D2 Data for Financial Analysis

1. Estimated Incremental NPV for Each Cropping Pattern Change
   (1) Annual Benefit and Cost in Each Cropping Pattern Change
   (2) Calculation Example of Estimated Incremental NPV
   – Change from Dry Garming without Terrace to Agroforestry 1 with Bench Terrace –

2. Estimated Incremental NPV for Checkdam

3. Estimated Incremental NPV for Demonstration Plot

4. Incremental Net Cash Flow and Incremental Net Present Value in Total Investment Analysis

MIX1_F02

Citarik Watershed Development Project

Financial Analysis 1

1. Estimated Incremental NPV for Each Cropping Pattern Change

(1) Annual Benefit and Cost in Each Cropping Pattern Change

Change Pattern A

Change from <Without Project> Existing Mixed Garden 1
to <With Project> Forest 2

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	12.0%
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Terrace(1st year)	0
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	10.0%
Working Capital	
With Project	70.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost <With Project> Forest 2

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Red Beans	300	950	0.0%	285,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
	0		0.0%	0
Albizia. tree	25,000	3.20		80,000
Albizia. fire	5,000	6.40		32,000
Jack Fruit	500	2,000		1,000,000
Avocado	500			0
(note*) Total Benefits				2,149,500
Increase caused by Agricultural Input =				
Increase caused by Soil Conservation =				
(Cost)				
[Seeds]				
Red Beans	1,750	40		70,000
Maize	3,500	15		52,500
Cassava	3	3,500		10,500
0	0			0
Albizia. tree	100	400		40,000
Jack Fruit	250	200		50,000
Avocado	1,750	0		0
No. of tree types =		2 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	1,000		250,000
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	6		18,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	161		483,000
Tree	3,000	22		66,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				1,530,000

<Without Project> Existing Mixed Garden 1

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Red Beans	300	950	0.0%	285,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
			0.0%	0
Albizia. tree	25,000	1.60		40,000
Albizia. fire	5,000	3.20		16,000
Jack Fruit	500	2,000		1,000,000
				0
(note**)				2,093,500
0.0% Increase caused by Agricultural Input =				0.0%
0.0% Increase caused by Soil Conservation =				0.0%
(Cost)				
[Seeds]				
Red Beans	1,750	40		70,000
Maize	3,500	15		52,500
Cassava	3	3,500		10,500
0				
Albizia. tree	100	200		20,000
Jack Fruit	250	200		50,000
No. of tree types =		2 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	6		18,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	150		450,000
Tree	3,000	15		45,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
				1,206,000

MIX2_F03:4

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern B

Change from <Without Project> Existing Mixed Garden 2
to <With Project> Forest 3

Table 1: Parameter Table (per Ha)

Item		Anuual Benefit and Cost <With Project> Forest 3 Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	<Without Project> Existing Mixed Garden 2 Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Red Beans	300	950	0.0%	285,000	Red Beans	300	950	0.0%	285,000
Foreign Inflation Rate	5.0%	Maize	300	1,450	0.0%	435,000	Maize	300	1,450	0.0%	435,000
Interest Rate(Lending)	12.0%	Cassava	50	6,350	0.0%	317,500	Cassava	50	6,350	0.0%	317,500
Interest Rate(Saving)			0		0.0%	0		0		0.0%	0
		Albizia.tree	25,000	5.60		140,000	Albizia.tree	25,000	1.60		40,000
Exchange Rate per US$	2,050	Albizia.fire	5,000	11.20		56,000	Albizia.fire	5,000	3.20		16,000
(Base Year 1992)		Jack Fruit	500	1,000		500,000	Jack Fruit	500	1,000		500,000
		Avocado	500			0					0
Financing		(note*) Total Benefits				1,733,500	(note**)				1,593,500
Interest Rate	12.0%	Increase caused by Agricultural Input =				0.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				0.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Red Beans	1,750	40		70,000	Red Beans	1,750	40		70,000
		Maize	3,500	15		52,500	Maize	3,500	15		52,500
		Cassava	3	3,500		10,500	Cassava	3	3,500		10,500
			0	0		0		0			
Discount Rate		Albizia.tree	100	650		65,000	Albizia.tree	100	150		15,000
Total Investment	10.0%	Jack Fruit	250	100		25,000	Jack Fruit	250	100		25,000
Farmers' View Point	9.0%	Avocado	1,750	0		0					
		No.of tree types =		2 types			No.of tree types =		2 types		
Investment Cost		[Fertilizers]					[Fertilizers]				
Terrace(1st year)	0	Manure	50	5,000		250,000	Manure	50	5,000		250,000
	0	Chemical	300	500		150,000	Chemical	300	500		150,000
Maintenance Cost(2nd yr)	20.0%	Lime	250	1,000		250,000	Lime	250	0		0
(after 2nd yr)	10.0%										
		[Pesticide]					[Pesticide]				
Maintenance of Existing Terrace		Cairan	20,000	2		40,000	Cairan	20,000	2		40,000
	10.0%	Butiran	3,000	6		18,000	Butiran	3,000	6		18,000
Working Capital		[Labor]					[Labor]				
		Labor Cost					Labor Cost				
With Project	70.0%	Crop and Vegetable	3,000	161		483,000	Crop and Vegetable	3,000	150		450,000
Without Project	70.0%	Tree	3,000	27		81,000	Tree	3,000	9		27,000
		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
In-Use Value of Land	0	[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment				50,000
		Total Expenditure				1,545,000					1,158,000

MIX2_AG2:3

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern C

Change from <Without Project> Existing Mixed Garden 2
to <With Project> Agroforestry 2

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Terrace(1st year)	0
	0
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	
	10.0%
Working Capital	
With Project	70.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost <With Project> Agroforestry 2

Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Red Beans	300	950	0.0%	285,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
	0		0.0%	0
Albizia.tree	25,000	3.20		80,000
Albizia.fire	5,000	6.40		32,000
Jack Fruit	500	1,000		500,000
Avocado	500	1,250		625,000
(note*) Total Benefits				2,274,500
Increase caused by Agricultural Input =			0.0%	
Increase caused by Soil Conservation =			0.0%	
(Cost)				
[Seeds]				
Red Beans	1,750	40		70,000
Maize	3,500	15		52,500
Cassava	3	3,500		10,500
	0	0		0
Albizia.tree	100	200		20,000
Jack Fruit	250	100		25,000
Avocado	1,750	100		175,000
No.of tree types =		3 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	1,000		250,000
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	6		18,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	161		483,000
Tree	3,000	14		42,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				1,636,000

<Without Project> Existing Mixed Garden 2

Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Red Beans	300	950	0.0%	285,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
			0.0%	0
Albizia.tree	25,000	1.60		40,000
Albizia.fire	5,000	3.20		16,000
Jack Fruit	500	1,000		500,000
				0
(note**)				1,593,500
Increase caused by Agricultural Input =			0.0%	
Increase caused by Soil Conservation =			0.0%	
(Cost)				
[Seeds]				
Red Beans	1,750	40		70,000
Maize	3,500	15		52,500
Cassava	3	3,500		10,500
	0			
Albizia.tree	100	150		15,000
Jack Fruit	250	100		25,000
No.of tree types =		2 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	6		18,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	150		450,000
Tree	3,000	9		27,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
				1,158,000

DRY1_FO1:7

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern D

Change from <Without Project> Dry Farming with Terrace
to <With Project> Forest 1

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Maintenance of Existing Terrace (With Case)	
In-use value of Terrace	425,000
Maintenance Cost(2nd yr)	10.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace (Without Case)	
	10.0%
Working Capital	
With Project	35.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost <With Project> Forest 1

Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Red Beans	300	950	15.0%	327,750
Maize	300	2,900	15.0%	1,000,500
Upland Paddy	300	1,300	15.0%	448,500
Ground Nuts	800	650	15.0%	598,000
Albizia.tree	25,000	8.00		200,000
Albizia.fire	5,000	16.00		80,000
Jack Fruit	500	0		0
Avocado	500			0
(note*) Total Benefits				2,654,750
Increase caused by Agricultural Input =			5.0%	
Increase caused by Soil Conservation =			10.0%	
(Cost)				
[Seeds]				
Red Beans	1,750	30		52,500
Maize	3,500	30		105,000
Upland Paddy	650	40		26,000
Ground Nuts	1,500	30		45,000
Albizia.tree	100	1,000		100,000
Jack Fruit	250	0		0
Avocado	1,750	0		0
No.of tree types =		1 types		
[Fertilizers]				
Manure	50	10,000		500,000
Chemical	300	600		180,000
Lime	250	1,000		250,000
[Pesticide]				
Cairan	20,000	4		80,000
Butiran	3,000	20		60,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	341		1,023,000
Tree	3,000	35		105,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				2,576,500

<Without Project> Dry Farming with Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	2,210	10.0%	729,300
Maize	300	1,450	10.0%	478,500
Cassava	50	6,350	10.0%	349,250
			10.0%	0
Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	0.00		0
Jack Fruit	500	0.00		0
				0
(note**)				1,557,050
Increase caused by Agricultural Input =			0.0%	
Increase caused by Soil Conservation =			10.0%	
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Maize	3,500	20		70,000
Cassava	3	3,500		10,500
	0			
Albizia.tree	100	0		0
Jack Fruit	250	0		0
No.of tree types =		0 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	10		30,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	200		600,000
Tree	3,000	0		0
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
				1,226,500

DRY1_AG1:5

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern E

Change from <Without Project> Dry Farming with Terrace
to <With Project> Agroforestry 1

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Maintenance of Existing Terrace (With Case)	
In-use Value of Terrace	425,000
Maintenance Cost(2nd yr)	10.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace (Without Case)	
	10.0%
Working Capital	
With Project	35.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost

<With Project> Agroforestry 1					<Without Project> Dry Farming with Terrace				
Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)					(Benefit)				
Upland Paddy	300	1,300	15.0%	448,500	Upland Paddy	300	2,210	10.0%	729,300
Maize	300	2,900	15.0%	1,000,500	Maize	300	1,450	10.0%	478,500
Red Beans	300	950	15.0%	327,750	Cassava	50	6,350	10.0%	349,250
Ground Nuts	800	650	15.0%	598,000				10.0%	0
Albizia.tree	25,000	3.20		80,000	Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	6.40		32,000	Albizia.fire	5,000	0.00		0
Jack Fruit	500	1,500		750,000	Jack Fruit	500	0.00		0
Avocado	500	2,500		1,250,000					0
(note*) Total Benefits				4,486,750	(note**)				1,557,050
Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
Increase caused by Soil Conservation =				10.0%	Increase caused by Soil Conservation =				10.0%
(Cost)					(Cost)				
[Seeds]					[Seeds]				
Upland Paddy	650	40		26,000	Upland Paddy	650	40		26,000
Maize	3,500	30		105,000	Maize	3,500	20		70,000
Red Beans	1,750	30		52,500	Cassava	3	3,500		10,500
Ground Nuts	1,500	30		45,000		0			
Albizia.tree	100	200		20,000	Albizia.tree	100	0		0
Jack Fruit	1,000	100		100,000	Jack Fruit	250	0		0
Avocado	1,750	100		175,000					
No.of tree types =		3 types			No.of tree types =		0 types		
[Fertilizers]					[Fertilizers]				
Manure	50	10,000		500,000	Manure	50	5,000		250,000
Chemical	300	600		180,000	Chemical	300	500		150,000
Lime	250	1,000		250,000	Lime	250	0		0
[Pesticide]					[Pesticide]				
Cairan	20,000	4		80,000	Cairan	20,000	2		40,000
Butiran	3,000	20		60,000	Butiran	3,000	10		30,000
[Labor]					[Labor]				
Labor Cost					Labor Cost				
Crop and Vegetable	3,000	341		1,023,000	Crop and Vegetable	3,000	200		600,000
Tree	3,000	15		45,000	Tree	3,000	0		0
Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
[Others]					[Others]				
Agricultural Equipment				50,000	Agricultural Equipment				50,000
Total Expenditure				2,711,500					1,226,500

DRY1_DRY:6

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern F

Change from <Without Project> Dry Farming with Terrace
to <With Project> Dry Farming 1

Table 1: Parameter Table (per Ha)

Item		Annual Benefit and Cost <With Project> Dry Farming 1 Item	Base Year Price	Base Quantity	Increase in* Productivity (Maximum)	Total Value/Year	<Without Project> Dry Farming with Terrace Item	Base Year Price	Base Quantity	Increase in** Productivity (Maximum)	Total Value/Year
			(Rp)	(Kg. M3)		(Rp)		(Rp)	(Kg. M3)		(Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Tomato	300	5,156	15.0%	1,778,667	Upland Paddy	300	2,210	10.0%	729,300
Foreign Inflation Rate	5.0%	Red Beans	300	1,615	15.0%	557,175	Maize	300	1,450	10.0%	478,500
Interest Rate(Lending)		Maize	300	1,450	15.0%	500,250	Cassava	50	6,350	10.0%	349,250
Interest Rate(Saving)			800	0	15.0%	0				10.0%	0
		Albizia. tree	25,000	0.00		0	Albizia. tree	25,000	0.00		0
Exchange Rate per US$	2,050	Albizia. fire	5,000	0.00		0	Albizia. fire	5,000	0.00		0
(Base Year 1992)		Jack Fruit	500	0		0	Jack Fruit	500	0.00		0
		Avocado	500	0		0					0
						==========					==========
Financing		(note*) Total Benefits				2,836,092	(note**)				1,557,050
		Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
Interest Rate	12.0%	Increase caused by Soil Conservation =				10.0%	Increase caused by Soil Conservation =				10.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Tomato	7,500	10		75,000	Upland Paddy	650	40		25,000
		Red Beans	1,750	30		52,500	Maize	3,500	20		70,000
		Maize	3,500	15		52,500	Cassava	3	3,500		10,500
		0	1,500	0		0	0				
Discount Rate		Albizia. tree	100	0		0	Albizia. tree	100	0		0
Total Investment	10.0%	Jack Fruit	1,000	0		0	Jack Fruit	250	0		0
Farmers' View Point	9.0%	Avocado	1,750	0		0					
		No. of tree types =		0 types			No. of tree types =		0 types		
Maintenance of Existing Terrace (With Case)		[Fertilizers]					[Fertilizers]				
In-use value of Terrace	425,000	Manure	50	10,000		500,000	Manure	50	5,000		250,000
		Chemical	300	600		180,000	Chemical	300	500		150,000
Maintenance Cost(2nd yr)	10.0%	Lime	250	0		0	Lime	250	0		0
(after 2nd yr)	10.0%										
		[Pesticide]					[Pesticide]				
Maintenance of Existing Terrace (Without Case)		Cairan	20,000	4		80,000	Cairan	20,000	2		40,000
		Butiran	3,000	12		36,000	Butiran	3,000	10		30,000
	10.0%										
Working Capital		[Labor]					[Labor]				
With Project	35.0%	Labor Cost					Labor Cost				
Without Project	70.0%	Crop and Vegetable	3,000	325		975,000	Crop and Vegetable	3,000	200		600,000
		Tree	3,000	0		0	Tree	3,000	0		0
In-Use Value of Land		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
		[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment				50,000
						==========					==========
		Total Expenditure				2,001,000					1,226,500

DRY2_F01

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern G

Change from <Without Project> Dry Farming without Terrace
to <With Project> Forest 1

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Terrace(1st year)	0
Subsidy	0
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	0.0%
Working Capital	
With Project	35.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost <With Project> Forest 1

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	1,300	5.0%	409,500
Red Beans	300	950	5.0%	299,250
Maize	300	2,900	5.0%	913,500
Ground Nuts	800	650	5.0%	546,000
Albizia.tree	25,000	8.00		200,000
Albizia.fire	5,000	16.00		80,000
Jack Fruit	500	0		0
Avocado	500	0		0
(note*) Total Benefits				2,448,250
Increase caused by Agricultural Input =				
Increase caused by Soil Conservation =				
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Red Beans	1,750	30		52,500
Maize	3,500	30		105,000
Ground Nuts	1,500	30		45,900
Albizia.tree	100	1,000		100,000
Jack Fruit	1,000	0		0
Avocado	1,750	0		0
No.of tree types =		1 types		
[Fertilizers]				
Manure	50	10,000		500,000
Chemical	300	600		180,000
Lime	250	1,000		250,000
[Pesticide]				
Cairan	20,000	4		80,000
Butiran	3,000	20		60,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	341		1,023,000
Tree	3,000	35		105,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				2,570,500

<Without Project> Dry Farming without Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	2,210	0.0%	663,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
			0.0%	0
Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	0.00		0
Jack Fruit	500	0		0
				0
(note**)				1,415,500
5.0% Increase caused by Agricultural Input =				0.0%
0.0% increase caused by Soil Conservation =				0.0%
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Maize	3,500	20		70,000
Cassava	3	3,500		10,500
0				
Albizia.tree	100	0		0
Jack Fruit	250	0		0
No.of tree types =		0 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	10		30,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	200		600,000
Tree	3,000	0		0
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
				1,226,500

DR2AG1DK:9

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern H

Change from <Without Project> Dry Farming without Terrace
to <With Project> Agroforestry 1 with Dike Terrace

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Dike Terrace(1st year)	330,000
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	0.0%
Working Capital	
With Project	35.0%
Without Project	70.0%
In-Use Value of Land	0

Annual Benefit and Cost

<With Project> Agroforestry 1 with Dike Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	1,300	15.0%	448,500
Red Beans	300	950	15.0%	327,750
Maize	300	2,900	15.0%	1,000,500
Ground Nuts	800	650	15.0%	598,000
Albizia.tree	25,000	3.20		80,000
Albizia.fire	5,000	6.40		32,000
Jack Fruit	500	1,500		750,000
Avocado	500	2,500		1,250,000
(note*) Total Benefits				4,486,750
Increase caused by Agricultural Input =			5.0%	
Increase caused by Soil Conservation =			10.0%	
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Red Beans	1,750	30		52,500
Maize	3,500	30		105,000
Ground Nuts	1,500	30		45,000
Albizia.tree	100	200		20,000
Jack Fruit	1,000	100		100,000
Avocado	1,750	100		175,000
No.of tree types =		3 types		
[Fertilizers]				
Manure	50	10,000		500,000
Chemical	300	600		180,000
Lime	250	1,000		250,000
[Pesticide]				
Cairan	20,000	4		80,000
Butiran	3,000	20		60,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	341		1,023,000
Tree	3,000	15		45,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				2,711,500

<Without Project> Dry Farming without Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	2,210	0.0%	663,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
			0.0%	0
Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	0.00		0
Jack Fruit	500	0		0
				0
(note**)				1,415,500
Increase caused by Agricultural Input =			0.0%	
Increase caused by Soil Conservation =			0.0%	
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Maize	3,500	20		70,000
Cassava	3	3,500		10,500
0				
Albizia.tree	100	0		0
Jack Fruit	250	0		0
No.of tree types =		0 types		
[Fertilizers]				
Manure	50	5,000		250,000
Chemical	300	500		150,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	10		30,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	200		600,000
Tree	3,000	0		0
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
				1,226,500

DR2AG1BE:8

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern I

Change from <Without Project> Dry Farming without Terrace
to <With Project> Agroforestry 1 with Bench Terrace

