871,000	871,000	871,000	7,135,000
		Government	3,139,000	871,000	871,000	871,000	871,000	6,623,000
		Community	512,000	0	0	0	0	512,000
6. Administration	a. Wages & Salaries, Goods & Services, Capital		1,920,000	1,911,000	1,911,000	1,911,000	1,911,000	9,564,000
		GRAND TOTAL	22,137,750	14,016,750	13,592,500	13,811,650	13,765,300	77,323,950
		Government	5,414,000	3,117,000	3,117,000	3,117,000	3,117,000	17,882,000
		Donor	14,577,750	9,348,750	9,084,500	9,353,650	9,347,300	51,711,950
		Community	2,146,000	1,551,000	1,391,000	1,341,000	1,301,000	7,730,000

**Table U-2 Disbursement Schedule of the Cost for Development Plan for Mid-Term (Year 2003 to 2007)**  
(Minimum Development Case)

(Unit: US\$)

Sector and Sub-Sector	Development Components	Contents and Quantities	Disbursement Schedule from 2003 to 2007 (US\$)					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
<b>1. Agriculture Development</b>								
1.1 Irrigation	a. Irrigation facility	1. Canal rehabilitation etc.	489,000	489,000	489,000	489,000	489,000	2,445,000
		1.1 Total	489,000	489,000	489,000	489,000	489,000	2,445,000
		Donor	391,000	391,000	391,000	391,000	391,000	1,955,000
		Community	98,000	98,000	98,000	98,000	98,000	490,000
1.2 Farm road	a. New construction	1.2 Total	0	0	0	0	0	0
		Donor	0	0	0	0	0	0
		Community	0	0	0	0	0	0
1.3 Farm mechanization, training and hiring station	a. Training and hiring facility and manpower for farm mechanization	1. Experimental and training field land and building for station	1,667,000	0	0	0	0	1,667,000
	b. Consolidation of repair and maintenance workshop	2. Training and hiring machinery and equipment	2,334,000	0	0	0	0	2,334,000
		3. Repair and maintenance workshop	167,000	0	0	0	0	167,000
		4. Station support facility	167,000	0	0	0	0	167,000
		1.3 Total	4,335,000	0	0	0	0	4,335,000
		Donor	4,002,000	0	0	0	0	4,002,000
		Community	333,000	0	0	0	0	333,000
1.4 Agricultural extension and material subsidization	a. Strengthening agro-extension activity	1. Motor cycles	20,000					20,000
	b. Subsidization of inputs (seeds, fertilizer, pesticides, etc)	2. Training	228,000	228,000	228,000	228,000	228,000	1,140,000
		3. Materials	107,000	107,000	107,000	107,000	107,000	535,000
		1.4 Total	355,000	335,000	335,000	335,000	335,000	1,695,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
1.5 Micro credit finance	a. Water user's association	1. Micro-finance for a.	570,000	570,000	570,000	570,000	570,000	2,850,000
	b. Agro-cooperatives	2. Micro-finance for b.	400,000	400,000	400,000	400,000	400,000	2,000,000
	c. Household processing groups	3. Micro-finance for c.	100,000	100,000	100,000	100,000	100,000	500,000
		1.5 Total	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		Donor	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		1. Sector Total	6,249,000	1,894,000	1,894,000	1,894,000	1,894,000	13,825,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
		Donor	5,463,000	1,461,000	1,461,000	1,461,000	1,461,000	11,307,000
		Community	431,000	98,000	98,000	98,000	98,000	823,000
<b>2. Livestock Development</b>								
a. Expansion of veterinary service	1. Capacity building		157,000	107,000	107,000	107,000	107,000	585,000
b. Intensification of Bali Cattle Production	2. Procurement of Materials etc.		0	0	0	0	0	0
c. Promotion of Animal Traction	3. Capital outlay		0	0	0	0	0	0
d. Integration of Food & Feed Crops in smallholder Farms for Pigs and Poultry								
e. Buffalo Dairy								
f. Increases of Goat Production								
g. Improvement of Horse Production								
	2. Sector Total		157,000	107,000	107,000	107,000	107,000	585,000
	Donor		157,000	107,000	107,000	107,000	107,000	585,000
	Community		0	0	0	0	0	0
<b>3. Forestry Development</b>								
3.1 Reforestation (Rehabilitation of critical land)	a. Government management	1. Reforestation	0	0	0	0	0	0
	b. Administration	2. Contingency (10% of above)	0	0	0	0	0	0
		3.1 Total	0	0	0	0	0	0
3.2 Regreening (Community forestry development)	a. Community management	1. Regreening	0	0	0	0	0	0
	b. Tree crop plantation	2. Candle-nut planting	0	0	0	0	0	0
	c. Inter crop trials	1.+2.	0	0	0	0	0	0
	d. Candle-nut promotion	3. Contingency (10% of above)	0	0	0	0	0	0
	e. Fuel wood promotion	3.2 Total	0	0	0	0	0	0
	f. Administration							
	3. Sector Total		0	0	0	0	0	0
	Donor		0	0	0	0	0	0
	Community		0	0	0	0	0	0
<b>4. Fishery Development</b>								
4.1 Fishing vessels	a. Development of an open boat		0	0	0	0	0	0
4.2 Fishing operation	a. Fishing gears improvement (to be included by technical cooperation)		0	0	0	0	0	0
4.3 Fishing survey	a. Fishing landing survey (to be included by technical cooperation)		0	0	0	0	0	0
4.4 Fish marketing	a. Credit fund (Promotion of small-scale fishery enterprises)		0	0	0	0	0	0
4.5 Fishery administration	a. Base line survey for CBFM (to be included by technical cooperation)		0	0	0	0	0	0
	4. Sector Total		0	0	0	0	0	0
	Donor		0	0	0	0	0	0
	Community		0	0	0	0	0	0
<b>5. Capacity Building</b>								
5.1 National government and regional level	a. Central level		1,061,000	36,000	36,000	36,000	36,000	1,205,000
	b. Regional level		2,041,000	286,000	286,000	286,000	286,000	3,185,000
		5.1 Total	3,102,000	322,000	322,000	322,000	322,000	4,390,000
		Donor	2,590,000	322,000	322,000	322,000	322,000	3,878,000
		Community	512,000	0	0	0	0	512,000
5.2 Beneficiaries level	a. Water users' associations		314,000	314,000	314,000	314,000	314,000	1,570,000
	b. Community group for forestry development		150,000	150,000	150,000	150,000	150,000	750,000
	c. Cooperatives for fishery development		85,000	85,000	85,000	85,000	85,000	425,000
		5.2 Total	549,000	549,000	549,000	549,000	549,000	2,745,000
		Donor	549,000	549,000	549,000	549,000	549,000	2,745,000
	5. Sector Total		3,651,000	871,000	871,000	871,000	871,000	7,135,000
	Donor		3,139,000	871,000	871,000	871,000	871,000	6,623,000
	Community		512,000	0	0	0	0	512,000
<b>6. Administration</b>	a. Wages&Salaries, Goods&Services, Capital		5,920,000	1,971,000	1,971,000	1,971,000	1,971,000	7,564,000
	GRAND TOTAL		11,977,000	4,783,000	4,783,000	4,783,000	4,783,000	31,109,000
	Government		2,275,000	2,246,000	2,246,000	2,246,000	2,246,000	13,269,000
	Donor		8,759,000	2,439,000	2,439,000	2,439,000	2,439,000	18,515,000
	Community		943,000	98,000	98,000	98,000	98,000	1,335,000

**Table U-3 Cost Estimation for Rehabilitation of Irrigation Schemes**

DISTRICT	No.	SCHEME NAME	IRRIGATION AREA (ha)			DAMAGE ASSESSMENT			PROJECT COST		MAJOR DEVELOPMENT COMPONENTS	IMPLEMENTATION PLAN FUNDED by
			Potential	Functional	Remaining Area to be Rehabilitated	S	L-M	U	(US \$)	Data Source		
LAUTEM	1	FUIORO	400	400	0			0				
	2	IRABARB	350	350	0			0				
	3	LURO	100	60	40			94,000	**	1.Rehabilitation of intake structure 2.Small rehabilitation of structures 3.Small rehabilitation of canal structure		
	4	LAIWAI	125	100	25			425,000	**	1.Diversion intake 2.Construction of new irrigation structure 3.Rehabilitation of conveyance canal		
	Sub-total	975	910	65			519,000					
BAUCAU	5	LARISULA	350	350	0			0				
	6	LAGA	300	175	125			600,000	***	1.New construction of protection dike 2.Rehabilitation works -intake, gate, scouring gate, canal 3.Farm road 4.Union's house		
	7	SEICAL-up	800	0	800			2,143,000	*	1.Rehabilitation of intake 2. Protection of dike 3.Repairing of main canal 4.Maintenance of farm road 5.Union's house 6.Procurement of equipment		
	8	SEICAL-down	430	140	290			621,000	**	1.New construction & rehabilitation of intake 2.Repairing & repairing of canal 3.Minor rehabilitation of structures	W/Bank-1	
	9	CASAMETA	350	350	0			0				
	10	SAMALARI	1,000	1,000	0			0				
	11	LIASIDI	600	600	0			0				
	12	BARLATA	200	200	0			0				
	13	VEBASSE	700	600	100			1,500,000	***	1.New construction works -intake, conducting canal, gate, protection dike 2.Rehabilitation works -irrigation canal, protection of dike 3.Farm road 4.Union's house		
		Sub-total	4,790	3,415	1,375			4,864,000				
	VIQUEQUE	14	BAEDUBU	335	185	150			556,000	**	1.Repairing of intake 2.Construction of flow gate 3.Excavation on canal 4.Rehabilitation of damaged structures	W/Bank-2(on-going)
		15	UABAYI	220	130	90			189,000	**	1.Repairing of intake 2.Repairing of canal 3.Small rehabilitation of structures	W/Bank-3(on-going)
		16	UATULARI-1	1,090	600	490			2,493,000	*	1.Rehabilitation works -intake, main canal, farm road 2.Union's house 3.Procurement equipment	
17		UATULARI-2	204	204	0			598,000	*	1.Rehabilitation works 2.Farm road 3.Union's house		
18		UATULARI-3	370	370	0			1,106,000	*	1.New construction of protection dike 2.Rehabilitation work -intake, gate, canal, protection dike 3.Farm road 4.Union's House		
19		UIBERE	350	350	0			0				
20		UATEULAU	350	350	0			0				
21		LACLUTA	250	250	0			0				
		Sub-total	3,169	2,439	730			4,843,000				
MANATUTO		22	LALEIA	265	80	185			603,000	**	1.Construction of intake structure 2.Rehabilitation of canal requirement 4.Excavation on canal 5.Construction of supporting structure 5.Annual works	
	23	CAIRUM	250	250	0			0				
	24	SUMASSE	250	250	0			1,170,000	*	1.New construction works -intake, gate, conducting canal, protection dike 2.Rehabilitation works -irrigation canal, protection dike 3.Farm road 4.Union's house		
	25	LACLO (Phase1)	660	0	660			1,146,000	*	1.Temporary intake 2.Conducting canal, Bridge, Repair canal, gate 5.Protection Dike 6.Farm road 7.Union's house	JICA (on-going)	
		LACLO (Phase2)						6,410,000	*	8.Procurement Equipment 1.Intake 2.Protection dike 3.Siphon, Canal 4.Gate 5.Farm road	JICA (on-going)	
	26	NATARBORA	500	400	100			1,000,000	***	1.New construction of protection dike 2.Rehabilitation works -intake, gate, scouring gate, canal, protection dike 3.Farm road 4.Union's house		
		Sub-total	1,925	980	945			10,329,000				

DISTRICT	No.	SCHIRMB NAME	IRRIGATION AREA (ha)			DAMAGE ASSESSMENT			PROJECT COST		MAJOR DEVELOPMENT COMPONENTS	IMPLEMENTATION PLAN
			Potential	Functional	Remaining Area to be Rehabilitated	S	L-M	U	(US \$)	Data Source		
MANUFARI	27	SAHEN	3,121	239	2,882	○			5,764,000	****		
	28	WELAI UJIU	150	130	0			○	0			
	29	DOTIK	100	0	100	○			200,000	***	1.Rehabilitation of intake, irrigation canal	
	30	BESUSU	150	150	0			○	0			
	31	CARAULUN	2,196	0	2,196	○			4,392,000	***		
	32	CALOCCO	200	200	0			○	2,594,000	*	1.New construction of production dike & intake 2.Rehabilitation works -intake gate, scouring gate, canal, protection dike 3.Farm road 4.Union's house	
	Sub-total		5,817	739	5,178				12,950,000			
ERMERA	33	RAILACO	75	30	45	○			92,000	**	1.Construction of intake structure 2.Repairing of canal 3.Small rehabilitation of structures	
	34	OLENO	80	40	40			○	108,000	**	1.Diversion intake	
	35	SARE	1,050	500	550	○			2,100,000	***	1.New construction works -intake, conducting canal, protection dike 2.Rehabilitation works -intake gate, canal, protection dike 3.Farm road 4.Union's house	
	Sub-total		1,205	578	635				2,300,000			
AINARO	36	BONUK	270	5	265			○	197,000	**		
	37	CASSA	185	45	140			○	454,000	**	1.Construction of new intake structure 2.Excavation on canal 3.Normalization of canal	
	38	DEBARA	2,158	1,000	1,158	○			4,316,000	***		
	Sub-total		2,613	1,050	1,563				4,967,000			
LIQUIKA	39	LEOATA/LEOTALA	80	65	15			○	156,000	**	1.Protection of intake structure 2.Small rehabilitation of structures 3.Annual works	
	40	GUKCO RIGHT	80	50	30			○	24,000	****	1.Construction & Rehabilitation of Canal	
	41	GUKCO	2,000	0	2,000	○			4,000,000	****	1.Construction of intake 2.Construction & Rehabilitation of Canal	
	42	LAUWELI (Famalaru)	3,000	80	2,920	○			5,840,000	****	1.Construction & Rehabilitation of Canal	
	Sub-total		5,168	195	4,973				10,020,000			
BOBONARO	43	BILMAU	350	100	250	○			458,000	**	1.Protection of access canal 2.Construction of protection wall 3.Development of main canal 4.Restoration of downstream area	W/Bank-4 (on-going)
	44	HALCAO	345	30	315	○			478,000	**	1.Construction of permanent intake structure 2.Reconstruction of canal 3.Construction of canal structures 4.Construction of access road	W/Bank-5 (on-going)
	45	ATARAE LOES	190	120	70			○	33,000	**	1.Protection of access canal 2.Construction of flow guide 3.Excavation on canal 4.Small Rehabilitation of structures 5.Annual works	
	46	MARCO	220	100	120			○	194,000	**	1.Construction of new intake structure 2.Excavation on canal 3.Small Rehabilitation of structures	W/Bank-6
	47	CALACO/MEJICO	100	80	20			○	119,000	**	1.Rehabilitation of intake structure 2.Improvement of canal lining 3.Rehabilitation of structure 4.Others	W/Bank-7
	Sub-total		4,835	1,680	3,155				12,372,000			
COVALIMA	52	BECO	1,185	800	385	○			2,370,000	***		
	53	RAISEAN	400	220	180			○	800,000	***		
	Sub-total		1,585	1,020	565				3,170,000			
OECUSSY	54	TONO	260	212	48			○	161,000	**	1.Repairing of intake structure 2.Rehabilitation of control structure	W/Bank-9
	55	ROTE	350	350	0			○	0			
	56	OEMATHTIU	170	100	70			○	120,000	**	1.Repairing of intake structure 2.Rehabilitation of canal lining 3.Minor Rehabilitation of structures	W/Bank-10
	57	NAKTUKA	170	90	80			○	99,000	**	1.Repairing of weir 2.Highening of left canal 3.Repairing of broken canal lining 4.Small rehabilitation of structures	W/Bank-11
	Sub-total		950	752	198				380,000			
Grand Total (ha)			33,864	13,759	19,114				66,813,000			Total Rec. Area 2,123
Except Recovery Area by JICA & W/B					17,191				56,229,000			JICA 664ha W/B 1,463ha
												10,584,000