Table 1: Parameter Table (per Ha)

Item		Annual Benefit and Cost <With Project> Agroforestry 1 with Bench Terrace				<Without Project> Dry Farming without Terrace			
		Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Upland Paddy	300	1,300	15.0%	448,500	Upland Paddy	300	2,210	0.0%	663,000
Foreign Inflation Rate	5.0%	Red Beans	300	950	15.0%	327,750	Maize	300	1,450	0.0%	435,000
		Maize	300	2,900	15.0%	1,000,500	Cassava	50	6,350	0.0%	317,500
		Ground Nuts	800	650	15.0%	598,000				0.0%	0
		Albizia. tree	25,000	3.20		80,000	Albizia. tree	25,000	0.00		0
		Albizia. fire	5,000	6.40		32,000	Albizia. fire	5,000	0.00		0
Exchange Rate per US$	2,050	Jack Fruit	500	1,500		750,000	Jack Fruit	500	0		0
(Base Year 1992)		Avocado	500	2,500		1,250,000					0
Financing		(note*) Total Benefits				4,486,750	(note**)				1,415,500
Interest Rate	12.0%	Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				10.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Upland Paddy	650	40		26,000	Upland Paddy	650	40		26,000
		Red Beans	1,750	30		52,500	Maize	3,500	20		70,000
		Maize	3,500	30		105,000	Cassava	3	3,500		10,500
		Ground Nuts	1,500	30		45,000	0				
Discount Rate		Albizia. tree	100	200		20,000	Albizia. tree	100	0		0
Total Investment	10.0%	Jack Fruit	1,000	100		100,000	Jack Fruit	250	0		0
Farmers' View Point	9.0%	Avocado	1,750	100		175,000					
		No. of tree types =		3 types			No. of tree types =		0 types		
Investment Cost		[Fertilizers]					[Fertilizers]				
Bench Terrace(1st year)	520,000	Manure	50	10,000		500,000	Manure	50	5,000		250,000
		Chemical	300	600		180,000	Chemical	300	500		150,000
Maintenance Cost(2nd yr)	20.0%	Lime	250	1,000		250,000	Lime	250	0		0
(after 2nd yr)	10.0%										
		[Pesticide]					[Pesticide]				
Maintenance of Existing Terrace		Cairan	20,000	4		80,000	Cairan	20,000	2		40,000
	0.0%	Butiran	3,000	20		60,000	Butiran	3,000	10		30,000
Working Capital		[Labor]					[Labor]				
With Project	35.0%	Labor Cost					Labor Cost				
Without Project	70.0%	Crop and Vegetable	3,000	341		1,023,000	Crop and Vegetable	3,000	200		600,000
		Tree	3,000	15		45,000	Tree	3,000	0		0
In-Use Value of Land	0	Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
		[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment				50,000
		Total Expenditure				2,711,500					1,226,500

DR2DRBEC:11

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern J

Change from <Without Project> Dry Farming without Terrace
to <With Project> Dry Farming with Bench Terrace

Table 1: Parameter Table (per Ha)

Item		Annual Benefit and Cost <With Project> Dry Farming with Bench Terrace					<Without Project> Dry Farming without Terrace				
		Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Tomato	300	5,156	15.0%	1,778,667	Upland Paddy	300	2,210	0.0%	663,000
Foreign Inflation Rate	5.0%	Red Beans	300	1,615	15.0%	557,175	Maize	300	1,450	0.0%	435,000
Interest Rate(Lending)		Maize	300	1,450	15.0%	500,250	Cassava	50	6,350	0.0%	317,500
Interest Rate(Saving)			800	0	15.0%	0				0.0%	0
		Albizia.tree	25,000	0.00		0	Albizia.tree	25,000	0.00		0
Exchange Rate per US$	2,050	Albizia.fire	5,000	0.00		0	Albizia.fire	5,000	0.00		0
(Base Year 1992)		Jack Fruit	500	0		0	Jack Fruit	500	0		0
		Avocado	500	0		0					0
						==========					==========
Financing		(note*) Total Benefits				2,836,092	(note**)				1,415,500
Interest Rate	12.0%	Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				10.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Tomato	7,500	10		75,000	Upland Paddy	650	40		26,000
		Red Beans	1,750	30		52,500	Maize	3,500	20		70,000
		Maize	3,500	15		52,500	Cassava	3	3,500		10,500
		0	1,500	0		0	0				
Discount Rate		Albizia.tree	100	0		0	Albizia.tree	100	0		0
Total Investment	10.0%	Jack Fruit	1,000	0		0	Jack Fruit	250	0		0
Farmers' View Point	9.0%	Avocado	1,750	0		0					
		No.of tree types =		0 types			No.of tree types =		0 types		
Investment Cost		[Fertilizers]					[Fertilizers]				
		Manure	50	10,000		500,000	Manure	50	5,000		250,000
Bench Terrace(1st year)	520,000	Chemical	300	600		180,000	Chemical	300	500		150,000
		Lime	250	0		0	Lime	250	0		0
Maintenance Cost(2nd yr)	20.0%										
(after 2nd yr)	10.0%	[Pesticide]					[Pesticide]				
		Cairan	20,000	4		80,000	Cairan	20,000	2		40,000
Maintenance of Existing Terrace		Butiran	3,000	12		36,000	Butiran	3,000	10		30,000
	0.0%										
		[Labor]					[Labor]				
Working Capital		Labor Cost					Labor Cost				
With Project	35.0%	Crop and Vegetable	3,000	325		975,000	Crop and Vegetable	3,000	200		600,000
Without Project	70.0%	Tree	3,000	0		0	Tree	3,000	0		0
		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
In-Use Value of Land	0	[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment				50,000
						==========					==========
		Total Expenditure				2,001,000					1,226,500

DR2DYNOT:12

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern K

Change from <Without Project> Dry Farming without Terrace
to <With Project> Dry Farming without Terrace

Table 1: Parameter Table (per Ha)

Item		Annual Benefit and Cost <With Project> Dry Farming without Terrace					<Without Project> Dry Farming without Terrace				
		Item	Base Year Price	Base Quantity	Increase in* Productivity	Total Value/Year	Item	Base Year Price	Base Quantity	Increase in** Productivity	Total Value/Year
			(Rp)	(Kg. M3)	(Maximum)	(Rp)		(Rp)	(Kg. M3)	(Maximum)	(Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Tomato	300	5,156	5.0%	1,624,000	Upland Paddy	300	2,210	0.0%	663,000
Foreign Inflation Rate	5.0%	Red Beans	300	1,615	5.0%	508,725	Maize	300	1,450	0.0%	435,000
Interest Rate(Lending)		Maize	300	1,450	5.0%	456,750	Cassava	50	6,350	0.0%	317,500
Interest Rate(Saving)			800	0	5.0%	0				0.0%	0
		Albizia. tree	25,000	0.00		0	Albizia. tree	25,000	0.00		0
Exchange Rate per US$	2,050	Albizia. fire	5,000	0.00		0	Albizia. fire	5,000	0.00		0
(Base Year 1992)		Jack Fruit	500	0		0	Jack Fruit	500	0		0
		Avocado	500	0		0					0
Financing		(note*) Total Benefits				2,589,475	(note**)				1,415,500
Interest Rate	12.0%	Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				0.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Tomato	7,500	10	75,000		Upland Paddy	650	40	26,000	
		Red Beans	1,750	30	52,500		Maize	3,500	20	70,000	
		Maize	3,500	15	52,500		Cassava	3	3,500	10,500	
		0	1,500	0	0		0				
Discount Rate		Albizia. tree	100	0	0		Albizia. tree	100	0	0	
Total Investment	10.0%	Jack Fruit	1,000	0	0		Jack Fruit	250	0	0	
Farmers' View Point	9.0%	Avocado	1,750	0	0						
		No. of tree types =		0 types			No. of tree types =		0 types		
Investment Cost		[Fertilizers]					[Fertilizers]				
		Manure	50	10,000	500,000		Manure	50	5,000	250,000	
Terrace(1st year)	0	Chemical	300	600	180,000		Chemical	300	500	150,000	
		Lime	250	0	0		Lime	250	0	0	
Maintenance Cost(2nd yr)	20.0%										
(after 2nd yr)	10.0%	[Pesticide]					[Pesticide]				
		Cairan	20,000	4	80,000		Cairan	20,000	2	40,000	
Maintenance of Existing Terrace		Butiran	3,000	12	36,000		Butiran	3,000	10	30,000	
	0.0%										
Working Capital		[Labor]					[Labor]				
		Labor Cost					Labor Cost				
With Project	35.0%	Crop and Vegetable	3,000	325	975,000		Crop and Vegetable	3,000	200	600,000	
Without Project	70.0%	Tree	3,000	0	0		Tree	3,000	0	0	
		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
In-Use Value of Land	0	[Others]					[Others]				
		Agricultural Equipment			50,000		Agricultural Equipment			50,000	
		Total Expenditure				2,001,000					1,226,500

SHR_F01:13

Citarik Watershed Development Project

Economic Analysis 1

Change Pattern L

Change from <Without Project> Shrub, Grass Land, Quarry
to <With Project> Forest 1

Table 1: Parameter Table

(per Ha)

Item		Annual Benefit and Cost <With Project> Forest 1 Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	<Without Project> Shrub, Grass Land, Quarry Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Upland Paddy	300	1,300	5.0%	409,500	Upland Paddy	300	0	0.0%	0
Foreign Inflation Rate	5.0%	Red Beans	300	950	5.0%	299,250	Maize	300	0	0.0%	0
Interest Rate(Lending)		Maize	300	2,900	5.0%	913,500	Cassava	50	0	0.0%	0
Interest Rate(Saving)		Ground Nuts	800	850	5.0%	545,000				0.0%	0
		Albizia.tree	25,000	8.00		200,000	Albizia.tree	25,000	0.00		0
Exchange Rate per US$	2,050	Albizia.fire	5,000	16.00		80,000	Albizia.fire	5,000	0.00		0
(Base Year 1992)		Jack Fruit	500	0		0	Jack Fruit	500	0		0
		Avocado	500	0		0					0
Financing		(note*)		Total Benefits		2,448,250	(note**)				0
Interest Rate	12.0%	Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				0.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Upland Paddy	650	40		26,000	Upland Paddy	650	0	0	
		Red Beans	1,750	30		52,500	Maize	3,500	0	0	
		Maize	3,500	30		105,000	Cassava	3	0	0	
		Ground Nuts	1,500	30		45,000		0			
Discount Rate		Albizia.tree	100	1,000		100,000	Albizia.tree	100	0	0	
Total Investment	10.0%	Jack Fruit	1,000	0		0	Jack Fruit	250	0	0	
Farmers' View Point	9.0%	Avocado	1,750	0		0					
		No.of tree types =		1 types			No.of tree types =		0 types		
Investment Cost		[Fertilizers]					[Fertilizers]				
		Manure	50	10,000		500,000	Manure	50	0	0	
Terrace(1st year)	0	Chemical	300	600		180,000	Chemical	300	0	0	
Subsidy	0	Lime	250	1,000		250,000	Lime	250	0	0	
Maintenance Cost(2nd yr)	20.0%										
(after 2nd yr)	10.0%	[Pesticide]					[Pesticide]				
		Cairan	20,000	4		80,000	Cairan	20,000	0	0	
Maintenance of Existing Terrace		Butiran	3,000	20		60,000	Butiran	3,000	0	0	
	0.0%										
Working Capital		[Labor]					[Labor]				
		Labor Cost									
With Project	35.0%	Crop and Vegetable	3,000	341		1,023,000	Crop and Vegetable	3,000	0	0	
Without Project	0.0%	Tree	3,000	35		105,000	Tree	3,000	0	0	
		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
In-Use Value of Land	0	[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment			0	
		Total Expenditure				2,576,500					0

AGRO1NOT:14

Citarik Watershed Development Project

Financial Analysis 1

Change Pattern M

Change from <Without Project> Grass Land
to <With Project> Agroforestry 1 without Terrace

Table 1: Parameter Table (per Ha)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Financing	
Interest Rate	12.0%
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Terrace(1st year)	0
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	0.0%
Working Capital	
With Project	35.0%
Without Project	0.0%
In-Use Value of Land	0

Annual Benefit and Cost

<With Project> Agroforestry 1 without Terrace					<Without Project> Grass Land				
Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	Base Year Price (Rp)	Base Quantity (Kg. M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)					(Benefit)				
Upland Paddy	300	1,300	5.0%	409,500	Upland Paddy	300	0	0.0%	0
Red Beans	300	950	5.0%	299,250	Maize	300	0	0.0%	0
Maize	300	2,900	5.0%	913,500	Cassava	50	0	0.0%	0
Ground Nuts	800	650	5.0%	546,000				0.0%	0
Albizia.tree	25,000	3.20		80,000	Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	6.40		32,000	Albizia.fire	5,000	0.00		0
Jack Fruit	500	1,500		750,000	Jack Fruit	500	0		0
Avocado	500	2,500		1,250,000					0
(note*) Total Benefits				4,280,250	(note**)				0
Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
Increase caused by Soil Conservation =				0.0%	Increase caused by Soil Conservation =				0.0%
(Cost)					(Cost)				
[Seeds]					[Seeds]				
Upland Paddy	650	40		26,000	Upland Paddy	650	0		0
Red Beans	1,750	30		52,500	Maize	3,500	0		0
Maize	3,500	30		105,000	Cassava	3	0		0
Ground Nuts	1,500	30		45,000		0			
Albizia.tree	100	200		20,000	Albizia.tree	100	0		0
Jack Fruit	1,000	100		100,000	Jack Fruit	250	0		0
Avocado	1,750	100		175,000					
No.of tree types =		3 types			No.of tree types =		0 types		
[Fertilizers]					[Fertilizers]				
Manure	50	10,000		500,000	Manure	50	0		0
Chemical	300	600		180,000	Chemical	300	0		0
Lime	250	1,000		250,000	Lime	250	0		0
[Pesticide]					[Pesticide]				
Cairan	20,000	4		80,000	Cairan	20,000	0		0
Butiran	3,000	20		60,000	Butiran	3,000	0		0
[Labor]					[Labor]				
Labor Cost					Labor Cost				
Crop and Vegetable	3,000	341		1,023,000	Crop and Vegetable	3,000	0		0
Tree	3,000	15		45,000	Tree	3,000	0		0
Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
[Others]					[Others]				
Agricultural Equipment				50,000	Agricultural Equipment				0
Total Expenditure				2,711,500					0

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Citarik Watershed Development Project

(2) Calculation Example of Estimated Incremental NPV

– Change from Dry Farming without Terrace to Agroforestry 1 with Bench Terrace –

Financial Analysis 1
<<<< CROPPING PATTERN >>>>
Change from <Without Project> Dry Farming without Terrace
to <With Project> Agroforestry 1 with Bench Terrace

Table 1: Parameter Table (per Ha)

Item		Annual Benefit and Cost <With Project> Agroforestry 1 with Bench Terrace				<Without Project> Dry Farming without Terrace			
		Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)	Item	Base Year Price (Rp)	Base Quantity (Kg, M3)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
Economic Indicator		(Benefit)					(Benefit)				
Domestic Inflation Rate	8.0%	Upland Paddy	300	1,300	15.0%	448,500	Upland Paddy	300	2,210	0.0%	663,000
Foreign Inflation Rate	5.0%	Red Beans	300	950	15.0%	327,750	Maize	300	1,450	0.0%	435,000
		Maize	300	2,900	15.0%	1,000,500	Cassava	50	6,350	0.0%	317,500
		Ground Nuts	800	650	15.0%	598,000				0.0%	0
		Albizia. tree	25,000	3.20		80,000	Albizia. tree	25,000	0.00		0
		Albizia. fire	5,000	6.40		32,000	Albizia. fire	5,000	0.00		0
Exchange Rate per US$	2,050	Jack Fruit	500	1,500		750,000	Jack Fruit	500	0		0
(Base Year 1992)		Avocado	500	2,500		1,250,000					0
Financing		(note*) Total Benefits				4,486,750	(note**)				1,415,500
Interest Rate	12.0%	Increase caused by Agricultural Input =				5.0%	Increase caused by Agricultural Input =				0.0%
		Increase caused by Soil Conservation =				10.0%	Increase caused by Soil Conservation =				0.0%
		(Cost)					(Cost)				
		[Seeds]					[Seeds]				
		Upland Paddy	650	40		26,000	Upland Paddy	650	40		26,000
		Red Beans	1,750	30		52,500	Maize	3,500	20		70,000
		Maize	3,500	30		105,000	Cassava	3	3,500		10,500
		Ground Nuts	1,500	30		45,000	0				
		Albizia. tree	100	200		20,000	Albizia. tree	100	0		0
Discount Rate		Jack Fruit	1,000	100		100,000	Jack Fruit	250	0		0
Total Investment	10.0%	Avocado	1,750	100		175,000					
Farmers' View Point	9.0%	No. of tree types =		3 types			No. of tree types =		0 types		
		[Fertilizers]					[Fertilizers]				
Investment Cost		Manure	50	10,000		500,000	Manure	50	5,000		250,000
Bench Terrace (1st year)	520,000	Chemical	300	600		180,000	Chemical	300	500		150,000
		Lime	250	1,000		250,000	Lime	250	0		0
Maintenance Cost (2nd yr)	20.0%										
(after 2nd yr)	10.0%	[Pesticide]					[Pesticide]				
		Cairan	20,000	4		80,000	Cairan	20,000	2		40,000
Maintenance of Existing Terrace		Butiran	3,000	20		60,000	Butiran	3,000	10		30,000
	0.0%										
Working Capital		[Labor]					[Labor]				
		Labor Cost					Labor Cost				
With Project	35.0%	Crop and Vegetable	3,000	341		1,023,000	Crop and Vegetable	3,000	200		600,000
Without Project	70.0%	Tree	3,000	15		45,000	Tree	3,000	0		0
		Maintenance and Harvesting		40.0% of costs			Maintenance and Harvesting		40.0% of costs		
In-Use Value of Land	0	[Others]					[Others]				
		Agricultural Equipment				50,000	Agricultural Equipment				50,000
		Total Expenditure				2,711,500					1,226,500

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Table 2: Inflation Rates and Indexes, Exchange Rate, and Productivity Indexes