Remarks:

1. Damage Assessment

- S; Seriously damaged
- L-M; Lightly-medium damaged
- U; Unaffected

2. Data Source for Project Cost

- \*; The Study on Urgent Rehabilitation Plan in East Timor (by JICA, August 2000)
- \*\*; Feasibility and Engineering Study in Respect of Rehabilitation of Identified Irrigation Schemes in East (by ETTA, May 2001)
- \*\*\*; Strategy for Irrigation & Water Management (by Agriculture Department UNTAET, June 2000)

- \*\*\*\*; Calculated Cost for GUICO RIGHT  
According to the report above "Strategy for irrigation & water management ...", the cost for irrigation maintenance and rehabilitation as estimated based on following standards:

- Emergency maintenance for "L-M" damage scheme = 800 (US\$/ha)

Therefore, project cost is calculated as follow:

- Project Cost (US/\$) = Remaining Area to b Rehabilitated \* 800 (US\$/ha)

- \*\*\*\*; Calculated Cost for SAHEN, CARAULUN, GUICO, LAUWELI  
According to the report above "Strategy for irrigation & water management ...", the cost for irrigation maintenance and rehabilitation as estimated based on following standards:

- Systematic Rehabilitation for "S" damage scheme = 2,000 (US\$/ha)

Therefore, project cost is calculated as follow:

- Project Cost (US/\$) = Remaining Area to b Rehabilitated \* 2,000 (US\$/ha)

**Table U-4 Disbursement Schedule of Irrigation Development Plan for Mid-Term  
(Year 2003 to 2007)**

**(1) Full-Development Plan**

**(a) Conditions**

- 1) Total proposed rehabilitated area is 17,191 ha except on-going projects by JICA and WORLD BANK.(until 2002)
- 2) Total proposed costs for rehabilitation of 17,191 ha is estimated at US\$ 56,229,000.
- 3) All of implementation of rehabilitation is planned to be done through 15 years as long-term development (Year 2003 to 2017).
- 4) As mid-term development (5 years, Year 2003 to 2007), 1,145 ha per year would be implemented, total improved area would be about 5,725 ha, and the cost in this period is estimated at US\$ 18,725,000 out of US\$ 56,229,000 for long-term development plan.

**(b) Disbursement Schedule**

(US\$)

Sector and Sub-Sector	Development Component	Qty.	Disbursement Schedule from 2003 to 2007					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
1. Agriculture Development								
1.1 Irrigation	Rehabilitation of irrigation facilities	Rihabi. Area (ha)	1,145	1,145	1,145	1,145	1,145	5,725
		Cost (US\$)	3,745,000	3,745,000	3,745,000	3,745,000	3,745,000	18,725,000

**(2) Minimum-Development Plan**

**(a) Conditions**

- 1) Total proposed rehabilitated area-classified light-medium damaged is 990 ha except on-going projects by JICA and World Bank.(until 2002)
- 2) Total proposed costs for rehabilitation of 990 ha is estimated at US\$ 2,445,000.
- 3) All of implementation of rehabilitation is planned to be done through 5 years as mid-term development (Year 2003 to 2007).
- 4) As mid-term development (5 years, Year 2003 to 2007), 198 ha per year would be implemented, total improved area would be about 198 ha.

**(b) Disbursement Schedule**

(US\$)

Sector and Sub-Sector	Development Component	Qty.	Disbursement Schedule from 2003 to 2007					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
1. Agriculture Development								
1.1 Irrigation	Rehabilitation of irrigation facilities	Rihabi. Area (ha)	198	198	198	198	198	990
		Cost (US\$)	489,000	489,000	489,000	489,000	489,000	2,445,000



**Table U-5 Disbursement Schedule of Farm Road Development Plan for Mid-Term  
(Year 2003 to 2007)**

**(1) Conditions**

- 1) Farm road construction, total proposed length is 330 km, would be implemented through 15 years (Year 2003 to 2017) as long-term development.
- 2) And its cost is estimated at US\$ 24,585,000.
- 3) As mid-term development (5 years, Year 2003 to 2007), 110 km out of 330 km construction is proposed.

**(2) Disbursement Schedule**

(US\$)

Sector and Sub-Sector	Development Component	Qty.	Disbursement Schedule from 2003 to 2007					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
1. Agriculture Development								
1.2 Farm road	New construction	Length (km)	22	22	22	22	22	110
		Cost (US\$)	1,639,000	1,639,000	1,639,000	1,639,000	1,639,000	8,195,000

**REFERENCE DATA**

**Bill of Quantities for Construction of Farm Road**

(US\$)

Pay Item Description	Unit	Qty.	Unit Cost US\$	Amount US\$/m	Grand Total
1.Stripping (Bulldozer 6 ton)	m <sup>3</sup> /m	2.01	4.7	9.4	
2.Embankment (Bulldozer 6 ton + Roller)	m <sup>3</sup> /m	3.56	7.2	25.7	
3.Surface Course (Bulldozer 6 ton + Roll)	m <sup>3</sup> /m	0.60	25.9	15.5	
4.Transportation	m <sup>3</sup> /m	3.56	6.7	23.9	
Total per meter	US\$/m			74.5	
Grand Total (For Proposed Length)	km	330		74.5	24,585,000

**Table U-6 Disbursement Schedule of Farm Mechanization Development Plan for Mid-Term  
(Year 2003 to 2007)**

**(1) Conditions**

- 1) Total cost for farm mechanization training and hiring station is estimated at US\$ 13,000,000.  
 Contents;
  - a) Experimental and training field, land and building for station 5,000,000 US\$
  - b) Training & hiring machinery and equipment 7,000,000 US\$
  - c) Repair & maintenance workshop 500,000 US\$
  - d) Station support facility 500,000 US\$
- 2) Implementation would be done as long-term development through 15 years (Year 2003 to 2017).
- 3) As mid-term development (5 years, Year 2003 to 2007), the cost is estimated at 4,335,000 US\$ out of the total cost.
- 4) And this cost will be disbursed on FY2003 as initial investment.

**(2) Disbursement Schedule**

(US\$)

Sector and Sub-Sector	Development Component	Qty. (lot)	Disbursement Schedule from 2003 to 2007					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
1. Agriculture Development								
1.3 Farm mechanization, training and hiring station	1) Experimental and training field, land and building for station	1	1,667,000	-	-	-	-	1,667,000
	2) Training & hiring machinery and equipment	1	2,334,000	-	-	-	-	2,334,000
	3) Repair & maintenance workshop	1	167,000	-	-	-	-	167,000
	4) Station support facility	1	167,000	-	-	-	-	167,000
	<b>Total</b>		<b>4,335,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,335,000</b>

**Table U-7 Disbursement Schedule of Livestock Development Plan for Mid-Term (Year 2003 to 2007)**

**(1) Full-Development Plan**

**1) Conditions**

a) Implementation would be done as mid-term through 5 years (Year 2003 to 2007).

**2) Disbursement Schedule**

Development Component	Unit	Unit Cost (US\$)	Mid-term										Total	
			FY2003		FY2004		FY2005		FY2006		FY2007		(Qty)	(US\$)
			(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)		
<b>1. Capacity Building</b>														
Veterinarians	person	21,600	3	64,800	2	43,200	2	43,200	2	43,200	2	43,200	11	237,600
Advanced Degrees; M.S.	person	12,000	3	36,000	2	24,000	7	84,000	10	120,000	10	120,000	32	384,000
Advanced Degrees; PhD.	person	18,000	3	54,000	2	36,000	7	126,000	10	180,000	10	180,000	32	576,000
Technicians' Training	person	50	15	750	20	1,000	20	1,000	20	1,000	20	1,000	95	4,750
Farmers' Training	person	30	50	1,500	100	3,000	100	3,000	100	3,000	100	3,000	450	13,500
<b>1.Total</b>				<b>157,000</b>	<b>0</b>	<b>107,000</b>	<b>0</b>	<b>257,000</b>	<b>0</b>	<b>347,000</b>	<b>0</b>	<b>347,000</b>		<b>1,215,000</b>
<b>2. Maintenance and Operating Expenses</b>														
A. Equipment, Motorcycles	unit	1,500	25	37,500	25	37,500							50	75,000
<b>B. Supplies and Materials</b>														
1) Seeds / Planting materials	district	1,000	2	2,000	3	3,000	4	4,000	5	5,000	6	6,000	20	20,000
2) Frozen semen, embryos	district	2,000	1	2,000	1	2,000	1	2,000	1	2,000	1	2,000	5	10,000
3) Liquid N, A.L. Supplies	district	3,000	1	3,000	1	3,000	1	3,000	1	3,000	1	3,000	5	15,000
4) Fertilizers, etc.	district	1,000	2	2,000	3	3,000	4	4,000	5	5,000	6	6,000	20	20,000
5) Tools	set	10,000	0.5	5,000	0.5	5,000					0.5	5,000	2	15,000
<b>2.Total</b>				<b>52,000</b>	<b>54,000</b>		<b>13,000</b>		<b>15,000</b>		<b>22,000</b>			<b>156,000</b>
<b>3. Capital Outlay</b>														
<b>A. Breeding Animals</b>														
1) Goats	head	150			60	9,000							60	9,000
2) Bulgarian Buffaloes	head	2,000					15	30,000	50	100,000			65	130,000
3) Weighing scales, etc.	unit	1,000			5	5,000	5	5,000					10	10,000
4) Structures, barns, etc.	unit	1,000			7	7,000	6	6,000					13	13,000
<b>B. Veterinary Facilities</b>														
1) Diagnostic lab. + equipment	unit	150,000			1	150,000							1	150,000
2) Quarantine station	unit	50,000					1	50,000					1	50,000
3) Quarantine station (Atauro)	unit	100,000			1	100,000							1	100,000
<b>C. Slaughterhouse + Equipment</b>														
1) Class A	unit	300,000			2	600,000							2	600,000
2) Class B	unit	200,000			2	400,000	2	400,000	1	200,000			5	1,000,000
<b>3.Total</b>				<b>0</b>	<b>1,271,000</b>		<b>491,000</b>		<b>300,000</b>		<b>0</b>			<b>2,062,000</b>
<b>Grand total</b>				<b>209,000</b>	<b>1,432,000</b>		<b>761,000</b>		<b>662,000</b>		<b>369,000</b>			<b>3,433,000</b>

**REFERENCE DATA**

**Disbursement Schedule of Livestock Plan for Mid-Term (Year 2003 to 2007)**

**(2) Minimum-Development Plan**

Development Component	Unit	Unit Cost (US\$)	Mid-term											
			FY2003		FY2004		FY2005		FY2006		FY2007		Total	
			(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)	(Qty)	(US\$)
<b>1. Capacity Building</b>														
Veterinarians	person	21,600	3	64,800	2	43,200	2	43,200	2	43,200	2	43,200	11	237,600
Advanced Degrees; Master of Science	person	12,000	3	36,000	2	24,000	2	24,000	2	24,000	2	24,000	11	132,000
Advanced Degrees; Doctor of Philosophy	person	18,000	3	54,000	2	36,000	2	36,000	2	36,000	2	36,000	11	198,000
Technicians' Training	person	50	15	750	20	1,000	20	1,000	20	1,000	20	1,000	95	4,750
Farmers' Training	person	30	50	1,500	100	3,000	100	3,000	100	3,000	100	3,000	450	13,500
<b>1.Total</b>				<b>157,000</b>		<b>107,000</b>		<b>107,000</b>		<b>107,000</b>		<b>107,000</b>		<b>585,000</b>
<b>2. Maintenance and Operating Expenses</b>														
A. Equipment, Motorcycles	unit	1,500												
B. Supplies and Materials														
1) Seeds / Planting materials	district	1,000												
2) Frozen semen, embryos	district	2,000												
3) Liquid N, A.L. Supplies	district	3,000												
4) Fertilizers, etc.	district	1,000												
5) Tools	set	10,000												
<b>2.Total</b>				<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>
<b>3. Capital Outlay</b>														
A. Breeding Animals														
1) Goats	head	150												
2) Weighing scales, etc.	unit	1,000												
3) Structures, barns, etc.	unit	1,000												
B. Veterinary Facilities														
1) Diagnostic lab. + equipment	unit	150,000												
2) Quarantine station	unit	50,000												
3) Quarantine station (Atauro)	unit	100,000												
C. Slaughterhouse + Equipment														
1) Class A	unit	300,000												
2) Class B	unit	200,000												
<b>3.Total</b>						<b>0</b>		<b>0</b>		<b>0</b>				<b>0</b>
<b>Grand total</b>				<b>157,000</b>		<b>107,000</b>		<b>107,000</b>		<b>107,000</b>		<b>107,000</b>		<b>585,000</b>

**Table U-8 Disbursement Schedule of Reforestation Development Plan  
for Mid-Term (Year 2003 to 2007)**

**(1) Proposed Reforestation Area**

(Unit: ha)

District	Total Inside Forest Area (1)	FY2003	FY2004	FY2005	FY2006	FY2007	Total Reforestation Area by 5 Years Plan (2)	Remaining Area (3)=(1)-(2)
1 LAUTEM	5,779	45	45	45	45	45	225	5,554
2 BAUCAU	6,794	35	35	35	35	35	175	6,619
3 VIQUEQUE	17,235	45	45	45	45	45	225	17,010
4 MANATUTU	21,716	45	45	45	45	45	225	21,491
5 MANUFAFI	22,945	45	45	45	45	45	225	22,720
6 DILI	16,465	45	45	45	45	45	225	16,240
7 AILEU	19,149	35	35	35	35	35	175	18,974
8 ERMERA	3,628	35	35	35	35	35	175	3,453
9 AINARO	3,347	35	35	35	35	35	175	3,172
10 LIQUICA	6,931	35	35	35	35	35	175	6,756
11 BOBONARO	7,582	45	45	45	45	45	225	7,357
12 COVALIMA	13,484	45	45	45	45	45	225	13,259
13 OECUSSI	32,052	45	45	45	45	45	225	31,827
<b>Total</b>	<b>177,107</b>	<b>535</b>	<b>535</b>	<b>535</b>	<b>535</b>	<b>535</b>	<b>2,675</b>	<b>174,432</b>

**(2) Cost Estimation and Disbursement Schedule**

(Unit Cost: 1,300 US\$/ha)