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Domestic Inflation Rate	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Domestic Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
change in Domestic Inflation		0	0	0	0	0	0	0	0	0	0	0
Foreign Inflation	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Foreign Inflation Index	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.55	1.63	1.71	1.80
Relative Inflation	1.03	1.06	1.09	1.12	1.15	1.18	1.22	1.25	1.29	1.33	1.36	1.40
Exchange Rate per US$	2.050											
Expected Exchange Rate [Nominal]	2,109	2,169	2,231	2,295	2,360	2,428	2,497	2,568	2,642	2,717	2,795	2,875
Expected Exchange Rate [Real]	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050
Expected Productivity Increase												
Crops and Vegitable(With)		5.0%	5.0%	5.0%	5.5%	6.0%	7.5%	10.0%	15.0%	15.0%	15.0%	15.0%
Crops and Vegitable(Without)		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Harvesting Volume against Maximum Harvesting Volume												
(With)												
Albizia		0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Jack Fruit		0.0%	0.0%	40.0%	60.0%	80.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Avocado		0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	60.0%	80.0%	100.0%	100.0%	100.0%
(Without)												
Albizia		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Jack Fruit		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Necessary Man-days required for tree planting												
With (if 1st year =	300.0%	300.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Without (if 1st year =	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1.89	1.98	2.08	2.18	2.29	2.41	2.53	2.65	2.79	2.93	3.07	3.23	3.39	3.56	3.73
1.44	1.48	1.53	1.57	1.61	1.66	1.71	1.76	1.81	1.86	1.91	1.97	2.02	2.08	2.14
2,957	3,041	3,128	3,217	3,309	3,404	3,501	3,601	3,704	3,810	3,919	4,031	4,146	4,264	4,386
2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050	2,050
15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%
100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	0.0%
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Table 3-1: Revenue and Expense (1/2) <With Project> Agroforestry 1 with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Revenue												
1)Gross Value of Production												
(1) Upland Paddy	238,820	515,652	557,120	604,555	856,014	718,521	794,849	896,554	968,278	1,045,740	1,129,399	
Price	350	378	408	441	476	514	555	600	648	699	755	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	682	1,365	1,365	1,372	1,378	1,398	1,430	1,495	1,495	1,495	1,495	
(2) Red Beans	174,523	376,969	407,126	441,780	479,395	525,073	580,267	655,174	707,586	764,195	825,330	
Price	350	378	408	441	476	514	555	600	648	699	755	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	499	998	998	1,002	1,007	1,021	1,045	1,093	1,093	1,093	1,093	
(3) Maize	532,753	1,150,747	1,242,807	1,348,623	1,463,416	1,602,854	1,771,340	2,000,004	2,160,004	2,332,805	2,519,429	
Price	350	378	408	441	476	514	555	600	648	699	755	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	1,523	3,045	3,045	3,060	3,074	3,118	3,190	3,335	3,335	3,335	3,335	
(4) Ground Nuts	318,427	687,803	742,827	806,073	874,865	958,028	1,058,732	1,195,405	1,291,037	1,394,320	1,505,866	
Price	933	1,008	1,088	1,175	1,269	1,371	1,481	1,599	1,727	1,865	2,015	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	341	683	683	686	689	699	715	748	748	748	748	
(5) Albizia, tree	0	0	0	0	634,750	0	0	0	0	932,656	0	
Price	29,150	31,493	34,012	36,733	39,672	42,846	46,273	49,975	53,973	58,291	62,954	
Change in Price												
Quantity	0	0	0	0	16	0	0	0	0	16	0	
(6) Albizia, fire	0	0	0	0	252,000	0	0	0	0	373,062	0	
Price	5,832	6,299	6,802	7,347	7,934	8,569	9,255	9,995	10,795	11,658	12,591	
Change in Price												
Quantity	0	0	0	0	32	0	0	0	0	32	0	
(7) Jack Fruit	0	0	408,147	661,198	952,125	1,285,368	1,388,198	1,499,253	1,619,194	1,748,729	1,888,628	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	
Change in Price												
Quantity	0	0	600	900	1,200	1,500	1,500	1,500	1,500	1,500	1,500	
(8) Avocado	0	0	0	0	0	858,912	1,388,198	1,998,005	2,698,656	2,914,549	3,147,713	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	
Change in Price												
Quantity	0	0	0	0	0	1,000	1,500	2,000	2,500	2,500	2,500	
Total Revenue	1,264,523	2,731,371	3,058,027	3,862,239	5,314,283	5,946,756	6,980,782	8,245,394	9,444,757	11,506,056	11,016,365	

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40
1,219,751	1,317,331	1,422,718	1,536,535	1,659,458	1,792,215	1,935,592	2,090,439	2,257,674	2,438,288	2,633,351	2,844,020	3,071,541	3,317,264
816	881	952	1,028	1,110	1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495
891,357	962,565	1,039,678	1,122,853	1,212,681	1,309,835	1,414,471	1,527,629	1,649,839	1,781,826	1,924,372	2,078,322	2,244,588	2,424,155
816	881	952	1,028	1,110	1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093	1,093
2,720,984	2,938,662	3,173,755	3,427,656	3,701,868	3,998,018	4,317,859	4,663,288	5,036,351	5,439,258	5,874,399	6,344,351	6,851,899	7,400,051
816	881	952	1,028	1,110	1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335	3,335
1,628,335	1,758,442	1,896,957	2,048,714	2,212,611	2,389,620	2,580,789	2,787,252	3,010,233	3,251,051	3,511,135	3,792,026	4,095,388	4,423,019
2,176	2,350	2,538	2,741	2,960	3,197	3,453	3,729	4,027	4,349	4,697	5,073	5,479	5,917
0	0	0	0	0	0	0	0	0	0	0	0	0	0
748	748	748	748	748	748	748	748	748	748	748	748	748	748
0	0	0	1,370,377	0	0	0	0	2,013,533	0	0	0	0	2,958,541
67,991	73,430	79,304	85,649	92,500	99,900	107,893	116,524	125,846	135,914	146,787	158,530	171,212	184,909
0	0	0	16	0	0	0	0	16	0	0	0	0	16
0	0	0	543,151	0	0	0	0	805,413	0	0	0	0	1,161,417
13,998	14,686	15,861	17,130	18,500	19,980	21,578	23,305	25,169	27,183	29,357	31,706	34,242	36,982
0	0	0	32	0	0	0	0	32	0	0	0	0	32
2,039,718	2,202,895	2,379,127	2,569,457	2,775,014	2,997,015	3,236,776	3,495,718	3,775,375	4,077,405	4,403,598	4,755,886	5,136,356	5,547,265
1,360	1,469	1,586	1,713	1,850	1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698
1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
3,399,530	3,671,492	3,965,211	4,282,428	4,625,823	4,995,024	5,315,781	4,660,957	5,033,834	5,436,540	5,871,464	6,341,181	6,848,475	7,396,353
1,360	1,469	1,586	1,713	1,850	1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698
2,500	2,500	2,500	2,500	2,500	2,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
11,897,674	12,849,488	13,877,447	16,906,170	16,185,654	17,481,586	17,801,188	19,225,283	23,582,252	22,424,370	24,218,320	26,155,785	28,248,248	34,650,066

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Table 3-2: Revenue and Expense(2/2) <With Project> Agroforestry 1 with Bench Terrace

Year		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
		0	1	2	3	4	5	6	7	8	9	10	11
Expense													
1)Seeds	Sub-total		384,037	287,844	310,872	335,741	362,601	425,885	422,938	456,773	493,314	532,780	625,765
Upland Paddy			15,163	32,753	35,373	38,203	41,259	44,559	48,124	51,974	56,132	60,623	65,472
change in price													
Red Beans			30,618	66,135	71,426	77,140	83,311	89,976	97,174	104,948	113,344	122,411	132,204
change in price													
Maize			61,236	132,270	142,851	154,279	166,622	179,952	194,348	209,895	226,687	244,822	264,408
change in price													
Ground Nuts			26,244	56,687	61,222	66,120	71,409	77,122	83,292	89,955	97,152	104,924	113,318
change in price													
Albizia. tree			23,328	0	0	0	0	34,276	0	0	0	0	50,363
change in price													
Jack Fruit			23,328										
change in price													
Avocado			204,120										
change in price													
2)Fertilizers	Sub-total		542,376	1,171,532	1,265,255	1,366,475	1,475,793	1,593,857	1,721,365	1,859,074	2,007,800	2,168,424	2,341,898
Manure			291,600	629,856	680,244	734,664	793,437	856,912	925,465	999,502	1,079,462	1,165,819	1,259,085
Chemical			104,976	226,748	244,888	264,479	285,637	308,488	333,167	359,821	388,606	419,695	453,271
Lime			145,800	314,928	340,122	367,332	396,719	428,456	462,733	499,751	539,731	582,910	629,543
3)Pesticide	Sub-total		81,648	176,360	190,468	205,706	222,162	239,935	259,130	279,861	302,249	326,429	352,544
Cairan			46,656	100,777	108,839	117,546	126,950	137,106	148,074	159,920	172,714	186,531	201,454
Butiran			34,992	75,583	81,629	88,160	95,212	102,829	111,056	119,940	129,535	139,898	151,090
4)Labor Cost	Sub-total		649,102	1,288,685	1,416,813	1,543,676	1,737,310	1,909,586	2,063,047	2,228,475	2,471,969	2,751,334	2,921,077
Crop & Vegetable			596,614	1,288,685	1,391,780	1,503,123	1,623,372	1,753,242	1,893,502	2,044,982	2,208,580	2,385,267	2,576,088
Tree			52,488	0	25,033	40,553	113,938	156,644	169,545	213,494	263,389	366,067	344,989
5)Others			58,320	62,986	68,024	73,466	79,344	85,691	92,547	99,950	107,946	116,582	125,909
Total Expense			1,715,483	2,987,407	3,251,433	3,525,065	3,877,210	4,255,254	4,559,026	4,954,133	5,383,279	5,895,548	6,367,193
Net Income			-450,959	-256,036	106,594	337,174	1,437,073	1,691,502	2,421,757	3,291,261	4,061,478	5,610,506	4,649,172

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
621,434	671,149	724,841	782,828	919,454	913,090	986,138	1,065,029	1,150,231	1,350,980	1,341,629	1,448,960	1,564,877	1,690,067	
70,710	76,367	82,476	89,075	96,200	103,897	112,208	121,185	130,880	141,350	152,658	164,871	178,060	192,305	
142,780	154,203	166,539	179,862	194,251	209,791	226,574	244,700	264,276	285,418	308,252	332,912	359,545	388,309	
285,560	308,405	333,078	359,724	388,502	419,582	453,149	489,401	528,553	570,837	616,504	665,824	719,090	776,617	
122,383	132,174	142,748	154,167	166,501	179,821	194,207	209,743	226,523	244,644	264,216	285,353	308,181	332,836	
0	0	0	0	74,000	0	0	0	0	108,731	0	0	0	0	
2,529,250	2,731,590	2,950,117	3,186,127	3,441,017	3,716,298	4,013,602	4,334,690	4,681,465	5,055,983	5,460,461	5,897,298	6,369,082	6,878,608	
1,359,812	1,468,597	1,586,085	1,712,971	1,850,009	1,998,010	2,157,851	2,330,479	2,516,917	2,718,270	2,935,732	3,170,590	3,424,238	3,698,177	
489,532	528,695	570,990	616,670	666,003	719,284	776,826	838,972	906,090	978,577	1,056,863	1,141,413	1,232,726	1,331,344	
679,906	734,298	793,042	856,486	925,005	999,005	1,078,925	1,165,239	1,258,458	1,359,135	1,467,866	1,585,295	1,712,119	1,849,088	
380,747	411,207	444,104	479,632	518,003	559,443	604,198	652,534	704,737	761,116	822,005	887,765	958,787	1,035,489	
217,570	234,975	253,774	274,075	296,001	319,682	345,256	372,877	402,707	434,923	469,717	507,294	547,878	591,708	
163,177	176,232	190,330	205,557	222,001	239,761	258,942	279,657	302,030	326,192	352,288	380,471	410,909	443,781	
3,113,969	3,363,087	3,632,134	4,042,612	4,292,021	4,575,442	4,875,879	5,265,949	5,863,410	6,223,751	6,633,580	7,164,266	7,737,407	8,615,272	
2,782,175	3,004,749	3,245,129	3,504,739	3,785,118	4,087,928	4,414,962	4,768,159	5,149,612	5,561,581	6,006,507	6,487,028	7,005,990	7,566,469	
331,794	358,338	387,005	537,873	506,902	487,514	460,917	497,790	713,798	662,171	627,072	677,238	731,417	1,048,803	
135,981	146,860	158,698	171,297	185,001	199,801	215,785	233,048	251,692	271,827	293,573	317,059	342,424	369,818	
6,781,382	7,323,892	7,909,804	8,662,496	9,355,496	9,964,075	10,695,802	11,551,250	12,651,534	13,663,657	14,551,248	15,715,348	16,972,576	18,589,255	0
5,116,292	5,525,596	5,967,643	8,243,674	6,831,158	7,517,512	7,105,586	7,674,033	10,930,718	8,760,713	9,667,071	10,440,437	11,275,672	16,060,811	0

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Table 4: Investment and Maintenance Schedule <With Project> Agroforestry 1 with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Bench Terrace(1st year) Investment		606,528										
Terrace Maintenance			131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945
Total Annual Investment		606,528	131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945

Year	2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
Inflation Index	2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
	141,420	152,734	164,953	178,149	192,401	207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	415,379
	141,420	152,734	164,953	178,149	192,401	207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	415,379

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Table 5: Working Capital <With Project> Agroforestry 1 with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Operational Expenses excluding Labor Cost	0	1,008,061	1,635,736	1,766,595	1,907,923	2,060,556	2,259,677	2,403,433	2,595,708	2,803,364	3,027,633	3,320,207
Working Capital required	0	352,821	572,508	618,308	667,773	721,195	790,887	841,202	908,498	981,177	1,059,672	1,162,073
Change in Working Capital	0	352,821	219,686	45,801	49,465	53,422	69,692	50,314	67,296	72,680	78,494	102,401

Year	2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
Inflation Index	2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
	3,531,431	3,813,946	4,119,062	4,448,587	4,878,474	5,188,831	5,603,938	6,052,253	6,536,433	7,168,079	7,624,096	8,234,023	8,892,745	9,604,165	0
	1,236,001	1,334,881	1,441,672	1,557,005	1,707,466	1,816,091	1,961,378	2,118,288	2,287,752	2,508,827	2,668,433	2,881,908	3,112,461	3,361,458	0
	73,928	98,880	106,790	115,334	150,461	108,625	145,287	156,910	169,463	221,075	159,606	213,475	230,553	248,997	-3,361,458

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Table 6: Financial Cash Flow Statement per Ha <With Project> Agroforestry 1 with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Receipt												
Gross Value of Agricultural Production		1,264,523	2,731,371	3,358,027	3,662,239	5,314,283	5,946,756	6,980,783	8,245,394	9,444,757	11,506,056	11,016,365
In-Use Value												
Expenditure												
Investment		606,528										
Maintenance		0	131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945
Operating Expense	0	1,715,483	2,987,407	3,251,433	3,525,065	3,877,210	4,255,254	4,559,026	4,954,133	5,383,279	5,895,549	6,367,193
Change in Working Capital	0	352,821	219,686	45,801	49,465	53,422	69,692	50,314	67,296	72,680	78,494	102,401
In-Use Value of Land	0											
NCF-With Case(Nominal)	0	-1,410,309	-606,733	-9,952	211,304	1,301,134	1,532,690	2,275,194	3,120,017	3,876,534	5,410,767	4,415,826
NCF-With Case(Real)	0	-1,209,113	-481,644	-7,315	143,810	819,935	894,310	1,229,217	1,560,785	1,795,585	2,320,585	1,753,585
Net Present Value	7,185,699											

Year	2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
Inflation Index	2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
Receipt															
Gross Value of Agricultural Production	11,897,674	12,849,488	13,877,447	16,906,170	16,186,654	17,481,586	17,801,188	19,225,283	23,582,252	22,424,370	24,218,320	26,155,785	28,248,248	34,650,066	0
In-Use Value															0
Expenditure															
Investment															
Maintenance	141,420	152,734	164,953	178,149	192,401	207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	
Operating Expense	6,781,382	7,323,892	7,909,804	8,662,496	9,355,496	9,964,075	10,695,602	11,551,250	12,651,534	13,663,657	14,551,248	15,715,348	16,972,576	18,589,255	
Change in Working Capital	73,928	98,880	106,790	115,334	150,461	108,625	145,287	156,910	169,463	221,076	159,606	213,475	230,553	248,997	-3,361,458
NCF-With Case(Nominal)	4,900,943	5,273,981	5,695,900	7,950,192	6,488,297	7,201,094	6,736,882	7,274,753	10,499,496	8,256,937	9,202,149	9,897,221	10,688,999	15,427,204	3,361,458
NCF-With Case(Real)	1,802,067	1,795,585	1,795,585	2,320,585	1,753,585	1,802,067	1,560,785	1,560,785	2,085,785	1,518,785	1,557,267	1,560,785	1,560,785	2,085,785	420,810

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Table 7-1: Revenue and Expense(1/2) <Without Project> Dry Farming without Terrace

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	0	1	2	3	4	5	6	7	8	9	10	11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Revenue												
1)Gross Value of Agricultural Production												
(1) Upland Paddy	386,662	835,189	902,004	974,165	1,052,098	1,136,265	1,227,167	1,325,340	1,431,367	1,545,877	1,669,547	
Price	350	378	408	441	476	514	555	600	648	699	755	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	1,105	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	
(2) Maize	253,692	547,975	591,813	639,158	690,290	745,514	805,155	869,567	939,132	1,014,263	1,095,404	
Price	350	378	408	441	476	514	555	600	648	699	755	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	725	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	
(3) Cassava	185,166	399,959	431,955	466,512	503,833	544,139	587,670	634,684	685,459	740,295	799,519	
Price	58	63	68	73	79	86	93	100	108	117	125	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	
Quantity	3,175	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	
(4) 0	0	0	0	0	0	0	0	0	0	0	0	
Price	0	0	0	0	0	0	0	0	0	0	0	
Change in Price												
Quantity	0	0	0	0	0	0	0	0	0	0	0	
(5) Albizia.tree	0	0	0	0	0	0	0	0	0	0	0	
Price	29,160	31,493	34,012	36,733	39,672	42,846	46,273	49,975	53,973	58,291	62,954	
Change in Price												
Quantity	0	0	0	0	0	0	0	0	0	0	0	
(6) Albizia.fire	0	0	0	0	0	0	0	0	0	0	0	
Price	5,832	6,299	6,802	7,347	7,934	8,569	9,255	9,995	10,795	11,658	12,591	
Change in Price												
Quantity	0	0	0	0	0	0	0	0	0	0	0	
(7) Jack Fruit	0	0	0	0	0	0	0	0	0	0	0	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	
Change in Price												
Quantity	0	0	0	0	0	0	0	0	0	0	0	
Total Revenue	825,520	1,783,122	1,925,772	2,079,834	2,246,221	2,425,918	2,619,992	2,829,591	3,055,958	3,300,435	3,564,470	

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
1,803,111	1,947,359	2,103,148	2,271,400	2,453,112	2,649,361	2,861,310	3,090,215	3,337,432	3,604,426	3,892,780	4,204,203	4,540,539	4,903,782	
816	881	952	1,028	1,110	1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	
1,183,036	1,277,679	1,379,894	1,490,285	1,609,508	1,738,268	1,877,330	2,027,516	2,189,718	2,364,895	2,554,087	2,758,414	2,979,087	3,217,414	
816	881	952	1,028	1,110	1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	
863,481	932,559	1,007,164	1,087,737	1,174,756	1,268,736	1,370,235	1,479,854	1,598,242	1,726,102	1,864,190	2,013,325	2,174,391	2,348,342	
136	147	159	171	185	200	216	233	252	272	294	317	342	370	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67,991	73,430	79,304	85,649	92,500	99,900	107,893	116,524	125,846	135,914	146,787	158,530	171,212	184,909	199,702
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13,598	14,686	15,861	17,130	18,500	19,980	21,579	23,305	25,169	27,183	29,357	31,706	34,242	36,982	39,940
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1,360	1,469	1,586	1,713	1,850	1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3,849,827	4,157,598	4,490,205	4,849,422	5,237,376	5,656,366	6,108,875	6,597,585	7,125,392	7,695,423	8,311,057	8,975,941	9,694,017	10,469,538	0