District	Total Reforestation Area by 5 Years Plan (ha)	FY2003	FY2004	FY2005	FY2006	FY2007	Total Cost by 5 Years Plan (US\$)	Remarks
1 LAUTEM	225	58,500	58,500	58,500	58,500	58,500	292,500	
2 BAUCAU	175	45,500	45,500	45,500	45,500	45,500	227,500	
3 VIQUEQUE	225	58,500	58,500	58,500	58,500	58,500	292,500	
4 MANATUTU	225	58,500	58,500	58,500	58,500	58,500	292,500	
5 MANUFAFI	225	58,500	58,500	58,500	58,500	58,500	292,500	
6 DILI	225	58,500	58,500	58,500	58,500	58,500	292,500	
7 AILEU	175	45,500	45,500	45,500	45,500	45,500	227,500	
8 ERMERA	175	45,500	45,500	45,500	45,500	45,500	227,500	
9 AINARO	175	45,500	45,500	45,500	45,500	45,500	227,500	
10 LIQUICA	175	45,500	45,500	45,500	45,500	45,500	227,500	
11 BOBONARO	225	58,500	58,500	58,500	58,500	58,500	292,500	
12 COVALIMA	225	58,500	58,500	58,500	58,500	58,500	292,500	
13 OECUSSI	225	58,500	58,500	58,500	58,500	58,500	292,500	
<b>Total</b>	<b>2,675</b>	<b>695,500</b>	<b>695,500</b>	<b>695,500</b>	<b>695,500</b>	<b>695,500</b>	<b>3,477,500</b>	

**Table U-9 Disbursement Schedule of Regreening Development Plan  
for Mid-Term (Year 2003 to 2007)**

**(1) Proposed Regreening Area**

(Unit: ha)

District	Total Outside Forest Area (1)	FY2003	FY2004	FY2005	FY2006	FY2007	Total Regreening Area by 5 Years Plan (2)	Remaining Area (3)=(1)-(2)
1 LAUTEM	13,483	180	180	180	180	180	900	12,583
2 BAUCAU	15,852	180	180	180	180	180	900	14,952
3 VIQUEQUE	47,101	225	225	340	450	565	1,805	45,296
4 MANATUTO	50,671	225	225	340	450	565	1,805	48,866
5 MANUFAFI	53,539	225	225	340	450	565	1,805	51,734
6 DILI	10,872	225	225	225	340	340	1,355	9,517
7 AILEU	35,563	225	225	225	225	225	1,125	34,438
8 ERMBRA	13,929	135	135	135	135	135	675	13,254
9 AINARO	7,809	135	135	135	135	135	675	7,134
10 LIQUICA	9,030	135	135	135	135	135	675	8,355
11 BOBONARO	17,565	180	180	180	180	180	900	16,665
12 COVALIMA	25,042	180	180	180	180	180	900	24,142
13 OECUSSI	5,108	135	135	135	135	135	675	4,433
<b>Total</b>	<b>305,564</b>	<b>2,385</b>	<b>2,385</b>	<b>2,730</b>	<b>3,175</b>	<b>3,520</b>	<b>14,195</b>	<b>291,369</b>

**b. Cost Estimation and Disbursement Schedule**

(Unit Cost: 650 US\$/ha)

District	Total Reforestation Area by 5 Years Plan (ha)	FY2003	FY2004	FY2005	FY2006	FY2007	Total Cost by 5 Years Plan (US\$)	Remarks
1 LAUTEM	900	117,000	117,000	117,000	117,000	117,000	585,000	
2 BAUCAU	900	117,000	117,000	117,000	117,000	117,000	585,000	
3 VIQUEQUE	1,805	146,250	146,250	221,000	292,500	367,250	1,173,250	
4 MANATUTO	1,805	146,250	146,250	221,000	292,500	367,250	1,173,250	
5 MANUFAFI	1,805	146,250	146,250	221,000	292,500	367,250	1,173,250	
6 DILI	1,355	146,250	146,250	146,250	221,000	221,000	880,750	
7 AILEU	1,125	146,250	146,250	146,250	146,250	146,250	731,250	
8 ERMBRA	675	87,750	87,750	87,750	87,750	87,750	438,750	
9 AINARO	675	87,750	87,750	87,750	87,750	87,750	438,750	
10 LIQUICA	675	87,750	87,750	87,750	87,750	87,750	438,750	
11 BOBONARO	900	117,000	117,000	117,000	117,000	117,000	585,000	
12 COVALIMA	900	117,000	117,000	117,000	117,000	117,000	585,000	
13 OECUSSI	675	87,750	87,750	87,750	87,750	87,750	438,750	
<b>Total</b>	<b>14,195</b>	<b>1,550,250</b>	<b>1,550,250</b>	<b>1,774,500</b>	<b>2,063,750</b>	<b>2,288,000</b>	<b>9,226,750</b>	

**Table U-10 Disbursement Schedule of Candle-Nut Production  
Development Plan for Mid-Term (Year 2003 to 2007)**

**(1) Proposed Planting Area**

Item	FY2003	FY2004	FY2005	FY2006	FY2007	Total Planting Area by 5 Year Plan	Remarks
Proposed Planting Area of Candle-Nut (US\$)	260	260	260	260	260	1,300	

**(2) Cost Estimation and Disbursement Schedule**

(Unit Cost: 1,900 US\$/ha)

Item	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total Cost by 5 Years plan	Remarks
Planting Cost of Candle-Nut Tree (US\$)	494,000	494,000	494,000	494,000	494,000	2,470,000	

Table U-11 Disbursement Schedule of Capacity Building Plan for Mid-Term (Year 2003 to 2007)

(US\$)

Sector	Development Components	Contents	Quantity	Unit	Unit Costs	Disbursement Schedule from 2003 to 2007 (US\$)					Total
						FY2003	FY2004	FY2005	FY2006	FY2007	
<b>5. Capacity Building</b>											
<b>5.1 National Government and Regional Offices</b>	a. Central Level	Training Facilities	Lump sum		1,000,000	1,000,000					1,000,000
		Training Equipment	Lump sum		25,000	25,000					25,000
		Training Programs	8	Programs	2,000	16,000	16,000	16,000	16,000	16,000	80,000
		Administration	5	Staff	4,000	20,000	20,000	20,000	20,000	20,000	100,000
		<b>a. Total</b>				<b>1,061,000</b>	<b>36,000</b>	<b>36,000</b>	<b>36,000</b>	<b>36,000</b>	<b>36,000</b>
	b. District Level	Training Facilities	Lump sum		120,000	1,560,000					1,560,000
		Training Equipment	Lump sum		15,000	195,000					195,000
		Training Programs	104	Programs	2,000	208,000	208,000	208,000	208,000	208,000	1,040,000
		Administration	26	Staff	3,000	78,000	78,000	78,000	78,000	78,000	390,000
		<b>b. Total</b>				<b>2,041,000</b>	<b>286,000</b>	<b>286,000</b>	<b>286,000</b>	<b>286,000</b>	<b>286,000</b>
<b>5.1 Total</b>					<b>3,102,000</b>	<b>322,000</b>	<b>322,000</b>	<b>322,000</b>	<b>322,000</b>	<b>4,390,000</b>	
<b>5.2 Beneficiary Level</b>	a. Water Users' Associations	Organization	57	Groups	1,500	85,500	85,500	85,500	85,500	85,500	427,500
		Training	57	Groups	4,000	228,000	228,000	228,000	228,000	228,000	1,140,000
	<b>a. Total</b>					<b>314,000</b>	<b>314,000</b>	<b>314,000</b>	<b>314,000</b>	<b>314,000</b>	<b>1,570,000</b>
	b. Community Group for Forestry Development	Organization: 5 per district	65	Groups	1,500	97,500	97,500	97,500	97,500	97,500	487,500
		Training	13	Districts	4,000	52,000	52,000	52,000	52,000	52,000	260,000
	<b>b. Total</b>					<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>750,000</b>
	c. Cooperatives for Fishery Development	Organization: 3 per district	30	Groups	1,500	45,000	45,000	45,000	45,000	45,000	225,000
		Training	10	Districts	4,000	40,000	40,000	40,000	40,000	40,000	200,000
	<b>c. Total</b>					<b>85,000</b>	<b>85,000</b>	<b>85,000</b>	<b>85,000</b>	<b>85,000</b>	<b>425,000</b>
	<b>5.2 Total</b>						<b>549,000</b>	<b>549,000</b>	<b>549,000</b>	<b>549,000</b>	<b>549,000</b>
<b>Grand Total</b>						<b>3,651,000</b>	<b>871,000</b>	<b>871,000</b>	<b>871,000</b>	<b>871,000</b>	<b>7,135,000</b>



**Table U-12 The Costs of Operation and Maintenance**

**A Case in Manatuto irrigation System (Laclo Irrigation Scheme)**

**The service area ; 660 hectares**

(US\$)

Particulars	Frequency	Total Cost
<b>1. Operation</b>	Continuous	2,130
1) Gatekeeper's salary		
<b>Sub-Total (Operation)</b>		<b>2,130</b>
<b>2. Maintenance</b>		
1) Intake Structures and Facilities:		
a) Re-channeling of river bed near intake	2times/yr	1,280
b) Removal of silts in canal	2times/yr	6,400
<b>Sub-Total (Maintenance of Intake)</b>		<b>7,680</b>
2) Irrigation Facilities and Structures:		
a) Cutting of grass inside canal section	3times/yr	250
b) Removal of silt inside canal section	2times/yr	5,930
c) Removal of debris and obstruction in structure	2times/yr	30
<b>Sub-Total (Maintenance of Irrigation)</b>		<b>6,210</b>
<b>3. Repair</b>		
1) Re-shaping of canal embankment	2times/yr	900
2) Repair of damages of transitions:	1time/yr	570
3) Others (assumed as 20% of b. aboved)		120
<b>Sub-Total (Repair)</b>		<b>1,590</b>
<b>Total</b>		<b>17,610</b>
Office Supplies (15% of the total aboved)		2,640
Contingency (10%)		2,030
<b>Grand Total</b>		<b>22,280</b>
<b>Cost per hectare</b>		<b>34</b>

**Table U-13 Disbursement Schedule of the Cost for Development Plan for Mid-Term (Year 2003 to 2007)**  
(Moderate Development Plan Case)

(Unit: US\$)

Sector and Sub-Sector	Development Components	Contents and Quantities	Disbursement Schedule from 2003 to 2007 (US\$)					Total
			FY2003	FY2004	FY2005	FY2006	FY2007	
<b>1. Agriculture Development</b>								
1.1 Irrigation	a. Irrigation facility	1. Canal rehabilitation etc.	3,745,000	3,745,000	3,745,000	3,745,000	3,745,000	18,725,000
		1.1 Total	3,745,000	3,745,000	3,745,000	3,745,000	3,745,000	18,725,000
		Donor	2,996,000	2,996,000	2,996,000	2,996,000	2,996,000	14,980,000
		Community	749,000	749,000	749,000	749,000	749,000	3,745,000
1.2 Farm road	a. New construction	L=110km	1,639,000	1,639,000	1,639,000	1,639,000	1,639,000	8,195,000
		1.2 Total	1,639,000	1,639,000	1,639,000	1,639,000	1,639,000	8,195,000
		Donor	1,393,000	1,393,000	1,393,000	1,393,000	1,393,000	6,965,000
		Community	246,000	246,000	246,000	246,000	246,000	1,230,000
1.3 Farm mechanization, training and hiring station	a. Training and hiring facility	1. Experimental and training field land and building for station	1,667,000	0	0	0	0	1,667,000
	b. Consolidation of repair and maintenance workshop	2. Training and hiring machinery and equipment	2,334,000	0	0	0	0	2,334,000
		3. Repair and maintenance workshop	167,000	0	0	0	0	167,000
		4. Station support facility	167,000	0	0	0	0	167,000
		1.3 Total	4,335,000	0	0	0	0	4,335,000
		Donor	4,002,000	0	0	0	0	4,002,000
		Community	333,000	0	0	0	0	333,000
1.4 Agricultural extension and material subsidization	a. Strengthening agro-extension activity	1. Motor cycles	20,000					20,000
	b. Subsidization of inputs (seeds, fertilizer, pesticides, etc)	2. Training	228,000	228,000	228,000	228,000	228,000	1,140,000
		3. Materials	107,000	107,000	107,000	107,000	107,000	535,000
		1.4 Total	355,000	335,000	335,000	335,000	335,000	1,695,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
1.5 Micro credit finance	a. Water user's association	1. Micro-finance for a.	570,000	570,000	570,000	570,000	570,000	2,850,000
	b. Agro-cooperatives	2. Micro-finance for b.	400,000	400,000	400,000	400,000	400,000	2,000,000
	c. Household processing groups	3. Micro-finance for c.	100,000	100,000	100,000	100,000	100,000	500,000
		1.5 Total	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		Donor	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	5,350,000
		1. Sector Total	11,144,000	6,789,000	6,789,000	6,789,000	6,789,000	38,300,000
		Government	355,000	335,000	335,000	335,000	335,000	1,695,000
		Donor	9,461,000	5,459,000	5,459,000	5,459,000	5,459,000	31,297,000
		Community	1,328,000	995,000	995,000	995,000	995,000	5,308,000
<b>2. Livestock Development</b>								
	a. Expansion of veterinary service	1. Capacity building	157,000	107,000	257,000	347,000	347,000	1,215,000
	b. Intensification of Bali Cattle Production	2. Procurement of Materials etc.	52,000	54,000	13,000	15,000	22,000	156,000
	c. Promotion of Animal Traction	3. Capital outlay	0	1,271,000	491,000	300,000	0	2,062,000
	d. Integration of Food & Feed Crops in smallholder Farms for Pigs and Poultry							
	e. Buffalo Dairy							
	f. Increases of Goat Production							
	g. Improvement of Horse Production							
		2. Sector Total	209,000	1,432,000	761,000	662,000	369,000	3,433,000
		Donor	209,000	1,182,000	671,000	622,000	369,000	3,053,000
		Community	0	250,000	90,000	40,000	0	380,000
<b>3. Forestry Development</b>								
3.1 Reforestation (Rehabilitation of critical land)	a. Government management	1. Reforestation	0	0	0	0	0	0
	b. Administration	2. Contingency (10% of above)	0	0	0	0	0	0
		3.1 Total	0	0	0	0	0	0
		Donor	0	0	0	0	0	0
		Community	0	0	0	0	0	0
3.2 Regreening (Community forestry development)	a. Community management	1. Regreening	0	0	0	0	0	0
	b. Tree crop plantation	2. Candle-nuts planting	0	0	0	0	0	0
	c. Inter crop trials	1.+2.	0	0	0	0	0	0
	d. Candle-nuts promotion	3. Contingency (10% of above)	0	0	0	0	0	0
	e. Fuel wood promotion	3.2 Total	0	0	0	0	0	0
	f. Administration	Donor	0	0	0	0	0	0
		3. Sector Total	0	0	0	0	0	0
		Donor	0	0	0	0	0	0
		Community	0	0	0	0	0	0
<b>4. Fishery Development</b>								
4.1 Fishing vessels	a. Development of an open boat		800,000	0	0	0	0	800,000
4.2 Fishing operation	a. Fishing gears improvement (to be included by technical cooperation)		0	0	0	0	0	0
4.3 Fishing survey	a. Fishing landing survey (to be included by technical cooperation)		0	0	0	0	0	0
4.4 Fish marketing	a. Credit fund (Promotion of small-scale fishery enterprises)		1,400,000	0	0	0	0	1,400,000
4.5 Fishery administration	a. Base line survey for CBFM (to be included by technical cooperation)							
		4. Sector Total	2,200,000	0	0	0	0	2,200,000
		Donor	2,200,000	0	0	0	0	2,200,000
		Community	0	0	0	0	0	0
<b>5. Capacity Building</b>								
5.1 National government and regional level	a. Central level		1,061,000	36,000	36,000	36,000	36,000	1,205,000
	b. Regional level		2,041,000	286,000	286,000	286,000	286,000	3,185,000
		5.1 Total	3,102,000	322,000	322,000	322,000	322,000	4,390,000
		Government	2,590,000	322,000	322,000	322,000	322,000	3,878,000
		Community	512,000	0	0	0	0	512,000
5.2 Beneficiaries level	a. Water users' associations		314,000	314,000	314,000	314,000	314,000	1,570,000
	b. Community group for forestry development		150,000	150,000	150,000	150,000	150,000	750,000
	c. Cooperatives for fishery development		85,000	85,000	85,000	85,000	85,000	425,000
		5.2 Total	549,000	549,000	549,000	549,000	549,000	2,745,000
		Government	549,000	549,000	549,000	549,000	549,000	2,745,000
		5. Sector Total	3,651,000	871,000	871,000	871,000	871,000	7,135,000
		Government	3,139,000	871,000	871,000	871,000	871,000	6,623,000
		Community	512,000	0	0	0	0	512,000
6. Administration	a. Wages & Salaries, Goods & Services, Capital		1,920,000	1,911,000	1,911,000	1,911,000	1,911,000	9,564,000
		Government	1,920,000	1,911,000	1,911,000	1,911,000	1,911,000	9,564,000
		GRAND TOTAL	19,124,000	11,003,000	10,332,000	10,233,000	9,940,000	60,632,000
		Government	5,414,000	3,117,000	3,117,000	3,117,000	3,117,000	17,882,000
		Donor	11,870,000	6,641,000	6,130,000	6,081,000	5,828,000	36,550,000
		Community	1,840,000	1,245,000	1,085,000	1,035,000	995,000	6,200,000