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Table 7-2: Revenue and Expense(2/2) <Without Project> Dry Farming without Terrace

Year		1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Expenses													
1)Seeds	Sub-total		62,111	134,159	144,892	156,483	169,002	182,522	197,124	212,894	229,926	248,320	268,185
Upland Paddy			15,163	32,753	35,373	38,203	41,259	44,559	48,124	51,974	56,132	60,623	65,472
change in price													
Maize			40,824	88,180	95,234	102,853	111,081	119,968	129,565	139,930	151,125	163,215	176,272
change in price													
Cassava			6,124	13,227	14,285	15,428	16,662	17,995	19,435	20,990	22,669	24,482	26,441
change in price													
0			0	0	0	0	0	0	0	0	0	0	0
change in price													
Albizia tree			0	0	0	0	0	0	0	0	0	0	0
change in price													
Jack Fruit			0										
change in price													
0			0										
change in price													
2)Fertilizers	Sub-total		233,280	503,885	544,196	587,731	634,750	685,530	740,372	799,602	863,570	932,656	1,007,268
Manure			145,800	314,928	340,122	367,332	396,719	428,456	462,733	499,751	539,731	582,910	629,543
Chemical			87,480	188,957	204,073	220,399	238,031	257,074	277,640	299,851	323,839	349,746	377,726
Lime			0	0	0	0	0	0	0	0	0	0	0
3)Pesticide	Sub-total		40,824	88,180	95,234	102,853	111,081	119,968	129,565	139,930	151,125	163,215	176,272
Cairan			23,328	50,388	54,420	58,773	63,475	68,553	74,037	79,960	86,357	93,266	100,727
Butiran			17,496	37,791	40,815	44,080	47,606	51,415	55,528	59,970	64,768	69,949	75,545
4)Labor Cost	Sub-total		349,920	755,827	816,293	881,597	952,125	1,028,295	1,110,558	1,199,403	1,295,355	1,398,983	1,510,902
Crop and Vegetable			349,920	755,827	816,293	881,597	952,125	1,028,295	1,110,558	1,199,403	1,295,355	1,398,983	1,510,902
Tree			0	0	0	0	0	0	0	0	0	0	0
5)Others			58,320	62,986	68,024	73,466	79,344	85,691	92,547	99,950	107,946	116,582	125,909
Total Expense			744,455	1,545,037	1,668,640	1,802,131	1,946,301	2,102,005	2,270,166	2,451,779	2,647,922	2,859,755	3,088,536
Net Income			81,065	238,036	257,132	277,703	299,919	323,913	349,826	377,812	408,037	440,680	475,934

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
289,640	312,811	337,836	364,863	394,052	425,576	459,622	496,392	536,103	578,992	625,311	675,336	729,363	787,712	
70,710	76,367	82,476	89,075	96,200	103,897	112,208	121,185	130,880	141,350	152,658	164,871	178,060	192,305	
190,374	205,604	222,052	239,816	259,001	279,721	302,099	326,267	352,368	380,558	411,002	443,883	479,393	517,745	
28,556	30,841	33,308	35,972	38,850	41,958	45,315	48,940	52,855	57,084	61,650	66,582	71,909	77,662	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1,087,849	1,174,877	1,268,868	1,370,377	1,480,007	1,598,408	1,726,280	1,864,382	2,013,533	2,174,616	2,348,585	2,536,472	2,739,390	2,958,541	
679,906	734,298	793,042	856,486	925,005	999,005	1,078,925	1,165,239	1,258,458	1,359,135	1,467,866	1,585,295	1,712,119	1,849,088	
407,944	440,579	475,825	513,891	555,003	599,403	647,355	699,144	755,075	815,481	880,720	951,177	1,027,271	1,109,453	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
190,374	205,604	222,052	239,816	259,001	279,721	302,099	326,267	352,368	380,558	411,002	443,883	479,393	517,745	
108,785	117,488	126,887	137,038	148,001	159,841	172,628	186,438	201,353	217,462	234,859	253,647	273,939	295,854	
81,589	88,116	95,165	102,778	111,001	119,881	129,471	139,829	151,015	163,096	176,144	190,235	205,454	221,891	
1,631,774	1,762,316	1,903,301	2,055,566	2,220,011	2,397,612	2,589,421	2,796,574	3,020,300	3,261,924	3,522,878	3,804,708	4,109,085	4,437,812	
1,631,774	1,762,316	1,903,301	2,055,566	2,220,011	2,397,612	2,589,421	2,796,574	3,020,300	3,261,924	3,522,878	3,804,708	4,109,085	4,437,812	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
135,981	146,860	158,608	171,297	185,001	199,801	215,785	233,048	251,692	271,827	293,573	317,059	342,424	369,818	
3,335,819	3,602,468	3,890,665	4,201,819	4,538,072	4,901,118	5,293,207	5,716,664	6,173,997	6,667,917	7,201,350	7,777,458	8,399,655	9,071,627	0
514,009	555,130	599,540	647,503	699,303	755,248	815,668	880,921	951,395	1,027,506	1,109,707	1,198,483	1,294,362	1,397,911	0

DR2AG1BE:8

Table 8: Working Capital <Without Project> Dry Farming without Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Operational Expenses excluding Labor & Others	0	336,215	726,224	784,322	847,068	914,833	988,020	1,067,061	1,152,426	1,244,620	1,344,190	1,451,725
Working Capital required	0	235,350	508,357	549,025	592,947	640,383	691,614	746,943	806,698	871,234	940,933	1,016,208
Change in Working Capital	0	235,350	273,006	40,669	43,922	47,436	51,231	55,329	59,755	64,536	69,699	75,275

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
1,557,883	1,693,292	1,828,755	1,975,056	2,133,060	2,303,705	2,488,002	2,687,042	2,902,005	3,134,166	3,384,899	3,655,691	3,948,146	4,263,998	0
1,087,504	1,185,304	1,280,129	1,382,539	1,493,142	1,612,594	1,741,601	1,880,929	2,031,404	2,193,916	2,369,429	2,558,983	2,763,702	2,984,798	0
81,297	87,800	94,824	102,410	110,603	119,451	129,007	139,328	150,474	162,512	175,513	189,554	204,719	221,096	-2,984,798

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Table 9 : Financial Cash Flow Statement per Ha <Without Project> Dry Farming without Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Receipt												
Gross Value of Agricultural In-Use Value of Land	0	825,520	1,783,122	1,925,772	2,079,834	2,246,221	2,425,918	2,619,992	2,829,591	3,055,958	3,300,435	3,564,470
Expenditure												
Maintenance Expenses		0	0	0	0	0	0	0	0	0	0	0
Operating Expenses		744,455	1,545,037	1,668,640	1,802,131	1,946,301	2,102,005	2,270,166	2,451,779	2,647,922	2,859,755	3,088,536
Change in Working Capital		235,350	273,006	40,669	43,922	47,436	51,231	55,329	59,755	64,536	69,699	75,275
In-Use Value of Land	0											
NCF-Without Case(Nominal)	0	-154,286	-34,921	216,464	233,781	252,483	272,682	294,497	318,056	343,501	370,981	400,660
NCF-Without Case(Real)	0	-132,275	-27,721	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107
Net Present Value	960,254											

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
3,849,527	4,157,598	4,490,205	4,849,422	5,237,376	5,656,366	6,108,875	6,597,585	7,125,392	7,695,423	8,311,057	8,975,941	9,694,017	10,469,538	0 0
0	0	0	0	0	0	0	0	0	0	0	0	0		
3,335,619	3,602,468	3,890,665	4,201,919	4,538,072	4,901,118	5,293,207	5,716,664	6,173,997	6,667,917	7,201,350	7,777,458	8,399,655	9,071,627	0
81,297	87,800	94,824	102,410	110,603	119,451	129,007	139,328	150,474	162,512	175,513	189,554	204,719	221,096	-2,984,798
432,712	467,329	504,716	545,093	588,700	635,796	686,660	741,593	800,920	864,994	934,193	1,008,929	1,089,643	1,176,815	2,984,798
159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	373,657

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Table 10: Incremental Cash Flow Table

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52
Net Cash Flow(With Case)	0	-1,410,309	-805,733	-9,952	211,304	1,301,134	1,532,690	2,275,194	3,120,017	3,876,534	5,410,767	4,415,826
Net Cash Flow(Without Case)	0	-154,286	-34,921	216,464	233,781	252,483	272,682	294,497	318,056	343,501	370,981	400,660
Incremental Cash Flow(Nominal)	0	-1,256,023	-770,812	-226,416	-22,477	1,048,651	1,260,008	1,980,698	2,801,960	3,533,033	5,039,786	4,015,166
Incremental Cash Flow(Real)	0	-1,076,838	-493,923	-166,422	-15,297	660,828	735,203	1,070,109	1,401,678	1,636,478	2,161,478	1,594,478
Marginal Net Present Value	6,225,445											

2005 12	2006 13	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
2.72	2.94	3.17	3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
4,900,943	5,273,981	5,695,900	7,950,192	8,488,297	7,201,094	6,735,882	7,274,753	10,499,496	8,256,937	9,202,149	9,897,221	10,688,999	15,427,204	3,361,458
432,712	467,329	504,716	545,093	588,700	635,796	686,660	741,593	800,920	864,994	934,193	1,008,929	1,089,643	1,176,815	2,984,798
4,468,231	4,806,652	5,191,184	7,405,099	5,899,597	6,565,297	6,049,222	6,533,160	9,698,576	7,391,943	8,267,956	8,888,292	9,599,355	14,250,389	376,659
1,642,959	1,636,478	1,636,478	2,161,478	1,594,478	1,642,959	1,401,678	1,401,678	1,926,678	1,359,678	1,408,159	1,401,678	1,401,678	1,926,678	47,153

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2. Estimated Incremental NPV for Checkdam

Financial Analysis on Check Dam

Table 1-1 : Parameter Table (1/2)

Item	
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	12.0%
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Discount Rate	
Total Investment	10.0%
Working Capital	
With Project	35.0%

(per Ha)

Annual Benefits and Cost Item	Base Year Price (Rp)	Base Quantity (Kg)	Total Value (Fish farming) (Rp)	Total Value (Paddy) (Rp)
(Benefit)				
Upland Paddy	300	10,800		3,240,000
Fish	2,000	2,000	4,000,000	
(note•) Total Benefits			4,000,000	3,240,000
Fish will be fed from 2nd to 4th Year.				
Upland paddy will be cultivated from 4 th year.				
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Fish	4,000	48 (cups)	192,000	
[Fertilizers]				
Chemical	300	720		216,000
[Fish Feeds]				
Dedak	3,000	150	450,000	
Pelet	800	600	480,000	
[Pesticide]				
Cairan	20,000	2		40,000
Butiran	3,000	0		0
[Labor]				
Labor Cost				
Crop	3,000	150		450,000
Fish Farmin	3,000	100	300,000	
[Others]				
Agricultural Equipment				50,000
			1,422,000	782,000

Table 1-2 : Parameter Table (2/2) Construction Cost

CHECK DAM		Quantity	Unit price (Rp)	Total Cost (Rp)
Land compensation	m2	4,000	1,000	4,000,000
Stone	m3	300	11,000	3,300,000
Sand	m3	60	25,000	1,500,000
Cement	sack	500	5,500	2,750,000
Teras(type of cement)	m3	200	15,000	3,000,000
Lime	kg	50	35,000	1,750,000
Timber	m3	0	250,000	60,000
Board	sheet	200	2,000	400,000
Bamboo	stem	30	1,500	45,000
Equipment				363,000
Others				1,500,000
Surveyor		2	43,000	86,000
Skilled laborer		180	5,000	900,000
Non-skilled laborer		4,700	3,000	14,100,000
Maintenance				250,000
Supervision				400,000
Social engineering				100,000
Check Dam Total				34,604,000

SMALL CHECK DAM		Quantity	Unit price (Rp)	Total Cost (Rp)
Land compens	m2	375	1,000	375,000
Stone	m3	115	11,000	1,265,000
Wire	kg	480	3,000	1,440,000
Thin wire	kg	10	3,500	35,000
Palm fiber	kg	160	500	80,000
Bamboo	stem	7	1,500	10,500
Plastic rope	m	54	500	27,000
Equipment				55,000
Skilled laborer		103	5,000	515,000
Non-skilled laborer		295	3,000	888,000
Supervision				100,000
Social engineering				75,000
Small Check Dam Total				4,865,500

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Table 3 : Revenue and Expenses (per Ha) Financial Analysis on Check Dam

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17
Revenue	0	0	0	5,441,956	7,464,187	5,141,473	5,552,791	5,997,014	6,476,775	6,994,917	7,554,510	8,158,871	8,811,581	9,516,507	10,277,828
Fish Farming				5,441,956	5,877,312										
Paddy Cultivation					1,586,874	5,141,473	5,552,791	5,997,014	6,476,775	6,994,917	7,554,510	8,158,871	8,811,581	9,516,507	10,277,828
Expenses	0	0	1,791,310	1,934,615	383,005	1,240,936	1,340,211	1,447,427	1,563,222	1,688,279	1,823,342	1,969,209	2,126,746	2,296,885	2,480,636
Fish Farming															
Seeds			241,865	261,214											
Feeds			1,171,532	1,265,255											
Labor Cost			377,914	408,147											
Paddy Cultivation															
Seeds					12,734	41,259	44,559	48,124	51,974	56,132	60,623	65,472	70,710	76,367	82,476
Chemical					105,792	342,765	370,185	399,801	431,785	466,328	503,634	543,925	587,439	634,434	685,188
Pesticide					18,591	63,475	68,553	74,037	79,960	86,357	93,266	100,727	108,785	117,488	126,887
Labor Cost					220,399	714,093	771,221	832,919	899,552	971,516	1,049,238	1,133,177	1,223,831	1,321,737	1,427,476
Equipment					24,489	79,344	85,691	92,547	99,950	107,946	116,582	125,909	135,981	146,860	158,608
Net Income per Ha	0	0	-1,791,310	3,507,341	7,081,182	3,900,537	4,212,580	4,549,586	4,913,553	5,306,638	5,731,169	6,189,662	6,684,835	7,219,622	7,797,192
Net Income per 0.4 ha	0	0	-716,524	1,402,936	2,832,473	1,560,215	1,685,032	1,819,835	1,965,421	2,122,655	2,292,467	2,475,865	2,673,934	2,887,849	3,118,877
Net Income per 0.035 ha	0	0	-62,696	122,757	247,841	136,519	147,440	159,236	171,974	185,732	200,591	216,638	233,969	252,687	272,902

2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
11,100,054	11,988,058	12,947,103	13,982,871	15,101,501	16,309,621	17,614,391	19,023,542	20,545,426	22,189,060	23,964,184	0
11,100,054	11,988,058	12,947,103	13,982,871	15,101,501	16,309,621	17,614,391	19,023,542	20,545,426	22,189,060	23,964,184	
2,679,087	2,893,414	3,124,887	3,374,878	3,644,868	3,936,458	4,251,375	4,591,485	4,958,803	5,355,508	5,783,948	0
83,075	96,200	103,897	112,208	121,185	130,880	141,350	152,658	164,871	178,060	192,305	
740,004	799,204	863,140	932,191	1,006,767	1,087,308	1,174,293	1,268,236	1,369,695	1,479,271	1,597,612	
137,038	148,001	159,841	172,628	186,438	201,353	217,462	234,859	253,647	273,939	295,854	
1,541,674	1,665,008	1,798,209	1,942,065	2,097,431	2,265,225	2,446,443	2,642,159	2,853,531	3,081,814	3,328,359	
171,297	185,001	199,801	215,785	233,048	251,692	271,827	293,573	317,059	342,424	369,818	
8,420,967	9,094,644	9,822,216	10,607,993	11,456,633	12,373,163	13,363,016	14,432,058	15,586,622	16,833,552	18,180,236	0
3,368,387	3,637,858	3,928,886	4,243,197	4,582,653	4,949,265	5,345,207	5,772,823	6,234,649	6,733,421	7,272,094	0
294,734	318,313	343,778	371,280	400,982	433,061	467,706	505,122	545,532	589,174	636,308	0

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Table 4 : Working Capital

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17
Operating Expenses per Ha excluding Labor Cost	0	0	1,791,310	1,934,615	162,606	526,842	568,990	614,509	663,670	716,763	774,104	836,032	902,915	975,148	1,053,160
Working Capital required per Ha		0	626,959	677,115	56,912	184,395	199,146	215,078	232,284	250,867	270,936	292,611	316,020	341,302	368,606
Change in Working Capital per Ha		0	626,959	50,157	-620,203	127,483	14,752	15,932	17,206	18,583	20,069	21,675	23,409	25,282	27,304
Change in Working Capital per 0.4 Ha		0	250,783	20,063	-248,081	50,993	5,901	6,373	6,882	7,433	8,028	8,670	9,364	10,113	10,922
Change in Working Capital per 0.035 Ha		0	21,944	1,755	-21,707	4,462	516	558	602	650	702	759	819	885	956

2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
1,137,413	1,228,406	1,326,678	1,432,813	1,547,438	1,671,233	1,804,931	1,949,326	2,105,272	2,273,694	2,455,589	0
398,095	429,942	464,337	501,484	541,603	584,931	631,726	682,264	736,845	795,793	859,456	0
29,488	31,848	34,395	37,147	40,119	43,328	46,795	50,538	54,581	58,948	63,663	-859,456
11,795	12,739	13,758	14,859	16,048	17,331	18,718	20,215	21,832	23,579	25,465	-343,782
1,032	1,115	1,204	1,300	1,404	1,516	1,638	1,769	1,910	2,063	2,228	-30,081

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Table 5-1 : Net Cash Flow Table for Check Dam

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17
Receipt															
Revenue from 0.4 ha of land In-Use Value of Land		0	0	2,176,782	2,985,675	2,056,589	2,221,116	2,398,806	2,590,710	2,797,967	3,021,804	3,263,548	3,524,632	3,806,603	4,111,131
Expenditure															
Investment	34,604,000														
Expense for 0.4 ha of land			716,524	773,846	153,202	496,374	536,084	578,971	625,289	675,312	729,337	787,684	850,698	918,754	992,254
Change in Working Capital		0	250,783	20,063	-248,081	50,993	5,901	8,373	6,882	7,433	8,028	8,670	9,364	10,113	10,922
In-Use Value of Land															
NCF per 0.4 ha(nominal)	0 -34,604,000		-967,308	1,382,874	3,080,554	1,509,222	1,679,131	1,813,462	1,958,539	2,115,222	2,284,440	2,467,195	2,664,570	2,877,736	3,107,955
NCF per 0.4 ha(real)	0 -29,687,353		-767,880	1,016,453	2,096,573	951,066	979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757

Net Present Value per 0.4 ha

-6,732,952

2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
4,440,022	4,795,223	5,178,841	5,593,149	6,040,600	6,523,848	7,045,756	7,609,417	8,218,170	8,875,624	9,585,674	0
1,071,835	1,157,366	1,249,955	1,349,951	1,457,947	1,574,583	1,700,550	1,836,594	1,983,521	2,142,203	2,313,579	0
11,795	12,739	13,758	14,859	16,048	17,331	18,718	20,215	21,832	23,579	25,465	-343,782
3,356,391	3,625,119	3,915,128	4,228,338	4,566,606	4,931,934	5,326,489	5,752,608	6,212,816	6,709,842	7,246,629	343,782
979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757	979,757	43,037

CHECKDAM:23

Table 5-2 : Net Cash Flow Table for Small Check Dam

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.15	2.33	2.52	2.72	2.94	3.17
Receipt															
Revenue from 0.035 ha of land		0	0	190,468	261,247	179,952	194,348	209,895	226,687	244,822	264,408	285,560	308,405	333,078	359,724
In-Use Value of Land															
Expenditure															
Investment		4,865,500													
Expense for 0.035 ha of land			62,896	67,712	13,405	43,433	46,907	50,660	54,713	59,090	63,817	68,922	74,436	80,391	86,822
Change in Working Capital		0	21,944	1,755	-21,707	4,462	516	558	602	650	702	759	819	885	956
In-Use Value of Land															
NCF per 0.035 ha (nominal)	0	-4,865,500	-84,839	121,001	269,548	132,057	146,924	158,678	171,372	185,082	199,888	215,880	233,150	251,802	271,946
NCF per 0.035 ha (real)	0	-4,171,382	-67,190	88,940	183,450	83,218	85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729

Net Present Value per 0.035 ha -2,164,623

2008 15	2009 16	2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
3.43	3.70	4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
386,502	419,582	453,149	489,401	528,553	570,837	616,504	665,824	719,090	776,617	838,746	0
93,768	101,269	109,371	118,121	127,570	137,776	148,798	160,702	173,558	187,443	202,438	0
1,032	1,115	1,204	1,300	1,404	1,516	1,638	1,769	1,910	2,063	2,228	-30,081
293,702	317,198	342,574	369,980	399,578	431,544	466,068	503,353	543,621	587,111	634,080	30,081
85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729	85,729	3,766

DEMOPLOT:28

3. Estimated Indremental NPV for Demonstration Plot

Citarik Watershed Development Project
Financial Analysis: 1 for Demonstration Plot

Change from <Without Project> Dry Farming without Terrace
to <With Project> Demonstration Plot with Bench Terrace

Table 1: Parameter Table (per Ha)

Item	Annual Benefits & Costs from Cropping
Economic Indicator	
Domestic Inflation Rate	8.0%
Foreign Inflation Rate	5.0%
Interest Rate(Lending)	
Interest Rate(Saving)	
Exchange Rate per US$ (Base Year 1992)	2,050
Discount Rate	
Total Investment	10.0%
Farmers' View Point	9.0%
Investment Cost	
Terrace and Others(1st year)	520,000
Maintenance Cost(2nd yr)	20.0%
(after 2nd yr)	10.0%
Maintenance of Existing Terrace	0.0%
Working Capital	
With Project	35.0%
Without Project	70.0%
In-Use Value of Land	0

Benefits and Costs from Animal Husbandry

	Unit Price (Rp)	No.of Sheep/Ha (Head)	(Rp)
Sales of Sheep	150,000	3.8	570,000
Purchase of Sheep	70,000	3.8	266,000
Labor Cost	3,000	19	57,000
Grass	20	3,420	68,400

<With Project> Demonstration Plot with Bench Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg)	Increase in* Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	1,300	15.0%	448,500
Red Beans	300	2,565	15.0%	884,925
Maize	300	1,450	15.0%	500,250
Soy Beans	1,000	650	15.0%	747,500
Albizia.tree	25,000	8.00		200,000
Albizia.fire	5,000	16.00		80,000
Jack Fruit	500	0		0
Avocado	500	2,500		1,250,000
(note*) Total Benefits				4,111,175
Increase caused by Agricultural Input =			5.0%	
Increase caused by Soil Conservation =			10.0%	
(Cost)				
[Seeds]				
Upland Paddy	650	40		26,000
Red Beans	1,750	80		140,000
Maize	3,500	15		52,500
Soy Beans	2,000	24		48,000
Albizia.tree	100	100		10,000
Jack Fruit	1,000	0		0
Avocado	1,750	100		175,000
No.of tree types =		2 types		
[Fertilizers]				
Manure	50	10,000		500,000
Chemical	300	600		180,000
Lime	250	0		0
[Pesticide]				
Cairan	20,000	4		80,000
Butiran	3,000	20		60,000
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	90		270,000
Tree	3,000	5		15,000
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment				50,000
Total Expenditure				1,606,500

<Without Project> Dry Farming without Terrace

Item	Base Year Price (Rp)	Base Quantity (Kg)	Increase in** Productivity (Maximum)	Total Value/Year (Rp)
(Benefit)				
Upland Paddy	300	2,210	0.0%	663,000
Maize	300	1,450	0.0%	435,000
Cassava	50	6,350	0.0%	317,500
			0.0%	0
Albizia.tree	25,000	0.00		0
Albizia.fire	5,000	0.00		0
Jack Fruit	500	0		0
				0
(note**)				1,415,500
Increase caused by Agricultural Input =			0.0%	
Increase caused by Soil Conservation =			0.0%	
(Cost)				
[Seeds]				
Upland Paddy	650	40	26,000	
Maize	3,500	20	70,000	
Cassava	3	3,500	10,500	
0				
Albizia.tree	100	0	0	
Jack Fruit	250	0	0	
No.of tree types =		0 types		
[Fertilizers]				
Manure	50	5,000	250,000	
Chemical	300	500	150,000	
Lime	250	0	0	
[Pesticide]				
Cairan	20,000	2	40,000	
Butiran	3,000	10	30,000	
[Labor]				
Labor Cost				
Crop and Vegetable	3,000	200	600,000	
Tree	3,000	0	0	
Maintenance and Harvesting		40.0% of costs		
[Others]				
Agricultural Equipment			50,000	
				1,226,500

DEMOPLOT:28

Table 3-1: Revenue and Expense(1/2) <With Project> Demonstration Plot with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Revenue																	
1)Gross Value of Production																	
(1) Upland Paddy	238,820	515,852	557,120	604,555	656,014	718,521	794,049	896,554	968,278	1,045,740	1,129,399	1,219,751	1,317,331	1,422,718	1,536,535	1,659,458	
Price	350	378	408	441	476	514	555	600	648	699	755	816	881	952	1,028	1,110	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	683	1,365	1,365	1,372	1,378	1,398	1,430	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	
(2) Red Beans	471,211	1,017,816	1,099,241	1,192,834	1,294,366	1,417,697	1,566,720	1,768,969	1,910,487	2,063,326	2,228,392	2,406,663	2,599,196	2,807,132	3,031,702	3,274,238	
Price	350	378	408	441	476	514	555	600	648	699	755	816	881	952	1,028	1,110	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	1,347	2,693	2,693	2,706	2,719	2,757	2,822	2,950	2,950	2,950	2,950	2,950	2,950	2,950	2,950	2,950	
(3) Maize	266,377	575,373	621,403	674,311	731,708	801,427	885,670	1,000,002	1,080,002	1,166,402	1,259,715	1,360,492	1,469,331	1,586,878	1,713,828	1,850,934	
Price	350	378	408	441	476	514	555	600	648	699	755	816	881	952	1,028	1,110	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	761	1,523	1,523	1,530	1,537	1,559	1,595	1,668	1,668	1,668	1,668	1,668	1,668	1,668	1,668	1,668	
(4) Soy Beans	398,034	859,753	928,534	1,007,592	1,093,356	1,197,535	1,323,415	1,494,256	1,613,796	1,742,900	1,882,332	2,032,918	2,195,552	2,371,196	2,560,892	2,765,760	
Price	1,166	1,260	1,360	1,469	1,587	1,714	1,851	1,999	2,159	2,332	2,518	2,720	2,937	3,172	3,426	3,700	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	341	683	683	686	689	699	715	748	748	748	748	748	748	748	748	748	
(5) Albizia.tree	0	0	0	0	1,586,874	0	0	0	0	2,331,639	0	0	0	0	3,425,843	0	
Price	29,160	31,493	34,012	36,733	39,672	42,846	46,273	49,975	53,973	58,291	62,954	67,991	73,430	79,304	85,649	92,500	
Change in Price																	
Quantity	0	0	0	0	40	0	0	0	0	40	0	0	0	0	40	0	
(6) Albizia.fire	0	0	0	0	634,750	0	0	0	0	932,656	0	0	0	0	1,370,377	0	
Price	5,832	6,299	6,802	7,347	7,934	8,569	9,255	9,995	10,795	11,658	12,591	13,598	14,686	15,861	17,130	18,500	
Change in Price																	
Quantity	0	0	0	0	80	0	0	0	0	80	0	0	0	0	80	0	
(7) Jack Fruit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	1,360	1,469	1,586	1,713	1,850	
Change in Price																	
Quantity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
(8) Avocado	0	0	0	0	0	856,912	1,388,198	1,999,005	2,698,656	2,914,549	3,147,713	3,399,530	3,671,492	3,965,211	4,282,428	4,625,023	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	1,360	1,469	1,586	1,713	1,850	
Change in Price																	
Quantity	0	0	0	0	0	1,000	1,500	2,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	
Total Revenue	1,374,442	2,968,795	3,206,298	3,479,292	5,987,068	4,992,092	5,958,052	7,158,785	8,271,219	12,187,212	9,647,550	10,419,354	11,252,903	12,153,135	17,921,706	14,175,417	

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
1,792,215	1,935,592	2,090,439	2,257,674	2,438,288	2,633,351	2,844,020	3,071,541	3,317,264	
1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	
1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	1,495	
3,536,178	3,819,072	4,124,598	4,454,565	4,810,931	5,195,805	5,611,469	6,060,387	6,545,218	
1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	
2,950	2,950	2,950	2,950	2,950	2,950	2,950	2,950	2,950	
1,998,009	2,158,329	2,331,644	2,518,175	2,719,629	2,937,200	3,172,176	3,425,950	3,700,026	
1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	
1,668	1,668	1,668	1,668	1,668	1,668	1,668	1,668	1,668	
2,987,025	3,225,987	3,484,065	3,762,791	4,062,814	4,388,919	4,740,033	5,119,235	5,528,774	
3,996	4,316	4,661	5,034	5,437	5,871	6,341	6,848	7,396	
0	0	0	0	0	0	0	0	0	
748	748	748	748	748	748	748	748	748	
0	0	0	5,033,834	0	0	0	0	7,396,353	
99,900	107,893	116,524	125,846	135,914	146,787	158,530	171,212	184,909	
0	0	0	40	0	0	0	0	40	
0	0	0	2,013,533	0	0	0	0	2,958,541	
19,980	21,579	23,305	25,169	27,183	29,357	31,706	34,242	36,982	
0	0	0	80	0	0	0	0	80	
0	0	0	0	0	0	0	0	0	
1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698	
0	0	0	0	0	0	0	0	0	
4,995,024	4,315,701	4,660,957	5,033,834	5,436,540	5,871,464	6,341,181	6,848,475	7,396,353	
1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698	
2,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
15,309,450	15,455,281	16,691,703	25,074,407	19,469,203	21,026,739	22,708,878	24,525,588	36,842,530	

DEMOPLOT:28

Table 3-2: Revenue and Expense(2/2) <With Project> Demonstration Plot with Bench Terrace

Year			1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Expense																			
1)Seeds		Sub-total	371,207	335,713	362,570	391,576	422,902	473,872	493,273	532,735	575,354	621,382	696,274	724,780	782,762	845,382	913,014	1,023,055
	Upland Paddy		15,163	32,753	35,373	38,203	41,259	44,559	48,124	51,974	56,132	60,623	65,472	70,710	76,367	82,476	89,075	96,200
	change in price																		
	Red Beans		81,648	176,360	190,468	205,706	222,162	239,935	259,130	279,861	302,249	326,429	352,544	380,747	411,207	444,104	479,632	518,003
	change in price																		
	Waite		30,618	66,135	71,426	77,140	83,311	89,976	97,174	104,948	113,344	122,411	132,204	142,780	154,203	166,539	179,862	194,251
	change in price																		
	Soy Beans		27,994	60,466	65,303	70,528	76,170	82,264	88,845	95,952	103,628	111,919	120,872	130,542	140,985	152,264	164,445	177,601	
	change in price																		
	Albizia tree		11,664	0	0	0	0	17,138	0	0	0	0	25,182	0	0	0	0	37,000	
	change in price																		
	Jack Fruit																		
	change in price																		
	Avocado		204,120																
	change in price																		
2)Fertilizers		Sub-total	396,576	856,604	925,132	998,143	1,079,075	1,165,401	1,258,633	1,359,323	1,468,069	1,585,515	1,712,356	1,849,344	1,997,292	2,157,075	2,329,641	2,516,012	
	Manure		291,600	629,856	680,244	734,664	793,437	856,912	925,465	999,502	1,079,462	1,165,819	1,259,085	1,359,812	1,468,597	1,586,085	1,712,971	1,850,009	
	Chemical		104,976	226,748	244,888	264,479	285,637	308,488	333,167	359,821	388,606	419,695	453,271	489,532	528,695	570,990	616,670	666,003	
	Lime		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3)Pesticide		Sub-total	81,648	176,360	190,468	205,706	222,162	239,935	259,130	279,861	302,249	326,429	352,544	380,747	411,207	444,104	479,632	518,003	
	Cairan		45,656	100,777	108,839	117,546	126,950	137,106	148,074	159,920	172,714	186,531	201,454	217,570	234,975	253,774	274,075	296,001	
	Butiran		34,992	75,583	81,629	88,160	95,212	102,829	111,056	119,940	129,535	139,898	151,090	163,177	176,232	190,330	205,557	222,001	
4)Labor Cost		Sub-total	174,960	340,122	368,965	399,363	460,035	530,771	566,375	662,470	746,988	847,551	880,173	940,990	1,016,269	1,097,571	1,245,330	1,307,956	
	Crop & Vegetable		157,464	340,122	367,332	396,719	428,456	462,733	499,751	539,731	582,910	629,543	679,906	734,298	793,042	856,486	925,005	999,005	
	Tree		17,496	0	1,633	2,645	31,579	68,039	86,624	122,739	164,078	218,008	210,267	206,691	223,227	241,085	320,326	308,952	
5)Others			58,320	62,986	68,024	73,466	79,344	85,691	92,547	99,950	107,946	116,582	125,909	135,981	146,860	158,608	171,297	185,001	
Total Expense			1,082,711	1,771,785	1,915,160	2,069,255	2,263,518	2,495,671	2,689,957	2,934,339	3,200,606	3,497,458	3,777,255	4,031,842	4,354,390	4,702,741	5,138,914	5,550,027	
Net Income			291,731	1,197,010	1,291,138	1,410,037	3,733,550	2,498,421	3,268,095	4,224,447	5,070,613	8,699,753	5,870,295	6,387,512	6,898,513	7,450,394	12,782,792	8,625,390	

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
1,064,939	1,150,134	1,242,145	1,341,517	1,503,203	1,564,745	1,689,925	1,825,119	1,971,128	
103,897	112,208	121,185	130,880	141,350	152,658	164,871	178,060	192,305	
559,443	604,198	652,534	704,737	761,116	822,005	887,765	958,787	1,035,489	
209,791	226,574	244,700	264,276	285,418	308,252	332,912	359,545	388,309	
191,809	207,154	223,726	241,624	260,954	281,830	304,377	328,727	355,025	
0	0	0	0	54,365	0	0	0	0	
2,717,293	2,934,677	3,169,451	3,423,007	3,696,847	3,992,595	4,312,003	4,656,963	5,029,520	
1,998,010	2,157,851	2,330,479	2,516,917	2,718,270	2,935,732	3,170,590	3,424,238	3,698,177	
719,284	776,825	838,972	906,090	978,577	1,056,863	1,141,413	1,232,726	1,331,344	
0	0	0	0	0	0	0	0	0	
559,443	604,198	652,534	704,737	761,116	822,005	887,765	958,787	1,035,489	
315,682	345,256	372,877	402,707	434,923	469,717	507,294	547,878	591,708	
239,761	258,942	279,657	302,030	326,192	352,288	380,471	410,909	443,781	
1,382,623	1,430,223	1,544,641	1,758,305	1,842,444	1,945,803	2,101,467	2,269,585	2,580,588	
1,078,925	1,165,239	1,258,458	1,359,135	1,467,866	1,585,295	1,712,119	1,849,088	1,997,015	
303,697	264,984	286,183	397,169	374,578	360,508	389,348	420,496	583,572	
199,801	215,785	233,048	251,692	271,827	293,573	317,059	342,424	369,818	
5,924,099	6,335,018	6,841,819	7,477,257	8,075,437	8,618,721	9,308,219	10,052,877	10,986,543	0
9,385,351	9,120,263	9,849,884	17,597,150	11,393,785	12,408,017	13,400,659	14,472,711	25,655,987	0

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Table 4: Investment and Maintenance Schedule <With Project> Demonstration Plot with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Terrace and Others(1st year)Investment	606,528																
Terrace Maintenance		131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945	141,420	152,734	164,953	178,149	192,401	
Total Annual Investment	606,528	131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945	141,420	152,734	164,953	178,149	192,401	

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	0
207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	0

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Table 5: Working Capital <With Project> Demonstration Plot with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Operational Expenses excluding Labor Cost	0	849,431	1,368,677	1,478,171	1,596,425	1,724,139	1,879,208	2,011,038	2,171,919	2,345,672	2,533,326	2,761,174	2,954,871	3,191,261	3,446,562	3,722,287	4,057,070
Working Capital required	0	297,301	479,037	517,360	558,749	603,449	657,723	703,862	760,171	820,985	886,664	966,411	1,034,205	1,116,941	1,206,297	1,302,800	1,419,974
Change in Working Capital	0	297,301	181,736	38,323	41,388	44,700	54,274	46,140	56,309	60,814	65,679	79,747	67,794	82,736	89,355	96,504	117,174

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
4,341,675	4,689,009	5,064,130	5,469,260	5,961,167	6,379,345	6,889,693	7,440,868	8,036,138	0
1,519,586	1,641,153	1,772,445	1,914,241	2,086,408	2,232,771	2,411,393	2,604,304	2,812,648	0
99,612	121,567	131,292	141,796	172,167	146,363	178,622	192,911	208,344	-2,812,648