Figure U-1 Typical Section of Farm Road

Scale = 1/50

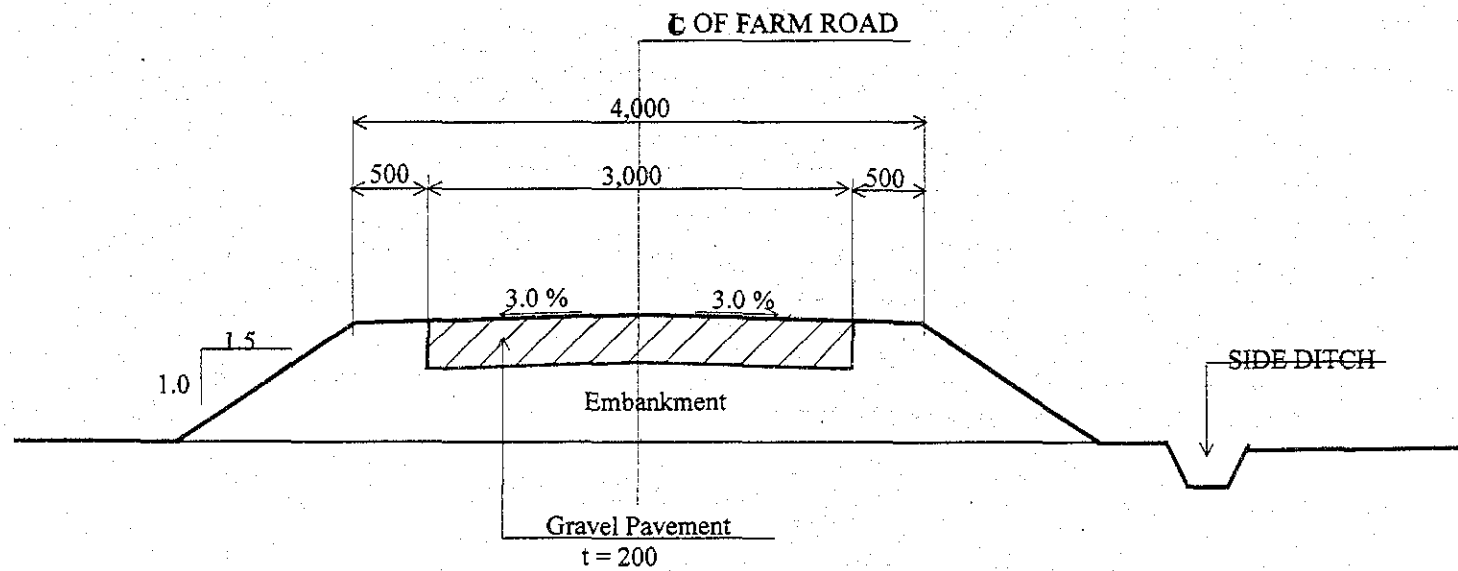


Figure U-2 Project Implementation Schedule (Moderate Development Plan Case)

Sector	Project Component	Contents or Quantity	Mid-Term Development					Long-Term Development									
			2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1. Agriculture Development																	
1.1 Irrigation	- Rehabilitation of irrigation scheme	- Proposed rehabili. area 990 ha - Imple. area (Mid-term) 990 ha	198 ha	198 ha	198 ha	198 ha	198 ha										
1.2 Farm Road	- New construction	- Proposed imple. length 110km - Imple. length (Mid-term) 110km	22km	22km	22km	22km	22km										
1.3 Farm Mechanization, Training and Hiring Station	- Training and hiring facility and manpower for farm mechanization - Consolidation of repair and maintenance workshop	- Experimental and training field, land and building for station - Training and hiring machinery and equipment - Repair and maintenance workshop - Station support facility															
1.4 Agricultural Extension and Material Subsidization	- Strengthening agro-extension activity - Subsidization of inputs	- Procurement of materials - Training															
1.5 Micro Credit Finance	- Water users' association - Agro-cooperatives - Household processing groups	- Establish of micro finance															
2. Livestock Development	- Expansion of veterinary service - Intensification of Bali Cattle production - Promotion of animal traction - Integration of food & feed groups - Buffalo dairy - Increase of goats production - Improvement of horse production	- Capacity building - Procurement of materials  - Capital outlay															
3. Forestry Development																	
3.1 Reforestation	- Government management - Administration	- Proposed imple. area 2,675 ha - Imple. area (Mid-term) 2,675ha	-N.A														
3.2 Regreening	- Community management - Tree group plantation - Inter crop trial - Candle-nuts promotion - Fuel wood promotion - Administration	* Regreening - Proposed imple. area 14,195 ha - Imple. area (Mid-term) 14,195ha  * Candle-nuts tree plantation - Imple. area (Mid-term) 1,300ha	-N.A														
4. Fishery Development																	
4.1 Fishing Vessels	- Development of open boat	- Term of imple. 2 to 5 years															
4.2 Fishing Operation (1)	- Fishing gears improvement	- Term of imple. 1 year															
4.3 Fishing Operation (2)	- Fish landing survey	- Term of imple. 16 months															
4.4 Fish Marketing	- Promotion of small-scale fishery enterprises	- Term of imple. 2 to 5 years															
4.5 Fish Administration	- Base line survey CBFM	- Term of imple. 8 months															
5. Capacity Building																	
5.1 National Government and Regional Level	- Central/District level	- Training facilities & equipment - Administration															
5.2 Beneficiaries Level	- Water users' associations - Community group for forestry development - Cooperatives for fishery development	- Organization - Training															

Legend: Construction of Facilities/Structures, Implementation, Operation, Operation and Maintenance, Farmers'/Communities' Participation

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Table V-1-1 Financial Analysis of Irrigation (Full Development Case)

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			10%		15%		20%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	4,904,434.3	0.0	4,904,434.3	37,441.5	-4,866,992.8	4,458,576.6	34,037.7	4,264,725.5	32,557.8	4,087,028.6	31,201.3
2	4,510,401.3	38,930.0	4,549,331.3	247,320.0	-4,302,011.3	3,759,777.9	204,396.7	3,439,948.1	187,009.5	3,159,257.9	171,750.0
3	4,537,237.4	77,860.0	4,615,097.4	678,298.0	-3,936,799.4	3,467,391.0	509,615.3	3,034,501.5	445,991.9	2,670,774.0	392,533.6
4	4,523,129.4	116,790.0	4,639,919.4	1,379,267.0	-3,260,652.4	3,169,127.4	942,057.9	2,652,889.0	788,600.4	2,237,615.5	665,155.8
5	4,526,068.5	155,720.0	4,681,788.5	2,399,118.5	-2,292,670.0	2,907,022.3	1,489,663.8	2,327,676.3	1,192,785.9	1,881,505.8	964,151.9
6	0.0	194,650.0	194,650.0	3,381,528.5	3,186,878.5	109,874.9	1,908,784.7	84,152.6	1,461,928.1	65,187.9	1,132,467.1
7	0.0	194,650.0	194,650.0	4,191,501.5	3,996,851.5	99,886.2	2,150,903.0	73,176.1	1,575,740.7	54,323.2	1,169,771.1
8	0.0	194,650.0	194,650.0	4,780,375.0	4,585,725.0	90,805.7	2,230,080.2	63,631.4	1,562,713.1	45,269.4	1,111,762.4
9	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	82,550.6	2,162,583.0	55,331.7	1,449,527.2	37,724.5	988,270.3
10	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	75,046.0	1,965,984.5	48,114.5	1,260,458.5	31,437.1	823,558.6
11	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	68,223.6	1,787,258.6	41,838.7	1,096,050.8	26,197.6	686,298.8
12	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	62,021.5	1,624,780.6	36,381.5	953,087.7	21,831.3	571,915.7
13	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	56,383.2	1,477,073.3	31,636.1	828,771.9	18,192.7	476,596.4
14	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	51,257.4	1,342,793.9	27,509.6	720,671.2	15,160.6	397,163.7
15	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	46,597.7	1,220,721.7	23,921.4	626,670.6	12,633.9	330,969.7
16	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	42,361.5	1,109,747.0	20,801.2	544,931.0	10,528.2	275,808.1
17	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	38,510.5	1,008,860.9	18,088.0	473,853.0	8,773.5	229,840.1
18	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	35,009.5	917,146.3	15,728.7	412,046.1	7,311.3	191,533.4
19	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	31,826.8	833,769.3	13,677.1	358,301.0	6,092.7	159,611.2
20	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	28,933.5	757,972.1	11,893.2	311,566.1	5,077.3	133,009.3
21	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	26,303.2	689,065.6	10,341.9	270,927.0	4,231.1	110,841.1
22	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	23,912.0	626,423.3	8,992.9	235,588.7	3,525.9	92,367.6
23	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	21,738.2	569,475.7	7,820.0	204,859.7	2,938.2	76,973.0
24	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	19,762.0	517,705.2	6,800.0	178,138.9	2,448.5	64,144.1
25	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	17,965.4	470,641.1	5,913.0	154,903.4	2,040.4	53,453.5
26	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	16,332.2	427,855.5	5,141.7	134,698.6	1,700.4	44,544.5
27	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	14,847.5	388,959.6	4,471.1	117,129.2	1,417.0	37,120.5
28	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	13,497.7	353,599.6	3,887.9	101,851.5	1,180.8	30,933.7
29	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	12,270.6	321,454.2	3,380.8	88,566.5	984.0	25,778.1
30	0.0	194,650.0	194,650.0	5,099,257.5	4,904,607.5	11,155.1	292,231.1	2,939.8	77,014.4	820.0	21,481.7
Total	23,001,271.0	5,255,550.0	28,256,821.0	129,278,515.0	#####	18,858,967.6	30,335,641.3	16,345,311.3	17,846,940.4	14,423,209.0	11,461,006.0
		FIRR =	16.3%	B/C Ratio =	4.58	B/C Ratio =	1.61	B/C Ratio =	1.09	B/C Ratio =	0.79

Table V-1-2 Financial Analysis of Irrigation (Minimum Development Case)

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate									
	Initial	O&M	Total			10%		15%		20%					
						Cost	Benefit	Cost	Benefit	Cost	Benefit				
1	694,782.7	0.0	694,782.7	6,474.6	-688,308.1	631,620.6	5,886.0	604,158.9	5,630.1	578,985.6	5,395.5				
2	648,898.1	6,732.0	655,630.1	42,768.0	-612,862.1	541,843.0	35,345.5	495,750.5	32,338.8	455,298.7	29,700.0				
3	653,557.7	13,464.0	667,021.7	117,295.2	-549,726.5	501,143.3	88,125.6	438,577.6	77,123.5	386,008.0	67,879.2				
4	651,115.0	20,196.0	671,311.0	238,510.8	-432,800.2	458,514.5	162,906.1	383,824.3	136,369.3	323,741.8	115,022.6				
5	651,625.2	26,928.0	678,553.2	414,869.4	-263,683.8	421,328.1	257,601.3	337,360.8	206,263.4	272,695.3	166,726.7				
6	0.0	33,660.0	33,660.0	584,753.4	551,093.4	19,000.2	330,078.0	14,552.1	252,805.0	11,272.7	195,832.7				
7	0.0	33,660.0	33,660.0	724,818.6	691,158.6	17,272.9	371,946.5	12,654.0	272,486.2	9,393.9	202,283.6				
8	0.0	33,660.0	33,660.0	826,650.0	792,990.0	15,702.6	385,638.3	11,003.5	270,233.4	7,828.2	192,252.4				
9	0.0	33,660.0	33,660.0	881,793.0	848,133.0	14,275.1	373,966.3	9,568.3	250,660.6	6,523.5	170,897.4				
10	0.0	33,660.0	33,660.0	881,793.0	848,133.0	12,977.4	339,969.4	8,320.2	217,965.7	5,436.3	142,414.5				
11	0.0	33,660.0	33,660.0	881,793.0	848,133.0	11,797.6	309,063.1	7,235.0	189,535.4	4,530.2	118,678.7				
12	0.0	33,660.0	33,660.0	881,793.0	848,133.0	10,725.1	280,966.4	6,291.3	164,813.4	3,775.2	98,899.0				
13	0.0	33,660.0	33,660.0	881,793.0	848,133.0	9,750.1	255,424.0	5,470.7	143,316.0	3,146.0	82,415.8				
14	0.0	33,660.0	33,660.0	881,793.0	848,133.0	8,863.7	232,203.7	4,757.1	124,622.6	2,621.7	68,679.8				
15	0.0	33,660.0	33,660.0	881,793.0	848,133.0	8,057.9	211,094.2	4,136.6	108,367.5	2,184.7	57,233.2				
16	0.0	33,660.0	33,660.0	881,793.0	848,133.0	7,325.4	191,903.8	3,597.1	94,232.6	1,820.6	47,694.3				
17	0.0	33,660.0	33,660.0	881,793.0	848,133.0	6,659.5	174,458.0	3,127.9	81,941.4	1,517.2	39,745.3				
18	0.0	33,660.0	33,660.0	881,793.0	848,133.0	6,054.0	158,598.2	2,719.9	71,253.4	1,264.3	33,121.1				
19	0.0	33,660.0	33,660.0	881,793.0	848,133.0	5,503.7	144,180.2	2,365.1	61,959.5	1,053.6	27,600.9				
20	0.0	33,660.0	33,660.0	881,793.0	848,133.0	5,003.3	131,072.9	2,056.6	53,877.8	878.0	23,000.7				
21	0.0	33,660.0	33,660.0	881,793.0	848,133.0	4,548.5	119,157.2	1,788.4	46,850.3	731.7	19,167.3				
22	0.0	33,660.0	33,660.0	881,793.0	848,133.0	4,135.0	108,324.7	1,555.1	40,739.4	609.7	15,972.7				
23	0.0	33,660.0	33,660.0	881,793.0	848,133.0	3,759.1	98,477.0	1,352.3	35,425.5	508.1	13,310.6				
24	0.0	33,660.0	33,660.0	881,793.0	848,133.0	3,417.4	89,524.6	1,175.9	30,804.8	423.4	11,092.2				
25	0.0	33,660.0	33,660.0	881,793.0	848,133.0	3,106.7	81,386.0	1,022.5	26,786.8	352.8	9,243.5				
26	0.0	33,660.0	33,660.0	881,793.0	848,133.0	2,824.3	73,987.2	889.1	23,292.9	294.0	7,702.9				
27	0.0	33,660.0	33,660.0	881,793.0	848,133.0	2,567.5	67,261.1	773.2	20,254.7	245.0	6,419.1				
28	0.0	33,660.0	33,660.0	881,793.0	848,133.0	2,334.1	61,146.5	672.3	17,612.7	204.2	5,349.2				
29	0.0	33,660.0	33,660.0	881,793.0	848,133.0	2,121.9	55,587.7	584.6	15,315.4	170.2	4,457.7				
30	0.0	33,660.0	33,660.0	881,793.0	848,133.0	1,929.0	50,534.3	508.4	13,317.8	141.8	3,714.7				
Total	3,299,978.7	908,820.0	4,208,798.7	22,355,586.0	18,146,787.3	2,744,161.6	5,245,814.0	2,367,849.5	3,086,195.8	2,083,656.3	1,981,903.2				
FIRR =			19.1%	B/C Ratio =		5.31	B/C Ratio =		1.91	B/C Ratio =		1.30	B/C Ratio =		0.95



Table V-1-3 Financial Analysis of Farm Road

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			5%		10%		15%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	2,119,905.5	0.0	2,119,905.5	0.0	-2,119,905.5	2,018,957.6	0.0	1,927,186.8	0.0	1,843,396.1	0.0
2	1,949,587.6	81,950.0	2,031,537.6	396,000.0	-1,635,537.6	1,842,664.5	359,183.7	1,678,956.7	327,272.7	1,536,134.3	299,432.9
3	1,961,187.3	163,900.0	2,125,087.3	792,000.0	-1,333,087.3	1,835,730.3	684,159.4	1,596,609.6	595,041.3	1,397,279.4	520,752.9
4	1,955,089.3	245,850.0	2,200,939.3	1,188,000.0	-1,012,939.3	1,810,718.2	977,370.5	1,503,271.1	811,420.0	1,258,394.2	679,242.9
5	1,956,359.7	327,800.0	2,284,159.7	1,584,000.0	-700,159.7	1,789,698.9	1,241,105.4	1,418,283.4	983,539.4	1,135,631.1	787,527.9
6	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	305,761.8	1,477,506.5	231,293.2	1,117,658.4	177,146.2	856,008.6
7	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	291,201.7	1,407,149.0	210,266.5	1,016,053.1	154,040.2	744,355.3
8	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	277,334.9	1,340,141.9	191,151.4	923,684.6	133,948.0	647,265.5
9	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	264,128.5	1,276,325.7	173,774.0	839,713.3	116,476.5	562,839.6
10	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	251,551.0	1,215,548.2	157,976.4	763,375.7	101,283.9	489,425.7
11	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	239,572.3	1,157,665.0	143,614.9	693,977.9	88,073.0	425,587.6
12	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	228,164.1	1,102,538.1	130,559.0	630,889.0	76,585.2	370,076.2
13	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	217,299.2	1,050,036.3	118,690.0	573,535.5	66,595.8	321,805.4
14	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	206,951.6	1,000,034.5	107,900.0	521,395.9	57,909.4	279,830.7
15	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	197,096.8	952,413.9	98,090.9	473,996.3	50,356.0	243,331.1
16	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	187,711.2	907,060.8	89,173.5	430,905.7	43,787.8	211,592.2
17	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	178,772.6	863,867.4	81,066.9	391,732.4	38,076.4	183,993.3
18	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	170,259.6	822,730.9	73,697.1	356,120.4	33,109.9	159,994.1
19	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	162,152.0	783,553.2	66,997.4	323,745.8	28,791.2	139,125.3
20	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	154,430.5	746,241.2	60,906.7	294,314.4	25,035.8	120,978.6
21	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	147,076.6	710,705.9	55,369.8	267,558.5	21,770.3	105,198.7
22	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	140,073.0	676,862.7	50,336.1	243,235.0	18,930.7	91,477.2
23	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	133,402.8	644,651.2	45,760.1	221,122.8	16,461.5	79,545.4
24	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	127,050.3	613,934.5	41,600.1	201,020.7	14,314.3	69,169.9
25	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	121,000.3	584,699.5	37,818.3	182,746.1	12,447.2	60,147.7
26	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	115,238.4	556,856.7	34,380.3	166,132.8	10,823.7	52,302.4
27	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	109,750.8	530,339.7	31,254.8	151,029.8	9,411.9	45,480.3
28	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	104,524.6	505,085.4	28,413.4	137,299.8	8,184.3	39,548.1
29	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	99,547.3	481,033.7	25,830.4	124,818.0	7,116.7	34,389.7
30	0.0	409,750.0	409,750.0	1,980,000.0	1,570,250.0	94,806.9	458,127.3	23,482.2	113,470.9	6,188.5	29,904.0
Total	9,942,129.4	11,063,250.0	21,005,379.4	53,460,000.0	32,454,620.6	13,822,628.3	25,126,908.3	10,433,711.0	13,876,806.3	8,487,699.6	8,650,329.1
		FIRR =	15.4%	B/C Ratio =	2.55	B/C Ratio =	1.82	B/C Ratio =	1.33	B/C Ratio =	1.02

Table V-1-4 Financial Analysis of Farm Machine

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			15%		20%		25%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	5,606,949.5	180,000.0	5,786,949.5	1,569,960.0	-4,216,989.5	5,032,130.0	1,365,182.6	4,822,457.9	1,308,300.0	4,629,559.6	1,255,968.0
2	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	370,207.9	1,187,115.3	340,000.0	1,090,250.0	313,344.0	1,004,774.4
3	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	321,919.9	1,032,274.2	283,333.3	908,541.7	250,675.2	803,819.5
4	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	279,930.4	897,629.7	236,111.1	757,118.1	200,540.2	643,055.6
5	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	243,417.7	780,547.6	196,759.3	630,931.7	160,432.1	514,444.5
6	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	211,667.6	678,737.0	163,966.0	525,776.4	128,345.7	411,555.6
7	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	184,058.8	590,206.1	136,638.4	438,147.0	102,676.6	329,244.5
8	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	160,051.1	513,222.7	113,865.3	365,122.5	82,141.2	263,395.6
9	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	139,174.9	446,280.6	94,887.8	304,268.8	65,713.0	210,716.5
10	0.0	489,600.0	489,600.0	1,569,960.0	1,080,360.0	121,021.6	388,070.1	79,073.1	253,557.3	52,570.4	168,573.2
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	5,606,949.5	4,586,400.0	10,193,349.5	15,699,600.0	5,506,250.5	7,063,580.0	7,879,266.0	6,467,092.3	6,582,013.5	5,985,998.0	5,605,547.3
		FIRR =	21.0%	B/C Ratio =	1.54	B/C Ratio =	1.12	B/C Ratio =	1.02	B/C Ratio =	0.94

Table V-1-5 Financial Analysis of Agricultural Extension

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			5%		10%		15%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	1,105,868.9	0.0	1,105,868.9	343,500.0	-762,368.9	1,053,208.5	327,142.9	1,005,335.4	312,272.7	961,625.2	298,695.7
2	993,231.0	244,801.0	1,238,032.0	687,000.0	-551,032.0	1,122,931.6	623,129.3	1,023,167.0	567,768.6	936,130.1	519,470.7
3	999,140.6	489,602.0	1,488,742.6	1,030,500.0	-458,242.6	1,286,031.8	890,184.6	1,118,514.3	774,229.9	978,872.4	677,570.5
4	996,033.9	734,403.0	1,730,436.9	1,374,000.0	-356,436.9	1,423,634.7	1,130,393.2	1,181,911.7	938,460.5	989,382.9	785,589.0
5	996,681.1	979,204.0	1,975,885.1	1,717,500.0	-258,385.1	1,548,157.7	1,345,706.2	1,226,869.2	1,066,432.4	982,364.1	853,901.0
6	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	913,371.4	1,281,624.9	690,918.9	969,484.0	529,171.1	742,522.6
7	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	869,877.5	1,220,595.2	628,108.1	881,349.1	460,148.8	645,671.9
8	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	828,454.8	1,162,471.6	571,007.4	801,226.4	400,129.4	561,453.8
9	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	789,004.5	1,107,115.8	519,097.6	728,387.7	347,938.6	488,220.7
10	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	751,432.9	1,054,396.0	471,906.9	662,170.6	302,555.3	424,539.7
11	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	715,650.4	1,004,186.7	429,006.3	601,973.3	263,091.6	369,165.0
12	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	681,571.8	956,368.3	390,005.7	547,248.4	228,775.3	321,013.0
13	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	649,116.0	910,826.9	354,550.6	497,498.6	198,935.0	279,141.8
14	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	618,205.7	867,454.2	322,318.8	452,271.4	172,987.0	242,732.0
15	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	588,767.3	826,146.9	293,017.1	411,155.8	150,423.5	211,071.3
16	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	560,730.8	786,806.5	266,379.2	373,778.0	130,803.0	183,540.2
17	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	534,029.3	749,339.6	242,162.9	339,798.2	113,741.7	159,600.2
18	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	508,599.4	713,656.7	220,148.1	308,907.5	98,905.9	138,782.8
19	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	484,380.3	679,673.1	200,134.6	280,825.0	86,005.1	120,680.7
20	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	461,314.6	647,307.7	181,940.5	255,295.4	74,787.0	104,939.7
21	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	439,347.2	616,483.5	165,400.5	232,086.8	65,032.2	91,251.9
22	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	418,426.0	587,127.2	150,364.1	210,988.0	56,549.8	79,349.5
23	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	398,500.9	559,168.7	136,694.6	191,807.2	49,173.7	68,999.6
24	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	379,524.7	532,541.6	124,267.8	174,370.2	42,759.7	59,999.6
25	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	361,452.1	507,182.5	112,970.8	158,518.4	37,182.4	52,173.6
26	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	344,240.1	483,031.0	102,700.7	144,107.6	32,332.5	45,368.3
27	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	327,847.7	460,029.5	93,364.3	131,006.9	28,115.2	39,450.7
28	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	312,235.9	438,123.3	84,876.6	119,097.2	24,448.0	34,305.0
29	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	297,367.5	417,260.3	77,160.6	108,270.2	21,259.1	29,830.4
30	0.0	1,224,005.0	1,224,005.0	1,717,500.0	493,495.0	283,207.2	397,390.8	70,146.0	98,427.4	18,486.2	25,939.5
Total	5,090,955.6	33,048,135.0	38,139,090.6	48,090,000.0	9,950,909.4	19,950,620.1	23,282,864.6	12,454,446.1	13,339,213.4	8,782,112.0	8,654,970.5
		FIRR =	14.1%	B/C Ratio =	1.26	B/C Ratio =	1.17	B/C Ratio =	1.07	B/C Ratio =	0.99

Table V-1-6 Financial Analysis of Livestock Development

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			5%		10%		15%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	270,323.5	0.0	270,323.5	92,000.0	-178,323.5	257,451.0	87,619.0	245,748.7	83,636.4	235,063.9	80,000.0
2	1,703,361.5	0.0	1,703,361.5	184,000.0	-1,519,361.5	1,544,999.1	166,893.4	1,407,736.8	152,066.1	1,287,986.0	139,130.4
3	910,594.0	0.0	910,594.0	276,000.0	-634,594.0	786,605.3	238,419.2	684,142.7	207,362.9	598,730.3	181,474.5
4	789,670.0	0.0	789,670.0	368,000.0	-421,670.0	649,663.4	302,754.5	539,355.2	251,349.0	451,496.4	210,405.2
5	440,449.5	0.0	440,449.5	460,000.0	19,550.5	345,103.7	360,422.0	273,484.5	285,623.8	218,981.2	228,701.3
6	0.0	104,000.0	104,000.0	460,000.0	356,000.0	77,606.4	343,259.1	58,705.3	259,658.0	44,962.1	198,870.7
7	0.0	108,000.0	108,000.0	460,000.0	352,000.0	76,753.6	326,913.4	55,421.1	236,052.7	40,601.2	172,931.0
8	0.0	26,000.0	26,000.0	460,000.0	434,000.0	17,597.8	311,346.1	12,129.2	214,593.4	8,499.4	150,374.8
9	0.0	30,000.0	30,000.0	460,000.0	430,000.0	19,338.3	296,520.1	12,722.9	195,084.9	8,527.9	130,760.7
10	0.0	44,000.0	44,000.0	460,000.0	416,000.0	27,012.2	282,400.1	16,963.9	177,349.9	10,876.1	113,705.0
11	0.0	104,000.0	104,000.0	460,000.0	356,000.0	60,806.6	268,952.5	36,451.4	161,227.2	22,354.1	98,873.9
12	0.0	108,000.0	108,000.0	460,000.0	352,000.0	60,138.4	256,145.2	34,412.1	146,570.2	20,186.0	85,977.3
13	0.0	26,000.0	26,000.0	460,000.0	434,000.0	13,788.4	243,947.8	7,531.3	133,245.6	4,225.7	74,762.9
14	0.0	30,000.0	30,000.0	460,000.0	430,000.0	15,152.0	232,331.3	7,899.9	121,132.4	4,239.9	65,011.2
15	0.0	44,000.0	44,000.0	460,000.0	416,000.0	21,164.8	221,267.9	10,533.3	110,120.3	5,407.4	56,531.5
16	0.0	104,000.0	104,000.0	460,000.0	356,000.0	47,643.6	210,731.3	22,633.4	100,109.4	11,113.9	49,157.8
17	0.0	108,000.0	108,000.0	460,000.0	352,000.0	47,120.0	200,696.5	21,367.2	91,008.5	10,036.0	42,745.9
18	0.0	26,000.0	26,000.0	460,000.0	434,000.0	10,803.5	191,139.5	4,676.3	82,735.0	2,100.9	37,170.4
19	0.0	30,000.0	30,000.0	460,000.0	430,000.0	11,872.0	182,037.6	4,905.2	75,213.7	2,108.0	32,322.0
20	0.0	44,000.0	44,000.0	460,000.0	416,000.0	16,583.1	173,369.2	6,540.3	68,376.1	2,688.4	28,106.1
21	0.0	104,000.0	104,000.0	460,000.0	356,000.0	37,330.0	165,113.5	14,053.6	62,160.1	5,525.6	24,440.1
22	0.0	108,000.0	108,000.0	460,000.0	352,000.0	36,919.8	157,250.9	13,267.4	56,509.1	4,989.7	21,252.3
23	0.0	26,000.0	26,000.0	460,000.0	434,000.0	8,464.9	149,762.8	2,903.6	51,372.0	1,044.5	18,480.2
24	0.0	30,000.0	30,000.0	460,000.0	430,000.0	9,302.0	142,631.2	3,045.8	46,701.8	1,048.0	16,069.8
25	0.0	44,000.0	44,000.0	460,000.0	416,000.0	12,993.3	135,839.3	4,061.0	42,456.2	1,336.6	13,973.7
26	0.0	104,000.0	104,000.0	460,000.0	356,000.0	29,249.0	129,370.7	8,726.2	38,596.5	2,747.2	12,151.1
27	0.0	108,000.0	108,000.0	460,000.0	352,000.0	28,927.6	123,210.2	8,238.0	35,087.7	2,480.7	10,566.1
28	0.0	26,000.0	26,000.0	460,000.0	434,000.0	6,632.4	117,343.1	1,802.9	31,897.9	519.3	9,187.9
29	0.0	30,000.0	30,000.0	460,000.0	430,000.0	7,288.4	111,755.3	1,891.2	28,998.1	521.1	7,989.5
30	0.0	44,000.0	44,000.0	460,000.0	416,000.0	10,180.6	106,433.6	2,521.6	26,361.9	664.5	6,947.4
Total	4,114,398.5	1,560,000.0	5,674,398.5	12,880,000.0	7,205,601.5	4,294,491.5	6,235,876.4	3,523,872.0	3,572,656.9	3,011,062.1	2,318,070.7
			FIRR = 10.2%		B/C Ratio = 2.27		B/C Ratio = 1.45		B/C Ratio = 1.01		B/C Ratio = 0.77