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Table 6: Financial Cash Flow Statement per Ha <With Project> Demonstration Plot with Bench Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Receipt																	
Gross Value of Agricultural Production		1,374,442	2,958,795	3,206,298	3,479,292	5,997,068	4,992,092	5,958,052	7,158,785	8,271,219	12,197,212	9,647,550	10,419,354	11,252,903	12,153,135	17,921,705	14,175,417
In-Use Value																	
Expenditure																	
Investment		806,528															
Maintenance		0	131,010	70,745	76,405	82,517	89,119	96,248	103,948	112,264	121,245	130,945	141,420	152,734	164,953	178,149	192,401
Operating Expense	0	1,082,711	1,771,785	1,915,150	2,069,255	2,253,518	2,495,871	2,689,957	2,934,339	3,200,606	3,497,458	3,777,255	4,031,842	4,354,390	4,702,741	5,138,914	5,550,027
Change in Working Capital	0	297,301	181,736	38,323	41,389	44,700	54,274	46,140	96,309	60,814	65,879	79,747	67,794	82,736	89,355	96,594	117,174
In-Use Value of Land	0																
NCF-With Case(Nominal)	0	-612,098	884,264	1,182,070	1,292,243	3,606,333	2,353,028	3,125,707	4,064,189	4,897,535	8,512,829	5,659,604	6,178,298	6,663,043	7,196,086	12,508,139	8,315,815
NCF-With Case(Real)	0	-524,775	701,957	868,856	879,479	2,272,601	1,372,969	1,688,722	2,033,106	2,268,506	3,651,006	2,247,506	2,271,747	2,268,506	2,268,506	3,651,006	2,247,306
Net Present Value	13,465,602																

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
15,309,450	15,455,281	16,691,703	25,074,407	19,469,203	21,026,739	22,708,878	24,525,588	36,842,530	0
									0
207,793	224,416	242,370	261,759	282,700	305,316	329,741	356,121	384,610	0
5,924,099	6,335,018	6,841,819	7,477,257	8,075,437	8,618,721	9,308,219	10,052,877	10,986,543	0
99,612	121,567	131,292	141,796	172,167	146,363	178,622	192,911	208,344	-2,812,648
9,077,946	8,774,280	9,476,222	17,193,595	10,938,898	11,956,339	12,892,296	13,923,679	25,253,032	2,812,648
2,271,747	2,033,106	2,033,106	3,415,606	2,012,106	2,036,347	2,033,106	2,033,106	3,415,606	352,106

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Table 7-1: Revenue and Expense(1/2) <Without Project> Dry Farming without Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Revenue																	
1)Gross Value of Agricultural Production																	
(1) Upland Paddy	386,662	835,189	902,004	974,165	1,052,098	1,136,265	1,227,167	1,325,340	1,431,367	1,545,877	1,669,547	1,803,111	1,947,359	2,103,148	2,271,400	2,453,112	
Price	350	378	408	441	476	514	555	600	648	699	755	816	881	952	1,028	1,110	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	1,105	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	
(2) Maize	253,692	547,975	591,813	639,158	690,290	745,514	805,155	869,567	939,132	1,014,263	1,095,404	1,183,036	1,277,679	1,379,894	1,490,285	1,609,508	
Price	350	378	408	441	476	514	555	600	648	699	755	816	881	952	1,028	1,110	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	725	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	
(3) Cassava	185,166	399,959	431,955	466,512	503,833	544,139	587,670	634,684	685,459	740,295	799,519	863,481	932,559	1,007,164	1,087,737	1,174,756	
Price	58	63	68	73	79	86	93	100	108	117	126	136	147	159	171	185	
Change in Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quantity	3,175	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	
(4) 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Change in Price																	
Quantity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
(5) Albizia,tree	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Price	29,160	31,493	34,012	36,733	39,672	42,846	46,273	49,975	53,973	58,291	62,954	67,991	73,430	79,304	85,649	92,500	
Change in Price																	
Quantity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
(6) Albizia,fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Price	5,832	6,299	6,802	7,347	7,934	8,569	9,255	9,995	10,795	11,658	12,591	13,598	14,686	15,861	17,130	18,500	
Change in Price																	
Quantity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
(7) Jack Fruit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Price	583	630	680	735	793	857	925	1,000	1,079	1,166	1,259	1,360	1,469	1,586	1,713	1,850	
Change in Price																	
Quantity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Revenue	825,520	1,783,122	1,925,772	2,079,834	2,246,221	2,425,918	2,619,992	2,829,591	3,055,958	3,300,435	3,564,470	3,849,627	4,157,598	4,490,205	4,849,422	5,237,376	

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
2,649,361	2,861,310	3,090,215	3,337,432	3,604,426	3,892,780	4,204,203	4,540,539	4,903,782	
1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	
2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	
1,738,268	1,877,330	2,027,516	2,189,718	2,364,895	2,554,087	2,758,414	2,979,087	3,217,414	
1,199	1,295	1,398	1,510	1,631	1,761	1,902	2,055	2,219	
0	0	0	0	0	0	0	0	0	
1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	
1,268,735	1,370,235	1,479,854	1,598,242	1,726,102	1,864,190	2,013,325	2,174,391	2,348,342	
200	216	233	252	272	294	317	342	370	
0	0	0	0	0	0	0	0	0	
6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	6,350	
0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0
99,900	107,893	116,524	125,846	135,914	146,787	158,538	171,212	184,909	199,702
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
19,980	21,579	23,305	25,169	27,183	29,357	31,706	34,242	36,982	39,940
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	
1,998	2,158	2,330	2,517	2,718	2,936	3,171	3,424	3,698	
0	0	0	0	0	0	0	0	0	
5,656,366	6,108,875	6,597,585	7,125,392	7,695,423	8,311,057	8,975,941	9,694,017	10,469,538	0

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Table 7-2: Revenue and Expense(2/2) <Without Project> Dry Farming without Terrace

Year		1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Expenses																		
1)Seeds	Sub-total		92,111	134,159	144,892	156,483	169,002	182,522	197,124	212,894	229,926	248,320	268,185	289,640	312,811	337,836	364,863	394,052
Upland Paddy			15,163	32,753	35,373	38,203	41,259	44,559	48,124	51,974	56,132	60,623	65,472	70,710	76,367	82,476	89,075	96,200
change in price																		
Maize			40,824	88,180	95,234	102,853	111,081	119,968	129,565	139,930	151,125	163,215	176,272	190,374	205,604	222,052	239,816	259,001
change in price																		
Cassava			6,124	13,227	14,285	15,428	16,662	17,995	19,435	20,990	22,669	24,482	26,441	28,556	30,841	33,308	35,972	38,850
change in price																		
0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
change in price																		
Albizia tree			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
change in price																		
Jack Fruit			0															
change in price																		
0			0															
change in price																		
2)Fertilizers	Sub-total		273,280	503,885	544,196	587,731	634,750	685,530	740,372	799,602	863,570	932,656	1,007,268	1,087,849	1,174,877	1,268,868	1,370,377	1,480,007
Manure			145,800	314,928	340,122	367,332	396,719	428,456	462,733	499,751	539,731	582,910	629,543	679,906	734,298	793,042	856,486	925,005
Chemical			87,480	188,957	204,073	220,399	238,031	257,074	277,640	299,851	323,839	349,746	377,726	407,944	440,579	475,825	513,891	555,003
Lime			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3)Pesticide	Sub-total		40,824	88,180	95,234	102,853	111,081	119,968	129,565	139,930	151,125	163,215	176,272	190,374	205,604	222,052	239,816	259,001
Cairan			23,328	50,388	54,420	58,773	63,475	68,553	74,037	79,960	86,357	93,266	100,727	108,785	117,488	126,887	137,038	148,001
Butiran			17,496	37,791	40,815	44,080	47,606	51,415	55,528	59,970	64,768	69,949	75,545	81,589	88,116	95,165	102,778	111,001
4)Labor Cost	Sub-total		349,920	755,827	816,293	881,597	952,125	1,028,295	1,110,558	1,199,403	1,295,355	1,398,983	1,510,902	1,631,774	1,762,316	1,903,301	2,055,566	2,220,011
Crop and Vegetable			349,920	755,827	816,293	881,597	952,125	1,028,295	1,110,558	1,199,403	1,295,355	1,398,983	1,510,902	1,631,774	1,762,316	1,903,301	2,055,566	2,220,011
Tree			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5)Others			58,320	62,986	68,024	73,466	79,344	85,691	92,547	99,950	107,946	116,582	125,909	135,981	146,860	158,608	171,297	185,001
Total Expense			744,455	1,545,037	1,668,640	1,802,131	1,946,301	2,102,005	2,270,166	2,451,779	2,647,922	2,859,755	3,088,536	3,335,619	3,602,468	3,890,655	4,201,919	4,538,072
Net Income			81,065	238,086	257,132	277,703	299,919	323,913	349,826	377,812	408,037	440,680	475,934	514,009	555,130	599,540	647,503	699,303

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
425,576	459,622	496,392	536,103	578,992	625,311	675,336	729,363	787,712	
103,897	112,208	121,185	130,880	141,350	152,658	164,871	178,060	192,305	
279,721	302,099	326,267	352,368	380,558	411,002	443,883	479,393	517,745	
41,958	45,315	48,940	52,855	57,084	61,650	66,582	71,909	77,662	
0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	
1,598,408	1,725,280	1,864,383	2,013,533	2,174,616	2,348,585	2,536,472	2,739,390	2,958,541	
999,005	1,078,925	1,165,239	1,258,458	1,359,135	1,467,866	1,585,295	1,712,119	1,849,088	
599,403	647,355	699,144	755,075	815,481	880,720	951,177	1,027,271	1,109,453	
0	0	0	0	0	0	0	0	0	
279,721	302,099	326,267	352,368	380,558	411,002	443,883	479,393	517,745	
159,841	172,628	186,438	201,353	217,462	234,859	253,647	273,939	295,854	
119,881	129,471	139,829	151,015	163,096	176,144	190,235	205,454	221,891	
2,397,612	2,589,421	2,795,574	3,020,300	3,261,924	3,522,878	3,804,708	4,109,085	4,437,812	
2,397,612	2,589,421	2,795,574	3,020,300	3,261,924	3,522,878	3,804,708	4,109,085	4,437,812	
0	0	0	0	0	0	0	0	0	
199,801	215,785	233,048	251,692	271,827	293,573	317,059	342,424	369,818	
4,901,118	5,293,207	5,716,664	6,173,997	6,667,917	7,201,350	7,777,458	8,399,655	9,071,627	0
755,248	815,668	880,921	951,395	1,027,506	1,109,707	1,198,483	1,294,362	1,397,911	0

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Table 8: Working Capital <Without Project> Dry Farming without Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Operational Expenses excluding Labor & Others	0	336,215	726,224	784,322	847,068	914,833	988,020	1,067,061	1,152,426	1,244,620	1,344,190	1,451,725	1,567,863	1,693,292	1,828,755	1,975,056	2,133,060
Working Capital required	0	235,350	508,357	549,025	592,947	640,383	691,614	746,943	806,698	871,234	940,933	1,016,208	1,097,504	1,185,304	1,280,129	1,382,539	1,493,142
Change in Working Capital	0	235,350	273,006	40,669	43,922	47,436	51,231	55,329	59,755	64,536	69,699	75,275	81,297	87,800	94,824	102,410	110,603

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
2,303,705	2,488,002	2,687,042	2,902,005	3,134,166	3,384,899	3,655,691	3,948,146	4,263,998	0
1,812,594	1,741,601	1,880,929	2,031,404	2,193,916	2,369,429	2,558,983	2,763,702	2,984,798	0
119,451	129,007	139,328	150,474	162,512	175,513	189,554	204,719	221,096	-2,984,798

Table 9 : Financial Cash Flow Statement per Ha <Without Project> Dry Farming without Terrace

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Receipt																	
Gross Value of Agricultural	0	825,520	1,783,122	1,925,772	2,079,834	2,246,221	2,425,918	2,619,992	2,829,591	3,055,958	3,300,435	3,564,470	3,849,627	4,157,598	4,490,205	4,849,422	5,237,376
In-Use Value of Land																	
Expenditure																	
Maintenance Expenses		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Expenses		744,455	1,545,037	1,668,640	1,802,131	1,946,301	2,102,005	2,270,166	2,451,779	2,647,922	2,859,755	3,088,536	3,335,619	3,602,468	3,890,665	4,201,919	4,538,072
Change in Working Capital		235,350	273,006	40,669	43,922	47,436	51,231	55,329	59,755	64,536	69,699	75,275	81,297	87,800	94,824	102,410	110,603
In-Use Value of Land	0																
NCF-Without Case(Nominal)	0	-154,286	-34,921	216,464	233,781	252,483	272,682	294,497	318,056	343,501	370,981	400,660	432,712	467,329	504,716	545,093	588,700
NCF-Without Case(Real)	0	-132,275	-27,721	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107

Net Present Value 960,254

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
5,656,366	6,108,875	6,597,585	7,125,392	7,695,423	8,311,057	8,975,941	9,694,017	10,469,538	0
									0
0	0	0	0	0	0	0	0		
4,901,118	5,293,207	5,716,664	6,173,997	6,667,917	7,201,350	7,777,458	8,399,655	9,071,827	0
119,451	129,007	139,328	150,474	162,512	175,513	189,554	204,719	221,096	-2,984,798
635,796	586,860	741,593	800,920	864,994	934,193	1,008,929	1,089,643	1,176,815	2,984,798
159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	159,107	373,657

DEMOPLOT:28

Table 10: Incremental Cash Flow Table

10-1 : Incremental Cash Flow from Demonstration Plot plus Net Cash Flow from Animal Husbandry

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Net Cash Flow(With Case)	0	-612,098	884,264	1,182,070	1,292,243	3,606,333	2,353,028	3,125,707	4,064,189	4,897,535	8,512,829	5,659,604	6,178,298	5,663,043	7,196,086	12,508,139	8,315,815
+ NCF from Animal Husbandry(from 10-2)	-456,529	224,985	242,983	262,422	283,416	306,089	330,576	357,022	385,584	416,431	449,745	485,725	524,583	566,549	611,873	660,823	713,689
Net Cash Flow(Without Case)	0	-154,286	-34,921	216,464	233,781	252,483	272,682	294,497	318,056	343,501	370,981	400,660	432,712	467,325	504,716	545,093	588,700
Incremental Cash Flow(Nominal)	0	-914,341	1,144,169	1,208,589	1,320,884	3,637,265	2,386,434	3,161,786	4,103,155	4,938,618	8,558,279	5,708,689	6,231,310	6,720,296	7,257,320	12,574,919	8,387,928
Incremental Cash Flow(Real)	0	-783,900	908,278	888,349	898,972	2,292,094	1,392,462	1,708,215	2,052,599	2,287,999	3,670,499	2,266,999	2,291,240	2,287,999	2,287,999	3,670,499	2,266,999

Incremental Net Present Value 13,530,374

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
9,077,946	8,774,280	9,476,222	17,193,595	10,938,898	11,956,339	12,892,295	13,923,679	25,263,032	2,812,648
713,689	770,784	832,447	899,043	970,966	1,048,643	1,132,535	1,223,138	3,288,419	0
635,796	686,660	741,593	800,920	864,994	934,193	1,008,929	1,089,643	1,176,815	2,984,798
9,155,839	8,858,404	9,567,076	17,291,718	11,044,870	12,070,789	13,015,902	14,057,174	27,374,636	-172,150
2,291,240	2,052,599	2,052,599	3,435,099	2,031,599	2,055,840	2,052,599	2,052,599	3,701,099	-21,551

10-2 : [Benefits from Animal Husbandry (per Ha)]

Year	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13	2007 14	2008 15	2009 16
Inflation Index	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43	3.70
Receipt																	
Sales of Sheep			718,036	775,479	837,517	904,518	976,880	1,055,030	1,139,433	1,230,587	1,329,034	1,435,357	1,550,185	1,674,200	1,808,136	1,952,787	2,109,010
Expenditure																	
Purchase of Sheep		310,262	335,083	361,890	390,841	422,109	455,877	492,347	531,735	574,274	620,216	669,833	723,420	781,294	843,797	911,301	984,205
Labor Cost		66,485	71,804	77,548	83,752	90,452	97,688	105,503	113,943	123,059	132,903	143,536	155,019	167,420	180,814	195,279	210,901
Grass		79,782	86,164	93,057	100,502	108,542	117,226	126,604	136,732	147,670	159,484	172,243	186,022	200,904	216,976	234,334	253,081
NCF fr.Animal Husbandary(Nominal)		-456,529	224,985	242,983	262,422	283,416	306,089	330,576	357,022	385,584	416,431	449,745	485,725	524,583	566,549	611,873	660,823
NCF fr.Animal Husbandary(Real)		-391,400	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600

Net Present Value 1,025,026

2010 17	2011 18	2012 19	2013 20	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
4.00	4.32	4.66	5.03	5.44	5.87	6.34	6.85	7.40	7.99
2,277,731	2,459,950	2,656,746	2,869,285	3,098,828	3,346,734	3,614,473	3,903,631	4,215,921	
1,062,941	1,147,976	1,239,815	1,339,000	1,446,120	1,561,809	1,686,754	1,821,694		
227,773	245,995	265,675	286,929	309,883	334,673	361,447	390,363	421,592	
273,328	295,194	318,809	344,314	371,859	401,608	433,737	468,436	505,911	
713,689	770,784	832,447	899,043	970,966	1,048,643	1,132,535	1,223,138	3,288,419	0
178,600	178,600	178,600	178,600	178,600	178,600	178,600	178,600	444,600	0

I_DATA(FINANCIA:1)

4. Incremental Net Cash Flow and Incremental Net Present Value in Total Investment Analysis

Financial Analysis
Incremental Net Cash Flow combined with each project component