Table V-1-7 Financial Analysis of Land Rehabilitation

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			5%		10%		15%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	4,092,038.4	0.0	4,092,038.4	6,534.0	-4,085,504.4	3,897,179.4	6,222.9	3,720,034.9	5,940.0	3,558,294.3	5,681.7
2	3,763,275.1	0.0	3,763,275.1	13,068.0	-3,750,207.1	3,413,401.4	11,853.1	3,110,144.7	10,800.0	2,845,576.6	9,881.3
3	4,080,920.9	0.0	4,080,920.9	18,295.2	-4,062,625.7	3,525,252.9	15,804.1	3,066,056.3	13,745.5	2,683,271.8	12,029.4
4	4,447,738.6	0.0	4,447,738.6	357,148.8	-4,090,589.8	3,659,165.6	293,827.2	3,037,865.3	243,937.4	2,543,009.0	204,201.0
5	4,745,037.6	0.0	4,745,037.6	525,268.8	-4,219,768.8	3,717,861.1	411,561.8	2,946,295.0	326,150.6	2,359,122.3	261,151.4
6	0.0	0.0	0.0	1,119,384.0	1,119,384.0	0.0	835,301.6	0.0	631,863.1	0.0	483,940.6
7	0.0	0.0	0.0	1,525,320.0	1,525,320.0	0.0	1,084,016.4	0.0	782,730.3	0.0	573,424.3
8	0.0	0.0	0.0	2,334,600.0	2,334,600.0	0.0	1,580,149.2	0.0	1,089,108.1	0.0	763,184.9
9	0.0	0.0	0.0	2,334,600.0	2,334,600.0	0.0	1,504,904.0	0.0	990,098.3	0.0	663,639.0
10	0.0	0.0	0.0	5,847,455.2	5,847,455.2	0.0	3,589,830.2	0.0	2,254,447.1	0.0	1,445,401.5
11	0.0	0.0	0.0	3,393,000.0	3,393,000.0	0.0	1,983,816.8	0.0	1,189,225.8	0.0	729,302.4
12	0.0	0.0	0.0	3,393,000.0	3,393,000.0	0.0	1,889,349.4	0.0	1,081,114.4	0.0	634,176.0
13	0.0	0.0	0.0	3,393,000.0	3,393,000.0	0.0	1,799,380.3	0.0	982,831.2	0.0	551,457.4
14	0.0	0.0	0.0	3,393,000.0	3,393,000.0	0.0	1,713,695.6	0.0	893,482.9	0.0	479,528.1
15	0.0	0.0	0.0	4,709,449.4	4,709,449.4	0.0	2,265,325.7	0.0	1,127,404.7	0.0	578,765.4
16	0.0	0.0	0.0	3,362,400.0	3,362,400.0	0.0	1,540,354.2	0.0	731,756.2	0.0	359,322.1
17	0.0	0.0	0.0	3,362,400.0	3,362,400.0	0.0	1,467,004.0	0.0	665,232.9	0.0	312,454.0
18	0.0	0.0	0.0	3,362,400.0	3,362,400.0	0.0	1,397,146.6	0.0	604,757.2	0.0	271,699.1
19	0.0	0.0	0.0	3,362,400.0	3,362,400.0	0.0	1,330,615.9	0.0	549,779.3	0.0	236,260.1
20	0.0	0.0	0.0	3,440,555.6	3,440,555.6	0.0	1,296,709.2	0.0	511,416.7	0.0	210,218.9
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	21,129,010.6	0.0	21,129,010.6	49,253,279.0	28,124,268.4	18,212,860.5	26,016,868.1	15,880,396.3	14,685,821.8	13,989,273.9	8,785,718.5
		FIRR =	9.1%	B/C Ratio =	2.33	B/C Ratio =	1.43	B/C Ratio =	0.92	B/C Ratio =	0.63

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Table V-1-8 Financial Analysis of Fishing Boat Fund

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			5%		10%		15%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	1,034,731.2	0.0	1,034,731.2	35,100.0	-999,631.2	985,458.3	33,428.6	940,664.7	31,909.1	899,766.2	30,521.7
2	0.0	0.0	0.0	70,200.0	70,200.0	0.0	63,673.5	0.0	58,016.5	0.0	53,081.3
3	0.0	0.0	0.0	105,300.0	105,300.0	0.0	90,962.1	0.0	79,113.4	0.0	69,236.5
4	0.0	0.0	0.0	105,300.0	105,300.0	0.0	86,630.6	0.0	71,921.3	0.0	60,205.6
5	0.0	0.0	0.0	255,300.0	255,300.0	0.0	200,034.2	0.0	158,521.2	0.0	126,929.2
6	0.0	0.0	0.0	255,300.0	255,300.0	0.0	190,508.8	0.0	144,110.2	0.0	110,373.2
7	0.0	0.0	0.0	255,300.0	255,300.0	0.0	181,436.9	0.0	131,009.3	0.0	95,976.7
8	0.0	0.0	0.0	105,300.0	105,300.0	0.0	71,271.2	0.0	49,123.2	0.0	34,422.8
9	0.0	0.0	0.0	105,300.0	105,300.0	0.0	67,877.3	0.0	44,657.5	0.0	29,932.8
10	0.0	0.0	0.0	105,300.0	105,300.0	0.0	64,645.1	0.0	40,597.7	0.0	26,028.5
11	0.0	0.0	0.0	105,300.0	105,300.0	0.0	61,566.7	0.0	36,907.0	0.0	22,633.5
12	0.0	0.0	0.0	105,300.0	105,300.0	0.0	58,635.0	0.0	33,551.8	0.0	19,681.3
13	0.0	0.0	0.0	105,300.0	105,300.0	0.0	55,842.8	0.0	30,501.7	0.0	17,114.2
14	0.0	0.0	0.0	105,300.0	105,300.0	0.0	53,183.7	0.0	27,728.8	0.0	14,881.9
15	0.0	0.0	0.0	105,300.0	105,300.0	0.0	50,651.1	0.0	25,208.0	0.0	12,940.8
16	0.0	0.0	0.0	70,200.0	70,200.0	0.0	32,159.4	0.0	15,277.6	0.0	7,501.9
17	0.0	0.0	0.0	35,100.0	35,100.0	0.0	15,314.0	0.0	6,944.3	0.0	3,261.7
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,034,731.2	0.0	1,034,731.2	2,029,500.0	994,768.8	985,458.3	1,377,821.0	940,664.7	985,098.6	899,766.2	734,723.8
		FIRR =	10.9%	B/C Ratio =	1.96	B/C Ratio =	1.40	B/C Ratio =	1.05	B/C Ratio =	0.82

Table V-1-9 Financial Analysis of Fishery Enterprise Fund

(Unit:US\$)

Project Year	Cost			Benefit	Return	NPV by Discount Rate					
	Initial	O&M	Total			15%		20%		25%	
						Cost	Benefit	Cost	Benefit	Cost	Benefit
1	1,920,719.7	0.0	1,920,719.7	281,600.0	-1,639,119.7	1,670,191.1	244,869.6	1,600,599.8	234,666.7	1,536,575.8	225,280.0
2	101,107.4	0.0	101,107.4	281,600.0	180,492.6	76,451.7	212,930.1	70,213.4	195,555.6	64,708.7	180,224.0
3	101,708.9	0.0	101,708.9	281,600.0	179,891.1	66,875.3	185,156.6	58,859.3	162,963.0	52,075.0	144,179.2
4	101,392.7	0.0	101,392.7	281,600.0	180,207.3	57,971.6	161,005.7	48,896.9	135,802.5	41,530.4	115,343.4
5	101,458.6	0.0	101,458.6	1,689,600.0	1,588,141.4	50,442.8	840,029.8	40,773.9	679,012.3	33,245.9	553,648.1
6	0.0	0.0	0.0	281,600.0	281,600.0	0.0	121,743.5	0.0	94,307.3	0.0	73,819.8
7	0.0	0.0	0.0	281,600.0	281,600.0	0.0	105,863.9	0.0	78,589.4	0.0	59,055.8
8	0.0	0.0	0.0	281,600.0	281,600.0	0.0	92,055.5	0.0	65,491.2	0.0	47,244.6
9	0.0	0.0	0.0	281,600.0	281,600.0	0.0	80,048.3	0.0	54,576.0	0.0	37,795.7
10	0.0	0.0	0.0	281,600.0	281,600.0	0.0	69,607.2	0.0	45,480.0	0.0	30,236.6
11	0.0	0.0	0.0	281,600.0	281,600.0	0.0	60,528.0	0.0	37,900.0	0.0	24,189.3
12	0.0	0.0	0.0	281,600.0	281,600.0	0.0	52,633.1	0.0	31,583.3	0.0	19,351.4
13	0.0	0.0	0.0	281,600.0	281,600.0	0.0	45,767.9	0.0	26,319.4	0.0	15,481.1
14	0.0	0.0	0.0	281,600.0	281,600.0	0.0	39,798.2	0.0	21,932.9	0.0	12,384.9
15	0.0	0.0	0.0	281,600.0	281,600.0	0.0	34,607.1	0.0	18,277.4	0.0	9,907.9
16	0.0	0.0	0.0	281,600.0	281,600.0	0.0	30,093.1	0.0	15,231.2	0.0	7,926.3
17	0.0	0.0	0.0	281,600.0	281,600.0	0.0	26,167.9	0.0	12,692.6	0.0	6,341.1
18	0.0	0.0	0.0	281,600.0	281,600.0	0.0	22,754.7	0.0	10,577.2	0.0	5,072.9
19	0.0	0.0	0.0	281,600.0	281,600.0	0.0	19,786.7	0.0	8,814.3	0.0	4,058.3
20	0.0	0.0	0.0	281,600.0	281,600.0	0.0	17,205.8	0.0	7,345.3	0.0	3,246.6
21	0.0	0.0	0.0	281,600.0	281,600.0	0.0	14,961.6	0.0	6,121.1	0.0	2,597.3
22	0.0	0.0	0.0	281,600.0	281,600.0	0.0	13,010.1	0.0	5,100.9	0.0	2,077.8
23	0.0	0.0	0.0	281,600.0	281,600.0	0.0	11,313.1	0.0	4,250.7	0.0	1,662.3
24	0.0	0.0	0.0	281,600.0	281,600.0	0.0	9,837.5	0.0	3,542.3	0.0	1,329.8
25	0.0	0.0	0.0	281,600.0	281,600.0	0.0	8,554.3	0.0	2,951.9	0.0	1,063.9
26	0.0	0.0	0.0	281,600.0	281,600.0	0.0	7,438.6	0.0	2,459.9	0.0	851.1
27	0.0	0.0	0.0	281,600.0	281,600.0	0.0	6,468.3	0.0	2,049.9	0.0	680.9
28	0.0	0.0	0.0	281,600.0	281,600.0	0.0	5,624.6	0.0	1,708.3	0.0	544.7
29	0.0	0.0	0.0	281,600.0	281,600.0	0.0	4,891.0	0.0	1,423.6	0.0	435.8
30	0.0	0.0	0.0	281,600.0	281,600.0	0.0	4,253.0	0.0	1,186.3	0.0	348.6
Total	2,326,387.2	0.0	2,326,387.2	9,856,000.0	7,529,612.8	1,921,932.4	2,549,004.7	1,819,343.4	1,967,912.1	1,728,135.8	1,586,379.0
		FIRR =	22.3%	B/C Ratio =	4.24	B/C Ratio =	1.33	B/C Ratio =	1.08	B/C Ratio =	0.92

**Table V-2-1 Total Benefit of Rehabilitation Plan of Irrigation Facilities**

**(Full Development Case)**

Year	Unit Benefit US\$/ha a	Beneficiary Area ha b	Total Benefit US\$ ab
1	32.7	1,145.0	37,441.5
2	32.7	1,145.0	37,441.5
	183.3	1,145.0	209,878.5
		2,290.0	247,320.0
3	32.7	1,145.0	37,441.5
	183.3	1,145.0	209,878.5
	376.4	1,145.0	430,978.0
		3,435.0	678,298.0
4	32.7	1,145.0	37,441.5
	183.3	1,145.0	209,878.5
	376.4	1,145.0	430,978.0
	612.2	1,145.0	700,969.0
		4,580.0	1,379,267.0
5	32.7	1,145.0	37,441.5
	183.3	1,145.0	209,878.5
	376.4	1,145.0	430,978.0
	612.2	1,145.0	700,969.0
	890.7	1,145.0	1,019,851.5
		5,725.0	2,399,118.5
6	183.3	1,145.0	209,878.5
	376.4	1,145.0	430,978.0
	612.2	1,145.0	700,969.0
	890.7	2,290.0	2,039,703.0
		5,725.0	3,381,528.5
7	376.4	1,145.0	430,978.0
	612.2	1,145.0	700,969.0
	890.7	3,435.0	3,059,554.5
		5,725.0	4,191,501.5
8	612.2	1,145.0	700,969.0
	890.7	4,580.0	4,079,406.0
		5,725.0	4,780,375.0
9	890.7	5,725.0	5,099,257.5

**(Minimum Development Case)**

Year	Unit Benefit US\$/ha a	Beneficiary Area ha b	Total Benefit US\$ ab
1	32.7	198.0	6,474.6
2	32.7	198.0	6,474.6
	183.3	198.0	36,293.4
		396.0	42,768.0
3	32.7	198.0	6,474.6
	183.3	198.0	36,293.4
	376.4	198.0	74,527.2
		594.0	117,295.2
4	32.7	198.0	6,474.6
	183.3	198.0	36,293.4
	376.4	198.0	74,527.2
	612.2	198.0	121,215.6
		792.0	238,510.8
5	32.7	198.0	6,474.6
	183.3	198.0	36,293.4
	376.4	198.0	74,527.2
	612.2	198.0	121,215.6
	890.7	198.0	176,358.6
		990.0	414,869.4
6	183.3	198.0	36,293.4
	376.4	198.0	74,527.2
	612.2	198.0	121,215.6
	890.7	396.0	352,717.2
		990.0	584,753.4
7	376.4	198.0	74,527.2
	612.2	198.0	121,215.6
	890.7	594.0	529,075.8
		990.0	724,818.6
8	612.2	198.0	121,215.6
	890.7	792.0	705,434.4
		990.0	826,650.0
9	890.7	990.0	881,793.0

Source1 : Unit Benefit = Table V-2-2

Source2 : Beneficiary Area = Rehabilitation Plan of Irrigation Facilities



**Table V-2-2 Unit Benefit of Rehabilitation Plan of Irrigation Facilities**

Year	Net Value of Sample US\$ a	Irrigable Area of Sample ha b	Unit Benefit US\$/ha a/b	Recital
1	11,454.0	350.0	32.7	Bilimau in Bobonaro (EIRR of Bilimau is the nearest value of the average one.)
2	64,139.0	350.0	183.3	
3	131,750.0	350.0	376.4	
4	214,285.0	350.0	612.2	
5	311,744.0	350.0	890.7	

Source : Net Value of Sample (=Incremental Net Production Value) US\$ 311,744 and Irrigable Area of Sample 350ha  
 = *Feasibility and Engineering Study in Respect of Rehabilitation of Identified Irrigation Schemes in East Timor*  
 Task-A Annex7, May2001, UN-ETTA, SNC-LAVALIN International

**Table V-2-3 Total Benefit of Construction Plan of Farm Road**

Unit Benefit US\$/km a	L km b	ASMC US\$ ab	Source	
			Unit Benefit	L
18,000.0	22.0	396,000.0	Table V-2-4	Construction Plan of Farm Road

Note1 : ASMC = Annual Saving of Moving Cost (US\$)

Note2 : L = Annual Length of Road Construction (km)

**Table V-2-4 Unit Benefit of Construction Plan of Farm Road**

SMC US\$/time a	Quantity times/km b	Unit Benefit US\$/km ab	Source	
			SMC	Quantity
30.0	600.0	18,000.0	150km/time*0.2US\$/km	4times/day*150days

Note1 : SMC = Saving of Moving Cost per Time (US\$/time)

Source1 : (Assumption of SMC) Unit Saving Distance 150 km/time = (Without:100km - With:25km) \* 2(=round)

Source2 : (Assumption of SMC) Unit Saving Cost = 0.2 US\$/km = 3.5 US\$ / 18 km

Source3 : (Assumption of Quantity) ADMT 4 times/day \* Annual Working Days 150 days

Source4 : ADMT = Average Daily Moving Times (times/day)

**Table V-2-5 O&M Cost of Farm Mechanization**

Machine	Unit Usage lit/ha a	Annual Usage lit/lot b=60ha*a	Unit Price US\$/lit c	Operation Cost US\$ d=b*c*120lots	Purchase Price US\$/unit e	Number of Unit unit f	Maintenance Cost US\$ g=ef*10%*120lots
Hand Tractor	30.0	1,800.0	Diesel 0.4	86,400.0	3,900.0	6.0	280,800.0
Thresher	10.0	600.0	Gasoline 0.5	36,000.0	800.0	1.0	9,600.0
Mill	20.0	1,200.0	Diesel 0.4	57,600.0	1,600.0	1.0	19,200.0
Total	60.0	3,600.0		180,000.0	6,300.0	8.0	309,600.0

Source of a,e,g = An estimate by the farm machinery expert of JICA agricultural study

Source of b,d,f = Farm Mechanization Plan

Source of c = Price survey in Baucau, March 2002

**Table V-2-6 Benefit of Farm Mechanization**

Item	Working Time without Project persondays/ha a	Working Time with Project persondays/ha b	Unit Saving Time persondays/ha c=a-b	Unit Saving Cost US\$/ha d=c*3.5US\$	Saving of Lot US\$/lot e=d*60ha	Total Benefit US\$ f=e*120lots
Harrowing	Rencah 14.0	Hand Tractor 2.0	12.0	42.0	2,520.0	302,400.0
Threshing	Footfall 20.0	Thresher 2.0	18.0	63.0	3,780.0	453,600.0
Milling	Hand 33.3	Mill 1.0	32.3	113.1	6,783.0	813,960.0
Total	67.3	5.0	62.3	218.1	13,083.0	1,569,960.0

Source of a,b = An estimate by the farm machinery expert of JICA agricultural study

Source of e,f = Farm Mechanization Plan

**Table V-2-7 Maintenance Cost of Agricultural Extension**

Year	Cropping Area ha a	Maintenance Cost US\$ b=a*106.9US\$/ha
2	2,290.0	244,801.0
3	4,580.0	489,602.0
4	6,870.0	734,403.0
5	9,160.0	979,204.0
6	11,450.0	1,224,005.0

Source1 : Cropping Area 2,290ha = Service Area 1,145ha(Irrigation Plan) \* 2times(Double Cropping)

Source2 : Maintenance Cost 106.9US\$/ha = Fertilizer 76.9US\$/ha + Incremental Labor 30.0US\$/ha

= *Feasibility and Engineering Study in Respect of Rehabilitation of Identified Irrigation Schemes in East Timor*

Task-A Annex7, May2001, UN-ETTA, SNC-LAVALIN International

**Table V-2-8 Benefit of Agricultural Extension**

Item	Unit Price US\$/kg a	Incremental Unit Yield kg/ha b	Unit Benefit US\$/ha c=ab	Cropping Area ha d	Total Benefit US\$ e=cd
Paddy	0.3	500.0	150.0	2,290.0	343,500.0

Source1 : Unit Price 0.3US\$/kg

= *Feasibility and Engineering Study in Respect of Rehabilitation of Identified Irrigation Schemes in East Timor*

Task-A Annex7, May2001, UN-ETTA, SNC-LAVALIN International

Source2 : Incremental Unit Yield 500kg/ha = Estimate by Farm management/Agronomy expert of JICA agricultural study

Source3 : Cropping Area 2,290ha = Table V-2-7

**Table V-2-9 Benefit of Livestock Development**

Item	Unit Price	Annual Rate of Incremental Weight	Unit Benefit	Annual Target Heads	Total Benefit
	US\$/head a	% b	US\$/head ab	heads b	US\$ ab
Cattle	229.5	10.0	23.0	4,000.0	92,000.0

Source1 : Unit Price 229.5US\$/head = 1,999,000Rp/head(Household Survey, Value of Adult Cow)

Source2 : Annual Rate of Incremental Weight 10.0% = 100kg(incremental weight) / 250kg(actual weight) / 4years(growing cycle)  
= Estimate by Livestock expert of JICA agricultural study

Source3 : Annual Target Heads 4,000heads = 20,000heads / 5years = Livestock development plan

Table V-2-10 Benefit of Land Rehabilitation (US\$)

Year	Wood a	Candle-nut b	Mini Jack-fruit c	Benefit d=a+b+c
1	0.0	0.0	6,534.0	6,534.0
2	0.0	0.0	13,068.0	13,068.0
3	0.0	0.0	18,295.2	18,295.2
4	0.0	336,240.0	20,908.8	357,148.8
5	0.0	504,360.0	20,908.8	525,268.8
6	0.0	840,600.0	278,784.0	1,119,384.0
7	0.0	1,176,840.0	348,480.0	1,525,320.0
8	0.0	1,681,200.0	653,400.0	2,334,600.0
9	0.0	1,681,200.0	653,400.0	2,334,600.0
10	2,454,455.2	2,521,800.0	871,200.0	5,847,455.2
11	0.0	2,521,800.0	871,200.0	3,393,000.0
12	0.0	2,521,800.0	871,200.0	3,393,000.0
13	0.0	2,521,800.0	871,200.0	3,393,000.0
14	0.0	2,521,800.0	871,200.0	3,393,000.0
15	0.0	3,362,400.0	1,347,049.4	4,709,449.4
16	0.0	3,362,400.0	0.0	3,362,400.0
17	0.0	3,362,400.0	0.0	3,362,400.0
18	0.0	3,362,400.0	0.0	3,362,400.0
19	0.0	3,362,400.0	0.0	3,362,400.0
20	0.0	3,440,555.6	0.0	3,440,555.6
Total	2,454,455.2	39,081,595.6	7,716,828.2	49,252,279.0

Source1 : a = Table V-2-11

Source2 : b,c = Table V-2-12

Table V-2-12 Benefit of Candle-nut and Mini Jack-fruit

Year	Candle-nut				Mini Jack-fruit					
	Unit Yield kg/ha a	Nuts Production kg b=2.802a	Unit Price US\$/kg c	Harvesting Cost US\$/kg d	Benefit US\$ e=b(c-d)	Unit Yield kg/ha f	Fruits Production kg g=2.178f	Unit Price US\$/kg h	Harvesting Cost US\$/kg i	Benefit US\$ j=g(h-i)
1	0.0	0.0	0.7	0.1	0.0	15.0	32,670.0	0.3	0.1	6,534.0
2	0.0	0.0			0.0	30.0	65,340.0			13,068.0
3	0.0	0.0			0.0	42.0	91,476.0			18,295.2
4	200.0	560,400.0			336,240.0	48.0	104,544.0			20,908.8
5	300.0	840,600.0			504,360.0	48.0	104,544.0			20,908.8
6	500.0	1,401,000.0			840,600.0	64.0	1,393,920.0			278,784.0
7	700.0	1,961,400.0			1,176,840.0	80.0	1,742,400.0			348,480.0
8	1,000.0	2,802,000.0			1,681,200.0	1,500.0	3,267,000.0			653,400.0
9	1,000.0	2,802,000.0			1,681,200.0	1,500.0	3,267,000.0			653,400.0
10	1,500.0	4,203,000.0			2,521,800.0	2,000.0	4,356,000.0			871,200.0
11	1,500.0	4,203,000.0			2,521,800.0	2,000.0	4,356,000.0			871,200.0
12	1,500.0	4,203,000.0			2,521,800.0	2,000.0	4,356,000.0			871,200.0
13	1,500.0	4,203,000.0			2,521,800.0	2,000.0	4,356,000.0			871,200.0
14	1,500.0	4,203,000.0			2,521,800.0	2,000.0	4,356,000.0			871,200.0
15	2,000.0	5,604,000.0			3,362,400.0	3,000.0	6,534,000.0			1,306,800.0
16	2,000.0	5,604,000.0			3,362,400.0	0.0	0.0			0.0
17	2,000.0	5,604,000.0			3,362,400.0	0.0	0.0			0.0
18	2,000.0	5,604,000.0			3,362,400.0	0.0	0.0			0.0
19	2,000.0	5,604,000.0			3,362,400.0	0.0	0.0			0.0
20	2,000.0	5,604,000.0			3,362,400.0	0.0	0.0			0.0
Total		65,006,400.0			39,003,840.0		38,382,894.0			7,676,578.8

Source1 : Land rehabilitation plan

Source2 : Unit Price : c = Average market price 2001, h = Hearing in Baucau Feb 2002

Source3 : Candle-nut Harvesting Cost 0.1 US\$/kg = 109.0 US\$/ha(=156trees/ha ÷ Stress/personday(=estimate)) ÷ 1,440 kg/ha(=average)

Source4 : Jack-fruit Harvesting Cost 0.1 US\$/kg, 60 kg/personday(=estimate)

Table X-2-11 Benefit of Tree for Fuel Wood

Item	Planting Space m m	Unit Number trees/ha a	Planting Area ha b	Number of Trees trees c=ab	Tree Volume m <sup>3</sup> /tree d	Tree Resource m <sup>3</sup> e=cd	Unit Price US\$/m <sup>3</sup> f	Harvesting Cost US\$/m <sup>3</sup> g	Benefit US\$ h=e(f-g)
Reforestation	3*3	1,111.0	2,163.0	2,403,093.0	0.149	358,060.9	2.0	0.8	429,673.0
	5*5	400.0	512.0	204,800.0	0.330	67,584.0			81,100.8
Regreening	3*3	1,111.0	6,910.0	7,677,010.0	0.149	1,143,874.5			1,372,649.4
	5*5	400.0	3,605.0	1,442,000.0	0.330	475,860.0			571,032.0
Total of 10th year			13,190.0	11,726,903.0		2,045,379.3			2,454,455.2
Candle-nut	8*8	156.0	2,802.0	437,112.0	0.149	65,129.7			78,155.6
Mini Jack-fruit	10*10	100.0	2,178.0	217,800.0	0.154	33,541.2			40,249.4

Source1 : Land rehabilitation plan

Source2 : Unit Price 2.0 US\$/m<sup>3</sup> = 0.08 US\$/0.04m<sup>3</sup> (At mountain, hearing in Manatuto)

Source3 : Harvesting Cost 0.8 US\$/m<sup>3</sup>, 4.47 m<sup>3</sup>/personday = 30 trees/personday(=estimate) \* 0.149 m<sup>3</sup>/tree

Note : All resources are converted into fuel wood.

Table V-2-13 Unit Net Income of Fishing Trip

Item		US\$	Recital
Income	a	30.0	30kg(fish catch)*1US\$/kg(landing price)
Expenditure	b	14.4	
Net Income	c=a-b	15.6	
Expenditure	b=d+g+h	14.4	
O&M	d=e+f	2.4	
Boat	e	0.2	1,000US\$(purchase price)*2%(annual cost)/90trips(annual time of trips)
Motor	f	2.2	2,000US\$(purchase price)*10%(annual cost)/90trips(annual time of trips)
Fuel	g	5.0	10lit/trip*0.5US\$/lit(gasoline)
Labor	h	7.0	2person/trip

Source : Plan of Fishing Boat Fund

Table V-2-14 Benefit of Fishing Boat Fund

Year	Induction boats a	Cumulation boats b=Σa	Incremental Trips trips c=45b	Benefit US\$ d=15.6c
1	50.0	50.0	2,250.0	35,100.0
2	50.0	100.0	4,500.0	70,200.0
3	50.0	150.0	6,750.0	105,300.0
-	0.0	150.0	6,750.0	105,300.0
15	0.0	150.0	6,750.0	105,300.0
16	0.0	100.0	4,500.0	70,200.0
17	0.0	50.0	2,250.0	35,100.0

Source : Plan of Fishing Boat Fund

Table V-2-15 Refund Plan of Fishing Boat Fund

Year	Target boats a	Refund US\$ b=3,000a	Recital
5	50.0	150,000.0	
6	50.0	150,000.0	
7	50.0	150,000.0	

Source : Plan of Fishing Boat Fund

**Table V-2-16 Benefit of Fishery Enterprise Fund**

Unit Loan US\$/enterprise a	Net Income Rate % b	Unit Net Income US\$/enterprise c=ab	Number of Enterprises enterprises d	Annual Benefit US\$ e=cd
64,000.0	20.0	12,800.0	22.0	281,600.0

Source = Plan of Fishery Enterprise Fund

**Table V-2-17 Refund Plan of Fishery Enterprise Fund**

Year	Target Enterprises a	Refund Amount US\$ b=64,000a	Recital
5th	22.0	1,408,000.0	

Source = Plan of Fishery Enterprise Fund



**ANNEX W. GOVERNMENT AND LOCAL STAFF  
INTERVIEWED BY THE STUDY TEAM**

Study Team interviewed the following East Timor Government and local staff during the field work.