	Net Present Value	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,767,761,526	0	-181,304,792	-472,679,214	-772,783,853	-860,019,741	-444,073,839	11,551,317
Forest 2	-21,708,459	0	-521,400	-2,052,900	-4,038,026	-4,163,141	-1,918,604	-606,544
Forest 3	-63,039,589	0	-3,093,000	-9,901,778	-18,231,685	-17,472,833	-5,312,333	2,398,630
Introduction of Agroforestry								
Agroforestry 1	15,197,596,765	0	-231,536,025	-576,184,399	-828,484,174	-888,966,201	-548,657,798	431,543,204
Agroforestry 2	-8,472,064	0	-7,715,633	-17,968,679	-29,092,473	-38,612,533	-40,685,054	-28,064,976
Improvement of Dry Farming								
Dry Farming 1	16,972,269,898	0	-1,546,667	218,439,785	703,580,465	1,323,439,950	1,993,959,515	2,549,560,268
Dry Farming 2	4,333,907,509	0	39,221,125	152,239,518	314,540,242	489,109,305	641,629,960	698,304,936
Conservation of Settlement Env	-507,252,973							
Absorbing Well	-437,467,088		-65,120,000	-130,240,000	-162,800,000	-162,800,000	-130,240,000	
Trees (Jack Fruit)	-35,212,339		-5,241,600	-10,483,200	-13,104,000	-13,104,000	-10,483,200	
Trees (Gliricidia)	-34,583,547		-5,148,000	-10,296,000	-12,870,000	-12,870,000	-10,296,000	
Torrent Conservation Plan								
Check Dam	-946,055,469	0	-207,671,468	-242,713,980	-325,368,745	-311,979,918	-300,176,525	-286,077,440
Small Check Dam	-302,157,196	0	-62,570,730	-80,264,101	-87,541,528	-84,568,396	-82,408,442	-80,422,738
Gully Plug	-506,245,057		-104,000,000	-145,600,000	-166,400,000	-166,400,000	-166,400,000	
Revetment Work	-505,183,124		-75,200,000	-150,400,000	-188,000,060	-188,000,000	-150,400,000	
Riverside Line Planting	-137,504,935		-22,200,000	-39,960,000	-51,060,000	-51,060,000	-39,960,000	
Riverside Revegetation	-151,420,580		-22,540,000	-45,080,000	-56,350,000	-56,350,000	-45,080,000	
Extension Plan								
Demonstration Plot	3,631,801,689	0	-78,390,000	12,437,824	101,272,731	269,559,889	407,941,472	458,352,722
Training Center	-730,297,521		-883,660,000					
Education and Training	-1,829,359,457		-403,996,750	-407,290,338	-410,748,604	-414,379,785	-418,192,524	-422,195,900
Extension/Guidance	-550,638,017		-666,272,000					
Infrastructure Plan								
Access Road	-2,828,596,418							
New Road Construction	-1,498,865,035		-388,944,480	-395,238,080	-423,559,280	-392,091,280	-392,091,280	-129,018,800
Improvement of Road								
Gravel-Gravel	-1,129,674,535		-327,805,826	-327,805,826	-327,805,826	-327,805,826	-327,805,826	0
Gravel-Asphalt	-29,342,843		-8,514,625	-8,514,625	-8,514,625	-8,514,625	-8,514,625	0
Slope Protection								
Regreening of Slope	-35,151,749		-10,200,237	-10,200,237	-10,200,237	-10,200,237	-10,200,237	0
Drain	-108,780,521		-31,565,630	-31,565,630	-31,565,630	-31,565,630	-31,565,630	0
Drop Structure	-14,239,746		-4,132,050	-4,132,050	-4,132,050	-4,132,050	-4,132,050	0
Roadside Planting	-12,541,990		-3,639,400	-3,639,400	-3,639,400	-3,639,400	-3,639,400	0
Nursery	-17,682,511		-17,592,000	-1,200,000	-1,200,000	-1,200,000	-1,200,000	0
Environmental Assessment	-745,281,014		-775,800,501	-28,210,300	-28,210,300	-30,586,300	-28,210,300	-28,210,300
Management Plan	-5,779,589,089							
1) Personnel at Project Office	-455,311,805		-110,590,278	-103,518,326	-104,531,705	-101,628,047	-98,805,046	-96,060,461
2) Consultant								
a. Foreign Consultant	-3,139,710,936		-1,062,185,941	-931,070,079	-583,805,287	-563,433,607	-544,032,006	-525,554,292
b. Local Consultant	-1,727,408,203		-494,000,000	-416,000,000	-416,000,000	-364,000,000	-338,000,000	-312,000,000
3) Office Construction	-409,289,256		-495,240,000	0	0	0	0	0
4) Office Running Cost	-47,868,890		-19,329,856	-9,820,290	-9,808,438	-9,796,916	-9,785,713	-9,774,822
			-6,738,047,764	-4,232,912,303	-3,960,452,428	-3,037,231,320	-1,148,725,526	2,233,724,804

I_DATA(FINANCIA:1)

Financial Analysis

	Net Present Value	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,767,761,526	39,386,087	-136,488,996	-502,588,786	-640,936,240	51,449,129	39,386,087	-136,488,996
Forest 2	-21,708,459	-1,397,104	-2,823,007	-6,015,252	-4,538,881	-169,044	-1,397,104	-2,823,007
Forest 3	-63,039,589	2,213,611	-5,123,778	-18,479,278	-15,972,889	4,343,074	2,213,611	-5,123,778
Introduction of Agroforestry								
Agroforestry 1	15,197,596,765	1,336,868,429	2,223,184,785	3,121,815,113	3,881,795,925	4,583,881,672	4,987,799,017	5,121,592,972
Agroforestry 2	-8,472,064	-19,894,921	-8,271,752	5,102,753	17,694,473	31,182,748	39,440,279	42,273,048
Improvement of Dry Farming								
Dry Farming 1	16,972,269,898	2,601,130,300	2,710,837,724	2,860,182,612	3,018,283,895	3,150,419,601	3,225,945,956	3,225,945,956
Dry Farming 2	4,333,907,509	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867
Conservation of Settlement Env	-507,262,973							
Absorbing Well	-437,467,088							
Trees (Jack Fruit)	-35,212,339							
Trees (Gliricidia)	-34,583,547							
Torrent Conservation Plan								
Check Dam	-946,055,469	-275,385,187	61,732,019	80,956,026	80,552,367	68,267,388	68,582,993	68,582,993
Small Check Dam	-302,157,196	-78,627,455	10,771,871	13,983,154	13,915,725	11,863,575	11,916,295	11,916,295
Gully Plug	-506,245,057							
Revetment Work	-505,183,124							
Riverside Line Planting	-137,504,935							
Riverside Revegetation	-151,420,580							
Extension Plan								
Demonstration Plot	3,631,861,689	539,277,045	515,327,546	604,881,296	801,109,722	822,543,722	822,873,396	684,623,736
Training Center	-730,297,521							
Education and Training	-1,829,359,457	-426,399,445						
Extension/Guidance	-550,638,017							
Inftastructure Plan								
Access Road	-2,828,596,418							
New Road Construction	-1,498,865,035	-129,018,800						
Improvement of Road								
Gravel-Gravel	-1,129,674,535	0						
Gravel-Asphalt	-29,342,843	0						
Slope Protection								
Regreening of Slope	-35,151,749	0						
Drain	-108,780,521	0						
Drop Structure	-14,239,746	0						
Roadside Planting	-12,541,990	0						
Nursery	-17,682,511	0						
Environmental Assessment	-745,281,014	-30,586,300						
Management Plan	-5,779,589,089							
1) Personnel at Project Office	-455,311,805	-93,392,115	0					
2) Consultant								
a. Foreign Consultant	-3,139,710,936	-507,956,468	0					
b. Local Consultant	-1,727,408,203	-312,000,000	0					
3) Office Construction	-409,289,256	0	0					
4) Office Running Cost	-47,868,890	-9,764,233	7,926,552					
		3,322,977,312	6,065,597,830	6,848,362,505	7,840,408,964	9,412,312,732	9,885,285,797	9,699,024,145

I_DATA(FINANCIA:1)

Financial Analysis

	Net Present Value	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,767,761,526	-502,588,786	-640,936,240	51,449,129	39,386,087	-136,488,996	-502,588,786	-640,936,240
Forest 2	-21,708,459	-6,015,252	-4,538,881	-169,044	-1,397,104	-2,823,007	-6,015,252	-4,538,881
Forest 3	-63,039,589	-18,479,278	-15,972,889	4,343,074	2,213,611	-5,123,778	-18,479,278	-15,972,889
Introduction of Agroforestry								
Agroforestry 1	15,197,596,765	5,045,370,750	4,897,194,750	5,052,939,972	5,125,861,417	5,052,561,772	4,838,277,150	4,517,523,150
Agroforestry 2	-8,472,064	40,374,233	37,143,233	40,522,548	42,297,159	40,734,728	35,979,033	29,121,993
Improvement of Dry Farming								
Dry Farming 1	16,972,269,898	3,225,945,956	3,225,945,956	3,225,945,956	3,225,945,956	3,225,945,956	3,225,945,956	3,225,945,956
Dry Farming 2	4,333,907,509	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867
Conservation of Settlement Env	-507,262,973							
Absorbing Well	-437,467,088							
Trees (Jack Fruit)	-35,212,339							
Trees (Gliricidia)	-34,583,547							
Torrent Conservation Plan								
Check Dam	-946,055,469	68,582,993	68,582,993	68,582,993	68,582,993	68,582,993	68,582,993	68,582,993
Small Check Dam	-302,157,196	11,916,295	11,916,295	11,916,295	11,916,295	11,916,295	11,916,295	11,916,295
Gully Plug	-506,245,057							
Revetment Work	-505,183,124							
Riverside Line Planting	-137,504,935							
Riverside Revegetation	-151,420,580							
Extension Plan								
Demonstration Plot	3,631,801,689	686,723,796	824,649,722	822,549,722	822,873,796	661,083,796	639,643,796	754,029,722
Training Center	-730,297,521							
Education and Training	-1,829,359,457							
Extension/Guidance	-550,638,017							
Infrastructure Plan								
Access Road	-2,828,596,418							
New Road Construction	-1,498,865,035							
Improvement of Road								
Gravel-Gravel	-1,129,674,535							
Gravel-Asphalt	-29,342,843							
Slope Protection								
Regreening of Slope	-35,151,749							
Drain	-108,780,521							
Drop Structure	-14,239,746							
Roadside Planting	-12,541,990							
Nursery	-17,682,511							
Environmental Assessment	-745,281,014							
Management Plan	-5,779,589,089							
1) Personnel at Project Office	-455,311,805							
2) Consultant								
a. Foreign Consultant	-3,139,710,936							
b. Local Consultant	-1,727,408,203							
3) Office Construction	-409,289,256							
4) Office Running Cost	-47,868,890							
		9,240,355,574	9,092,509,805	9,976,605,511	10,026,205,077	9,604,914,625	8,981,786,774	8,634,196,965

I_DATA(FINANCIA:1)

Financial Analsysis

	Net Present Value	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
Farm/Forest Land Conservation Plan							
Forest Development							
Forest 1	-2,767,761,526	51,449,129	69,194,087	-66,017,996	-400,904,045	-541,184,795	145,223,804
Forest 2	-21,708,459	-169,044	-1,352,604	-2,729,170	-5,886,163	-4,407,548	86,204
Forest 3	-63,039,589	4,343,074	2,661,611	-4,133,407	-17,123,352	-14,667,000	-19,444
Introduction of Agroforestry							
Agroforestry 1	15,187,596,765	4,510,690,372	4,440,488,617	4,442,866,750	4,371,675,194	4,220,657,467	414,029,583
Agroforestry 2	-8,472,064	28,875,268	27,839,799	27,870,836	26,005,496	22,762,107	21,405,741
Improvement of Dry Farming							
Dry Farming 1	16,972,269,898	3,225,945,956	3,225,945,956	3,225,945,956	3,225,945,956	3,215,065,956	-334,071,111
Dry Farming 2	4,333,907,509	688,524,867	688,524,867	688,524,867	688,524,867	688,524,867	-97,743,333
Conservation of Settlement Env	-502,262,973						
Absorbing Well	-437,467,088						
Trees (Jack Fruit)	-35,212,339						
Trees (Gliricidia)	-14,583,547						
Torrent Conservation Plan							
Check Dam	-946,055,469	68,582,993	68,582,993	68,582,993	68,582,993	68,582,993	3,012,593
Small Check Dam	-302,157,196	11,916,295	11,916,295	11,916,295	11,916,295	11,916,295	523,438
Gully Plug	-506,245,057						
Revetment Work	-505,183,124						
Riverside Line Planting	-137,504,935						
Riverside Revegetation	-151,420,580						
Extension Plan							
Demonstration Plot	3,631,801,689	751,929,722	752,673,796	614,778,981	615,974,167	780,629,722	-6,465,278
Training Center	-730,297,521						
Education and Training	-1,829,359,457						
Extension/Guidance	-550,638,017						
Inftastructure Plan							
Access Road	-2,828,596,418						
New Road Construction	-1,498,865,035						
Improvement of Road							
Gravel-Gravel	-1,129,674,535						
Gravel-Asphalt	-29,342,843						
Slope Protection							
Regreening of Slope	-35,151,749						
Drain	-108,780,521						
Drop Structure	-14,239,746						
Roadside Planting	-12,541,990						
Nursery	-17,682,511						
Environmental Assessment	-745,281,014						
Management Plan	-5,719,589,089						
1) Personnel at Project Office	-455,311,805						
2) Consultant							
a.Foreign Consultant	-3,139,710,936						
b.Local Consultant	-1,727,408,203						
3) Office Construction	-409,289,256						
4) Office Running Cost	-47,868,890						
		9,342,088,631	9,286,475,417	9,007,606,104	8,584,711,407	8,447,880,062	145,982,196

D3 Data for Economic Analysis

1. Price Adjustment from Financial to Economic Prices
   (1) Price Adjustment
   (2) Economic Opportunity Cost
   (3) Economic Costs and Foreign Exchange Premium

2. Incremental Net Cash Flow and Incremental Net Present Value in Economic Analysis

1. Price Adjustment from Financial to Economic Prices

(1) Price Adjustment

Economic prices derived from market prices are used for the analysis. Taxes and subsidies are treated as items to be transferred among concerned parties. Materials used in the project are classified into either tradable goods or non-tradable goods and the adjustment for foreign exchange premium is made on tradable goods.

i) Basic Conditions

Basic conditions for the analysis such as implementation period and project life, base year prices, inflation rate, productivity increase, in-use value of land, working capital schedule are the same as in the financial analysis. Prices used for calculation of current benefits and costs from farming practice, and investment costs are adjusted to economic prices from financial (market) prices but quantities used are the same in the both analyses. The following shows an example of adjustment from financial to economic prices. The example is a case of a vehicle(complete knock down).

Example of Price Adjustment in the case of a Vehicle

Item	(A)	(B)	(C)	(D)	(E)	(F)
CIF(Imported)	2,788	1.0	2,788	100%	1.15	3,206
Local Content	4,182	0.8	3,346	80%	1.15	3,848
Inland Transport	18	0.7	293	50%	1.15	324
Assembler's Margin	1,108	0.7	776	0%	1.15	776
Trade Margin	369	0.7	259	0%	1.15	259
Luxury Tax	2,217	0	0	0%	1.15	0
VAT	887	0	0	0%	1.15	0
Registration Fee	887	0	0	0%	1.15	89
Automobile tax	444	0	0	0%	1.15	0
Financial Price	13,300				Economic Price	8,502

(A) Financial Value

(B) Conversion Factor 1 (CF 1)

(C) Economic Value 1

(D) Tradable Component

(E) Foreign Exchange Premium

(F) Economic Value 2

(F)= (A) x (B) + (A) x (D) x (E-1)

Conversion Factor 2 (CF 2) = 8,502/13,300 = 0.64

Conversion Factor 1 (CF 1) is used to adjust excess profits, subsidies and taxes. After adjustment with CF 1, economic value 1 is obtained. Adjustment of tradable goods are done by considering exchange rate premium. By adding foreign exchange premium on tradable components, economic value 2 is obtained. Conversion Factor 2 (CF 2) is derived from calculating ratios of economic prices to financial ones. The calculation of conversion factors are shown in Table 6-2 of the Main Report.

ii) Exchange Rate Premium

The foreign exchange rate is 2,050 Rp in the end of 1992. Economic cost of foreign exchange is calculated, assuming that the project creates additional foreign exchange demand and therefore tends to depreciate rupiah against foreign currencies. The estimation of the economic cost of foreign exchange is made by combining the resource cost of the additional supply of exports with the reduction in consumer benefits from the cut back in import consumption. Through adjusting distortion caused by export taxes and import duties, the foreign exchange premium is calculated at 0.15. The following formula is used for the calculation of the foreign exchange premium.

Foreign Exchange Premium =

$$\frac{Ei * (1-Tx) - Ni * (1+T) * (Qi/Qx)}{Ei - Ni*(Qi/Qx)} - 1$$

Ei : Elasticity of supply of export(it is assumed to be 0.5)

Ni : Elasticity of demand of import(it is assumed to be -1.5)

Tx : Rate of export taxes

T : Rate of import duties

Qi : Import quantity (in this case, import values are used.)

Qx : Export quantity (in this case, export values are used.)

iii) Economic Opportunity Cost of Labor(EOCL)

a) Unskilled Labor Cost

Based on interviews with farmers, it is learned that daily wages in the project area for farming works vary from 2,500 Rp per day to 4,000 for male and 1,000 Rp to

2,000 Rp for female.Wages differ, depending on whether lunch is served or not. In some cases, harvested crops are distributed to workers in addition to the payment of wages. It is heard that wage rates also fluctuate by season. For example, during the wet season from September to January, the wage at Pinggirsari near the project area ranges from 2,500 Rp to 3,000 Rp while 2,000 Rp to 2,500 Rp during the dry season from February to August. In general, wage rates during wet seasons seem to be higher than rates during dry seasons.

During dry seasons, some farmers tend to leave farming works and go to Bandung for temporally jobs, such as construction labor works. During survey in Bandung, it is learned that such construction labors earn 6,000 Rp to 10,000 Rp per day. However, they do not always find their jobs every time they wish. (According to interviews with farmers who do digging works in Bandung, they work once three days on average.) Through interview with workers from textile companies in Bandung, their daily wages vary from 2,900 Rp (excluding lunch) to 3,400 Rp.

From these interviews in and outside the project area, the opportunity cost of unskilled labor is estimated at around 3,000 Rp per day. This is the same rate as the one used in the financial analysis. This amount is used for the economic opportunity cost of unskilled labor in the economic analysis.

b) Skilled Labor Cost

Skilled labor are classified into two groups. One includes those who have high skills, such as consultants and surveyors. The other group consists of semi-skilled labors. For skilled labors, the same remunerations or wage rates with financial analysis are used because of their limited availability. In terms of remunerations of foreign consultants, the amounts are adjusted by foreign exchange premium.

For semi-skilled workers, wage rates are adjusted in the following way. According to survey on wage rates at construction site in Bandung, daily wage rates of semi-skilled labors amount to 7,500 Rp per day during the dry season in 1993. If the project employs semi-skilled workers from Bandung, the project needs to pay compensating difference for transportation from Bandung to the project area on top of the above rate. But it is assumed to be relatively easier to employ semi-skilled labors in long term projects in this type. Therefore, the above rate of 7,500 Rp (prices in 1993) is referred when the economic opportunity cost of semi-skilled labors is considered. As financial wage rates used for semi-skilled

labor ranges from 4,000 Rp to 5,000 Rp per day in 1992 price, wages for semi-skilled workers are adjusted by 1.4 as an average multiplier.

In terms of salaries for staff at the project office, the same rates as financial prices are used for the economican analysis.

iv) Economic opportunity cost of capital

The economic opportunity cost of capital(EOCK) is basically obtained by taking weighted average of the rate of time preference for consumption and weighted average of the rate of return on private investment : economic cost of postponing consumption and net return foregone by the private owners of the investment. By adjusting tax factors, the economic opportunity cost of capital is calculated at 13%.

The following formula is used for the calculation.

$$Ie = \frac{\sum_{i=1}^{m} E_i^s (Si/St)\, ri - \sum_{j=1}^{n} N_j^I (Ij/St)\, \pi j}{\sum_{i=1}^{m} E_i^s (Si/St) - \sum_{j=1}^{n} N_j^I (Ij/St)}$$

E_i^S = Elasticity of supply of private sector savings

N_j^I = Elasticity of demand for private sector investment

Si = Amount of savings by sector

St = Total amount of savings

Ij = Investment demand by private sector

ri = Real deposit interest rate by sector

πj = Expected rate of return on investment by sector (real)

It is difficult to obtain data on expected rate of return on investment by private sector, demand and supply elasticity of funds by sector. Therefore, these figures are estimated or refereed to the cases in other countries.