Name	Office Name/Position
<b>A. UNTAET/ETTA in Dili</b>	
<b>1) UNTAET</b>	
1. Mr. Jean-Christian Cady	Deputy Transitional Administrator
2. Mr. Akira Takahashi	Deputy SRSG for Humanitarian Assistance
3. Mr. Shinnichi Suzuki	Deputy SRSG for Humanitarian Assistance
4. Mrs. Catherine Walker	Director, Donor Coordination Unit
5. Mr. Yosh Azuma	National Planning and Development Agency
6. Mrs. S. Arakaki	
7. Mr. Manuel Mendosa	Census and Statistic Unit, National Statistic
8. Miss Makiko Watanabe	Programme Office, Donor Coordination Unit
9. Mrs. K. Nagata	Social Affair Officer
10. Miss Makiko Watanabe	Program Officer, Donor Coordination Unit, National Planning Development Agency
<b>2) Cabinet</b>	
1. Mr. Mari Alkatili	Department of Economic Affairs
<b>3) ETTA</b>	
1. Mr. Serge Verniau	Director, Division of Agricultural Affairs (DAA)
2. Mr. Cesar Jose Da Cruz	Acting Head DAA, Chief Livestock Section
3. Mr. Francisco Benevides	Head, Crop and Livestock Section
4. Mr. Fernando Dos Santos	Animal Production Planning Officer, Livestock Section
5. Mr. Stephen Dunn	Poultry Consultant, Livestock Section
6. Mr. Francisco Campos	PASC Consultant, Crop Production Section
7. Mr. Genaro San Valentin	Agricultural Affairs Officer, Crop Production Section
8. Mr. Mario R. Nunes	Head, Forestry Section
9. Mr. Peter Nuttall	Principal Adviser, Forestry Section
10. Mr. Lourenco Amaral	Acting Head, Fisheries Section
11. Mr. Bernardete Da Fonseca	Development and Post Harvest Officer, Fisheries Section
12. Mr. Chen Zhijun	Principal Adviser, Irrigation Section
13. Mr. Francisco Gusmao D.C.	Planning and Design Officer, Irrigation Section
14. Mr. Adalfredo Bio	GIS Unit Manager/World Bank
15. Mr. H. Amaral	Administrative Support
16. Mrs Alison Newell	Education and Reforestation
17. Mr. Mohamed Idris	Forest Surveying
18. Mr. Erwin Wacuray	Agro-forestry
19. Mr. Guillermo Enciso	Database Manager
20. Mr. Richard Mounsey	Chief UN Fishery Advisor
21. Mr. Acacio Da Costa	Resources and Assessment, Assistant, FMES
22. Mr. Eduardo de Carvalho	Fishery Sub-Division
23. Mr. Clestino Barreto	Fishery Sub-Division
24. Mr. Narciso A. Carvalho	Fishery Sub-Division
25. Mr. Anoi Wang	Livestock Sub-Division
26. Mr. Domingo Gusarao	Livestock Sub-Division

- |                             |   |
|-----------------------------|---|
| 27. Mr. Francisco da Costa  | Irrigation Planning Officer                   |
| 28. Mr. Aloson Mewell       | Conservation Officer, Forestry Sub-Division   |
| 29. Mr. Genaro San Valentin | Rice Specialist, Crop Production Sub-Division |
| 30. Mr. Ismael Tabiji       | Consultant, Irrigation Sub-Division           |
| 31. Mr. Larry Hunt          | GIS Unit Management Specialist-Team Leader    |
| 32. Mr. Pedro Vital         | District Irrigation Officer, Baucau District  |

**B. National Council of Timorese Resistance (CNRT)**

- |                          |                      |
|--------------------------|----------------------|
| 1. Mr. Mario Carrascalao | Vice President       |
| 2. Mr. Jose Abel         |                      |
| 3. Dr. Brian Palmer      | Agriculture Advisor  |
| 4. Mr. Bernard Collaery  | Legal Advisor        |
| 5. Mr. Bryant Palmer     | Agricultural advisor |

**C. Embassy**

- |                        |   |
|------------------------|---|
| 1) Chinese Embassy     |   |
| 1. Mr. Chen Changguang | First Secretary, People's Republic of China |

**D. International Organizations**

- |   |   |
|---|---|
| 1) World Bank of East Timor                                   |   |
| 1. Mrs. Sarah Cliff   | Chief of Mission of East Timor            |
| 2. Mr. Ronald Isaacson  | Deputy Chief of Mission, East Timor       |
| 3. Mrs Sofia U. Bettencourt                                   | Senior Natural Resources Economist        |
| 4. Mr. Kaspar Richter   | Economist                                 |
| 5. Mr. Hiroyuuki Kubota                                       | Programmed Coordinator                    |
| 6. Mr. Osmael Tabije  |   |
| 7. Mrs. Benu Bidani   | Senior Economist                          |
| 8. Mr. Dely P. Gapashi  | Agriculturist                             |
| 9. Mr. Jean Foerster  | Consultants                               |
| 2) United Nations Development Programmed (NUDP)               |   |
| 1. Mrs. Rumi Maeda  | Programme Officer                         |
| 2. Mr. Jonathan Gilman  | Programme Manager                         |
| 3. Mr. Antonio Assuncao                                       | Programme Assistant                       |
| 3) United States Agency for International Development (USAID) |   |
| 1. Mr. John Doyle   | Programme Manager                         |
| 2. Mr. Greg Ellis   | First Secretary (Development Cooperation) |
| 4) United Nations Office for Project Services (UNOPS)         |   |
| 1. Mr. Peter Wilson   | Ainaro & Manatuto Project                 |
| 2. Miss Risa Ito  | Programme Management Officer              |
| 5) Food and Agricultural Organization (FAO)                   |   |
| 1. Mr. Chris London-Lane                                      | Senior Agricultural Advisor               |
| 2. Mr. Xu Lingfeng  | Agricultural Advisor in East Timor        |
| 6) Australian Agency for International Development (AusAID)   |   |
| 1. Mr. Greg Ellis   | First Secretary, Development Cooperation  |
| 2. Mr. David Ives   | GIS Consultant, AusAID                    |

- 7) Australian Center for International Agricultural Research (ACIAR)  
 1. Mr. Brian Palmer

**E. Non-Government Organizations (NGOs)**

- 1) NGOs Forum  
 1. Mr. Domingo Gil Ros Santos Chairman of Agriculture  
 2. Mr. Mikel Dosantos Member
- 2) East Timor Study Group (ETSG)  
 1. Mr. Joao M. Saldanha Executive Director  
 2. Mr. Helder da Costa Economist  
 3. Mr. Edomundo Viegas
- 3) Fundacao Etadep (ETADEP)  
 1. Mr. Gilman A. E. Santos Director
- 4) HABURAS Foundation  
 1. Mr. Demetrio Amaral de Carvalho Executive Director
- 5) World Vision (WV)  
 1. Mr. Patrick Kapukha Agricultural Manager  
 2. Mr. Dineen Tupa World Vision
- 6) Catholic Relief Services (CRS)  
 1. Mrs. Jamiesow Davis Country Representative  
 2. Mr. Vo Kim Dzung Administrator  
 3. Mr. Preston Pentony  
 4. Mr. Numa Shams Program Manager-Agriculture
- 7) ADRA Japan  
 1. Mr. Tooru Miyazawa Project Director  
 2. Miss Naori Nakamoto Environment and Development

**F. Others**

- 1) The Australian National University  
 1. Professor James Fox Director, Research School of Pacific and Asian Studies, Institute of Advance Studies
- 2) Consultants and Advisor  
 1. Professor Joao Luis de Matos Auxiliar, Gertil  
 2. Mr. Ctaing Sugden Consultants, Economic Insights  
 3. Mr. Ron Brown Engineer, Matchplay Ausurv Timor  
 4. Mr. David Ives Consultants in Rural Development  
 5. Mr. Lan Cartwright Consultant, Thalassa  
 6. Mr. Tony Namlay Manager, Tropical Boutiwue  
 7. Mr. Gilman Santos Director, Fundacao Etadep  
 8. Mr. Rodolfo Boston Engineer, Pertconsult International  
 9. Mr. David Boyce Agribusiness Advisor,  
 10. Mr. Anthony Marsh Coffee Agronomist, Cooperative Coffee Timor  
 11. Dr. Derrin Davis Executive Director, DC Davis Pty Ltd

- 3) Dom Bosco High School  
1. Mr. Eligio Locatelli

Principle, Dom Bosco High School

**G. Related Japanese Agencies**

1) Embassy of Japan

1. Mr. Hiroshi Matsuura  
2. Mr. Kazumasa Sibuta  
3. Mr. Ryuichi Sakuta  
4. Mr. Hirofumi Hoshi  
5. Mr. Daisuke Muraoka

First Secretary  
First Secretary (Indonesia)  
First Secretary (Indonesia)  
First Secretary (Indonesia)  
Third Secretary(Indonesia)

2) JICA East Timor Office

1. Mr. Yukihiko Ejiri  
2. Mr. Katuo Shouji  
3. Mr. Michio Kannda  
4. Mr. Masayashi Takehara  
5. Mr. Takashi Suzuki  
6. Mr. Hajime Abebo  
7. Mr. Ryugo Watababe  
8. Mr. Akira Kamidozono

Resident Representative  
Resident Representative  
Resident representative (Indonesia)  
Assistant Resident Representative  
Assistant Resident Representative  
JICA Expert  
JICA Expert  
JICA Expert

## **ANNEX X. COLLECTED DATA**

Collected Data for the Study

<u>No.</u>	<u>Data / Document</u>	<u>Publisher/Source</u>
<b><u>Statistic</u></b>		
1	Poverty Assessment Timor Loro Sa'e – Early Results from the Suco Survey	ETTA/ADB/WB/UNDP/JICA
2	Participatory Project Research Brief	UNDP
3	The Economic of the Siberut and Reteng Project Area	ADB-Manila
<b><u>Agronomy</u></b>		
1	Rencana Umum TATA Ruang Kabupaten Viqueque Konsep Laporan Utama Development Plans for the district of Viqueque	District of Viqueque Government Planning Document (GOI)
2	Building Blocks for a Nation Common Country Assessment East Timor 2000	United Nations Country Team- East Timor
3	Pedoman Kampanye Dan Promosi per binihan (Seed Production Campaign Guide)	Directorate of Seeds DG Food Crops and Horticulture Jakarta, 1994
4	East Timor in Figures 1997 (Timor Timur Dalam Angka 1997)	Central Board of Statistics East Timor, December 1998
5	Paket Informasi Jagung Maize Information Book	Research & Development Center Food Crops Jakarta, 1992
6	Long-Term scenarios of livestock-crop-land use interactions in developing countries	FAO FAO land and Water Bulletin #6 Rome, 1997
7	Inventarisasi Data Potensi Wiayah Kabupaten Viqueque propinsi Timor Timur 1966	Instalasi Penelitian Dan Pertanian (IPPTP) Comoro Dili, Timor Timur, 1996
8	Rencana Induk Pengembangan Lima Tahun Keenam Propinsi Daerah Tingkat I Timor Timur (Basic 5 Year Agricultural Plan for East Timor)	Provincial Government of East Timor, 1995
9	Poverty Assessment Timor Loro Sa'e --- Early results from the Suco Survey	ETTA/ADB/WB/UNDP, 2001
10	Sustainability Assessment of the National Cooperative Business Association, East Timor Coffee Activity	Asia & the Near East Bureau, June 2001
<b><u>Forestry</u></b>		
1	National Forestry Programme and Policy Statement	Forestry Unit, DAA, ETTA
2	Joint Donor Mission Preparation Workshop Notes	Forestry Unit, DAA – East Timor Forestry Unit

<u>No.</u>	<u>Data / Document</u>	<u>Publisher/Source</u>
3	Forestry Unit Contact List	Forestry Unit, DAA, ETTA
4	Regulation No. 2000/17 on the Prohibition of Logging Operations and the Export of Wood from East Timor	UNTAET
5	Regulation No. 2000/19 on Protected Places	UNTAET
<b><u>Livestock</u></b>		
1	East Timor Agriculture Rehabilitation Project-The Distribution of Buffalo and Cattle	Livestock sub-division, DAA, ETTA
2	Livestock Strategy for Rehabilitation and Development	Livestock sub-division, DAA, ETTA
3	Livestock Development (Vision, Objective, Strategy and Policy)	Livestock sub-division, DAA, ETTA
<b><u>Agro-Fishery Economy / Statistics</u></b>		
1	Participatory Project Research Brief	UNDP
2	The Economics of the Siberut and Ruteng Protected Areas	ADB-Manila
3	East Timor	USAID, Timor
<b><u>GIS/ Database Design</u></b>		
1	Listed Sucos Survey February 2001	
2	Sucos 490	DAA
3	Suco Data	UNDP
4	Suco Political Boundary Map (Scale 1/50,000)	
5	Digital Map Data (1/2,000)	JICA
6	Preliminary Catalogue Digital Data	DAA
7	District, Sub-district, Village List	UNDP
<b><u>Donor Coordination</u></b>		
1	Outcomes of the CNRT National Congress 21 <sup>st</sup> to 30 <sup>th</sup> August 2000	CNRT
2	Rice Cultivation & Corn	World Bank
3	Population Pyramid 1997	World Bank
4	Agriculture Rehabilitation Project – June 14, 2000 Project Appraisal Document	World Bank, June 2001



<u>No.</u>	<u>Data / Document</u>	<u>Publisher/Source</u>
5	Project Description East Timor: Agriculture Rehabilitation Project (Project Appraisal Document)	World Bank
6	Joint Agriculture Donor Mission to East Timor (March 26 – April 6, 2001) Draft Mission Report April 9, 2001	Joint Donor Mission, Apr. 2001
7	Seeds of Survival (SOS), East Timor	
8	East Timor Agriculture Rehabilitation Project Support Mission, October 2-13 and November 7-10, 2000	World Bank
9	Ainaro & Manatuto Community Activation Project (AMCAP)	
10	Agriculture in East Timor : A Strategy for Rehabilitation and Development	
11	Diversity and Differential Development of East Timor: Problems and Future Possibilities	By James J. Fox, Australian National University
<b><u>Project Evaluation</u></b>		
1	Survei Desa-Desa di Timor Lorosa'e	Agen Sensus dan Statistik Timor Lorosa'e
<b><u>Common</u></b>		
1	WB Agricultural Rehabilitation Project (ARP) East Timor, Pilot Agriculture Service Center (PASC), Education and Information Campaign	UNTAET
2	Trust Fund for East Timor Update No.7	World Bank, Mar.2001
3	JICA's Cooperation Projects for East Timor (as of January 15th, 2001)	JICA Dili Office, Jan. 2001
4	Topographical Map (S=1/50,000) (38 sheets)	
5	Topographical Map (S=1/25,000) (127 sheets)	
6	Joint Agricultural Donor's Mission to East Timor (Draft),	World Bank, April 2001

JICA