1. Price Adjustment from Financial to Economic Prices

ECOFX:19

(2) Economic Opportunity Cost

Calculation of Economic Opportunity Cost of Foreign Exchange

Year	1988/89	1989/90	1990/91	1991/92
Import Duty	5,141	7,075	9,241	
Import(cif)($)	14,311	17,374	23,028	
(Rp)	24,124	30,754	42,436	
Export Tax	156	171	44	
Export(fob)($)	19,824	23,830	28,143	
(Rp)	33,417	42,181	51,862	
Tariff Rate(T)	21.3%	23.0%	21.8%	
Export Tax(tx)	0.5%	0.4%	0.1%	
Exchange Rate(Rp=$)	1685.7	1770.1	1842.8	
Elasticity of supply of export(En)			0.5	
Elasticity of demand of import(Ni)			-1.5	
ECOFX=	1.14	1.16	1.15	

Average Conversion Factor 1.152

ECOPRICE:22

(3) Economic Costs and Foreign Exchange Premium

Calculation of Economic Costs

Foreign Exchange Premium = 1.15
Foreign Exchange Rate = 2350 Rp/US$
Foreign Exchange Rate = 125 Rp/US$

Urea

	Financial Value	Conversion Factor 1	Econo. Value Unadjusted	% of Tradable	Foreign Exchg Pre.	Economic Value
FOB price	329,895	1	329,895	100.0%	1.15	378,379
Economic Subsidy*	-147,013	0	0		1.15	0
Distribution Cost	-43,159	0.7	-30,211	50.0%	1.15	-33,448
Distribution Cost	86,317	0.7	60,422	50.0%	1.15	66,896
Subsidy to firm	18,406	0	0		1.15	0
Subsidy to farmer	-34,447	0	0		1.15	0
Farm Gate Price	210,000					412,827
Conversion Factor 2 =	1.966					

(note)* it is assumed that economic subsidies are given to farmers in a form of export quota to fertilizer companies.

TSP

	Financial Value	Conversion Factor 1	Econo. Value Unadjusted	% of Tradable	Foreign Exchg Pre.	Economic Value
FOB price	447,024	1	447,024	100.0%	1.15	514,078
Economic Subsidy*	38,954	0	0		1.15	0
Distribution Cost	-33,662	0.7	-23,563	50.0%	1.15	-26,088
Distribution Cost	67,323	0.7	47,126	50.0%	1.15	52,175
Subsidy to firm	40,544	0	0		1.15	0
Subsidy to farmer	-300,183	0	0		1.15	0
Farm Gate Price	260,000					540,165
Conversion Factor 2 =	2.078					

(note)* it is assumed that economic subsidies are given to farmers in a form of export quota to fertilizer companies.

ZA

	Financial Value	Conversion Factor 1	Econo. Value Unadjusted	% of Tradable	Foreign Exchg Pre.	Economic Value
FOB price	228,994	1	228,994	100.0%	1.15	263,343
Economic Subsidy*	68,118	0	0		1.15	0
Distribution Cost	-28,868	0.7	-20,208	50.0%	1.15	-22,373
Distribution Cost	57,736	0.7	40,415	50.0%	1.15	44,745
Subsidy to firm	33,014	0	0		1.15	0
Subsidy to farmer	-148,994	0	0		1.15	0
Farm Gate Price	210,000					285,716
Conversion Factor 2 =	1.361					

(note)* it is assumed that economic subsidies are given to farmers in a form of export quota to fertilizer companies.

ECOPRICE:22

List of Conversion Factor 2 used for Economic Analysis

(Item)	(CF 2)
Urea	1.97
TSP	2.08
ZA	1.36
KCL	1.41
Com'd(Urea, TSP, KCL)	1.89
Lime	1.67
Pesticide (Liquid)	0.81
Pesticide (Granule)	0.89
Computer	0.80
Paddy	1.14
Maize	0.91
Soybeans	0.78
Cement	0.96
Asphalt	0.97
Fuel Oil	0.97
Vehicle	0.64
Motorcycle	0.76
Telephone	0.48
Office Equipment	0.31
Construct. Materials	0.94

List of Conversion Factor 1 used for calculation of CF 2

(Item)	(CF 1)
FOB & CIF Price	1.00
Freight & Insurance	1.00
Distribution Cost	0.70
Handling Charge	0.70
Inland Transport.	0.70
Trade Margin	0.70
Registration Fee	0.20
Subsidy	0.00
Tax	0.00

2. Incremental Net Cash Flow and Incremental Net Present Value in Economic Analysis

Economic Analsysis
Incremental Net Cash Flow combined with each project component

	Net Present Value	1993 0	1994 1	1995 2	1996 3	1997 4	1998 5	1999 6
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,276,991,667	0	-193,526,568	-528,855,891	-905,501,206	-952,429,353	-389,705,117	149,898,673
Forest 2	-23,666,608	0	-806,150	-3,225,710	-6,396,984	-6,580,430	-2,989,613	-615,300
Forest 3	-79,521,492	0	-4,508,250	-15,023,194	-28,102,977	-26,743,935	-9,609,240	1,868,367
Introduction of Agroforestry								
Agroforestry 1	6,050,181,156	0	-275,998,895	-748,361,385	-1,183,731,504	-1,441,031,900	-1,272,513,478	-355,860,916
Agroforestry 2	-146,602,961	0	-9,713,767	-24,915,813	-42,289,017	-58,026,188	-64,936,817	-52,824,856
Improvement of Dry Farming								
Dry Farming 1	15,394,700,969	0	45,878,613	399,191,782	1,060,054,331	1,857,382,559	2,670,284,785	3,233,310,029
Dry Farming 2	4,496,691,183	0	59,645,435	226,264,762	457,802,914	700,600,517	907,496,485	971,261,927
Conservation of Settlement Env	-455,996,842							
Absorbing Well	-393,450,611		-65,356,368	-130,712,736	-163,390,920	-163,390,920	-130,712,736	
Trees (Jack Fruit)	-31,554,855		-5,241,600	-10,483,200	-13,104,000	-13,104,000	-10,483,200	
Trees (Gliricidia)	-30,991,376		-5,148,000	-10,296,000	-12,870,000	-12,870,000	-10,296,000	
Torrent Conservation Plan								
Check Dam	-910,666,031	0	-215,357,545	-251,498,068	-337,446,865	-323,871,911	-311,426,598	-296,430,612
Small Check Dam	-280,141,628	0	-64,018,519	-82,097,966	-89,568,431	-86,560,400	-84,275,766	-82,117,911
Gully Plug	-470,757,019		-107,684,000	-150,757,600	-172,294,400	-172,294,400	-172,294,400	
Revetment Work	-449,765,625		-74,710,896	-149,421,792	-186,777,240	-186,777,240	-149,421,792	
Riverside Line Planting	-125,213,688		-22,544,000	-40,579,200	-51,851,200	-51,851,200	-40,579,200	
Riverside Revegetation	-135,531,450		-22,513,228	-45,026,456	-56,283,070	-56,283,070	-45,026,456	
Extension Plan								
Demonstration Plot	3,194,651,590	0	-65,361,638	50,410,228	162,396,152	342,329,901	481,966,336	539,997,273
Training Center	-640,158,536		-817,418,435					
Education and Training	-1,616,208,741		-403,996,750	-407,290,338	-410,748,604	-414,379,785	-418,192,524	-422,195,900
Extension/Guidance	-399,926,683		-510,666,381					
Inftastructure Plan								
Access Road	-2,332,410,239							
New Road Construction	-1,220,084,539		-353,397,120	-359,115,520	-384,848,320	-356,256,320	-356,256,320	-117,227,200
Improvement of Road								
Gravel-Gravel	-929,964,300		-298,774,684	-298,774,684	-298,774,684	-298,774,684	-298,774,684	0
Gravel-Asphalt	-25,012,697		-8,035,965	-8,035,965	-8,035,965	-8,035,965	-8,035,965	0
Slope Protection								
Regreening of Slope	-33,728,763		-10,836,223	-10,836,223	-10,836,223	-10,836,223	-10,836,223	0
Drain	-98,212,925		-31,553,400	-31,553,400	-31,553,400	-31,553,400	-31,553,400	0
Drop Structure	-14,079,041		-4,523,250	-4,523,250	-4,523,250	-4,523,250	-4,523,250	0
Roadside Planting	-11,327,975		-3,639,400	-3,639,400	-3,639,400	-3,639,400	-3,639,400	0
Nursery	-16,482,235		-17,476,800	-1,200,000	-1,200,000	-1,200,000	-1,200,000	0
Environmental Assessment	-479,442,256		-503,815,911	-26,477,943	-26,477,943	-28,640,103	-26,477,943	-26,477,943
Management Plan	-5,536,808,938							
1) Personnel at Project Office	-524,092,561		-119,016,204	-124,526,213	-130,291,316	-136,323,321	-142,634,586	-149,238,039
2) Consultant								
a. Foreign Consultant	-3,141,779,138		-1,184,745,857	-1,038,501,242	-651,167,435	-628,445,177	-606,804,930	-586,195,171
b. Local Consultant	-1,540,216,996		-494,000,000	-416,000,000	-416,000,000	-384,000,000	-338,000,000	-312,000,000
3) Office Construction	-286,338,476		-365,625,600	0	0	0	0	0
4) Office Running Cost	-44,381,767		-19,869,777	-10,436,781	-10,492,051	-10,549,880	-10,610,386	-10,673,693
			-6,174,357,130	-4,256,299,198	-3,957,943,009	-2,948,659,477	-892,062,417	2,484,478,726

Economic Analsysis

	Net Present Value	2000 7	2001 8	2002 9	2003 10	2004 11	2005 12	2006 13
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,276,991,667	185,285,069	-72,437,437	-624,214,431	-717,242,737	175,893,800	185,285,069	-72,437,437
Forest 2	-23,666,608	-1,351,199	-3,489,455	-8,602,005	-6,382,351	93,612	-1,351,199	-3,489,455
Forest 3	-79,521,492	2,609,082	-8,278,328	-28,580,437	-23,296,458	4,891,978	2,609,082	-8,278,328
Introduction of Agroforestry								
Agroforestry 1	6,050,181,156	560,512,765	1,448,271,697	2,344,170,406	3,103,393,470	3,804,869,535	4,208,438,489	4,342,232,445
Agroforestry 2	-146,602,961	-43,243,458	-31,820,289	-18,245,784	-5,654,064	7,834,211	16,091,742	18,924,511
Improvement of Dry Farming								
Dry Farming 1	15,394,700,969	3,235,080,530	3,344,787,954	3,494,132,842	3,652,214,125	3,784,369,831	3,859,896,186	3,859,896,186
Dry Farming 2	4,496,691,183	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744
Conservation of Settlement Env	-455,996,842							
Absorbing Well	-393,450,811							
Trees (Jack Fruit)	-31,554,855							
Trees (Gliricidia)	-30,991,376							
Torrent Conservation Plan								
Check Dam	-910,666,031	-284,642,242	65,700,014	86,069,952	86,812,223	75,380,688	75,875,275	75,875,275
Small Check Dam	-280,141,628	-80,134,054	11,483,598	14,886,303	15,010,296	13,100,711	13,183,329	13,183,329
Gully Plug	-470,757,019							
Revetment Work	-449,765,625							
Riverside Line Planting	-125,213,688							
Riverside Revegetation	-135,531,450							
Extension Plan								
Demonstration Plot	3,194,651,590	634,637,035	638,118,410	750,531,222	961,999,023	983,439,023	983,763,097	845,513,097
Training Center	-640,158,536							
Education and Training	-1,616,208,741	-426,399,445						
Extension/Guidance	-399,926,683							
Inftastructure Plan								
Access Road	-2,332,410,239							
New Road Construction	-1,220,084,539	-117,227,200						
Improvement of Road								
Gravel-Gravel	-929,964,300	0						
Gravel-Asphalt	-25,012,697	0						
Slope Protection								
Regreening of Slope	-33,728,763	0						
Drain	-98,212,925	0						
Drop Structure	-14,079,041	0						
Roadside Planting	-11,927,975	0						
Nursery	-16,482,235	0						
Environmental Assessment	-479,442,256	-28,640,103						
Management Plan	-5,536,808,938							
1) Personnel at Project Office	-524,092,561	-156,147,207	0					
2) Consultant								
a. Foreign Consultant	-3,141,779,138	-586,586,830	0					
b. Local Consultant	-1,540,216,986	-312,000,000	0					
3) Office Construction	-286,338,476	0	0					
4) Office Running Cost	-44,381,767	-10,739,932	12,757,210					
		3,537,907,555	6,350,168,118	6,957,022,812	8,013,728,271	9,796,748,132	10,290,665,814	10,018,294,366

Economic Analysis

	Net Present Value	2007 14	2008 15	2009 16	2010 17	2011 18	2012 19	2013 20
Farm/Forest Land Conservation Plan								
Forest Development								
Forest 1	-2,276,991,667	-624,214,431	-717,242,737	175,893,800	185,265,069	-72,437,437	-624,214,431	-717,242,737
Forest 2	-23,666,608	-8,602,005	-6,382,351	93,612	-1,351,199	-3,489,455	-8,602,005	-6,382,351
Forest 3	-79,521,492	-28,580,437	-23,296,456	4,891,978	2,609,082	-8,278,328	-28,580,437	-23,296,456
Introduction of Agroforestry								
Agroforestry 1	6,050,181,156	4,266,010,222	4,117,834,222	4,283,579,445	4,346,500,889	4,273,201,245	4,058,916,622	3,738,162,622
Agroforestry 2	-146,602,961	17,025,696	13,794,696	17,174,011	18,948,622	17,386,191	12,630,496	5,773,456
Improvement of Dry Farming								
Dry Farming 1	15,394,700,959	3,859,896,186	3,859,896,186	3,859,896,186	3,859,896,186	3,859,896,186	3,859,896,186	3,859,896,186
Dry Farming 2	4,496,691,183	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744
Conservation of Settlement Env	-455,996,842							
Absorbing Well	-393,450,611							
Trees (Jack Fruit)	-31,554,855							
Trees (Gliricidia)	-30,991,376							
Torrent Conservation Plan								
Check Dam	-910,666,031	75,875,275	75,875,275	75,875,275	75,875,275	75,875,275	75,875,275	75,875,275
Small Check Dam	-280,141,628	13,183,329	13,183,329	13,183,329	13,183,329	13,183,329	13,183,329	13,183,329
Gully Plug	-470,757,019							
Revetment Work	-449,765,625							
Riverside Line Planting	-125,213,688							
Riverside Revegetation	-135,531,450							
Extension Plan								
Demonstration Plot	3,194,651,590	847,613,097	985,539,023	983,439,023	983,763,097	821,973,097	800,533,097	914,919,023
Training Center	-640,158,536							
Education and Training	-1,616,208,741							
Extension/Guidance	-399,926,683							
Inftastructure Plan								
Access Road	-2,332,410,239							
New Road Construction	-1,220,084,539							
Improvement of Road								
Gravel-Gravel	-929,964,300							
Gravel-Asphalt	-25,012,697							
Slope Protection								
Regreening of Slope	-33,728,763							
Drain	-98,212,925							
Drop Structure	-14,079,041							
Roadside Planting	-11,327,975							
Nursery	-16,482,235							
Environmental Assessment	-479,442,256							
Management Plan	-5,536,808,938							
1) Personnel at Project Office	-524,092,561							
2) Consultant								
a. Foreign Consultant	-3,141,779,138							
b. Local Consultant	-1,540,216,996							
3) Office Construction	-286,338,478							
4) Office Running Cost	-44,381,767							
		9,365,081,677	9,266,075,929	10,360,901,402	10,431,585,094	9,924,184,846	9,106,512,877	8,807,763,089

Economic Analsysis

	Net Present Value	2014 21	2015 22	2016 23	2017 24	2018 25	2019 26
Farm/Forest Land Conservation Plan							
Forest Development							
Forest 1	-2,276,991,667	175,893,800	215,093,069	-1,966,437	-522,529,690	-617,500,862	-68,199,318
Forest 2	-23,666,608	93,612	-1,306,699	-3,395,618	-8,472,916	-6,251,018	1,442,865
Forest 3	-79,521,492	4,891,978	3,057,082	-7,287,957	-27,224,511	-21,990,569	5,735,560
Introduction of Agroforestry							
Agroforestry 1	6,050,181,156	3,731,329,845	3,661,128,089	3,663,506,222	3,592,314,667	3,441,290,133	530,077,917
Agroforestry 2	-146,602,961	5,526,731	4,491,262	4,522,299	2,656,958	-586,431	35,803,704
Improvement of Dry Farming							
Dry Farming 1	15,394,700,969	3,859,896,186	3,859,896,186	3,859,896,186	3,859,896,186	3,848,992,480	-809,924,267
Dry Farming 2	4,496,691,183	946,874,744	946,874,744	946,874,744	946,874,744	946,874,744	-243,728,800
Conservation of Settlement Env	-455,996,842						
Absorbing Well	-393,450,611						
Trees (Jack Fruit)	-31,554,855						
Trees (Gliricidia)	-30,991,376						
Torrent Conservation Plan							
Check Dam	-910,666,031	75,875,275	75,875,275	75,875,275	75,875,275	75,875,275	3,304,741
Small Check Dam	-280,141,628	13,183,329	13,183,329	13,183,329	13,183,329	13,183,329	619,639
Gully Plug	-470,757,019						
Revetment Work	-449,765,625						
Riverside Line Planting	-125,213,688						
Riverside Revegetation	-135,531,450						
Extension Plan							
Demonstration Plot	3,194,651,590	912,819,023	913,563,097	775,668,283	776,863,468	941,519,023	-17,463,542
Training Center	-640,158,536						
Education and Training	-1,616,208,741						
Extension/Guidance	-399,926,683						
Inftastructure Plan							
Access Road	-2,332,410,239						
New Road Construction	-1,220,084,539						
Improvement of Road							
Gravel-Gravel	-929,964,300						
Gravel-Asphalt	-25,012,697						
Slope Protection							
Regreening of Slope	-33,728,763						
Drain	-98,212,925						
Drop Structure	-14,079,041						
Roadside Planting	-11,327,975						
Nursery	-16,482,235						
Environmental Assessment	-479,442,256						
Management Plan	-5,536,808,938						
1) Personnel at Project Office	-524,092,561						
2) Consultant							
a. Foreign Consultant	-3,141,779,138						
b. Local Consultant	-1,540,216,996						
3) Office Construction	-286,338,476						
4) Office Running Cost	-44,381,767						
		9,726,384,522	9,691,855,434	9,326,876,325	8,709,437,509	8,621,406,105	-562,331,580

E1 Hydrologic Survey

(1) Drainage System

As Fig. 3-1 indicates, the drainage system in the Study Area extends north, east and southeast in radial pattern from the bottom of the Bandung Basin.

The drainage system in the mountain area (in the Planning Area) is distinct on maps. In the paddy field area (outside the Planning Area), the drainage system of the Cisaranten River, the Citarik River, the Cikeruh River and the Cipalemahan River is clear. The drainage system of other rivers is not, however, always distinct because natural rivers and water channels for irrigation cross one another. The Cisaranten River joins the Cipamokolan River in the paddy field area, and then flows into a man-made water channel.

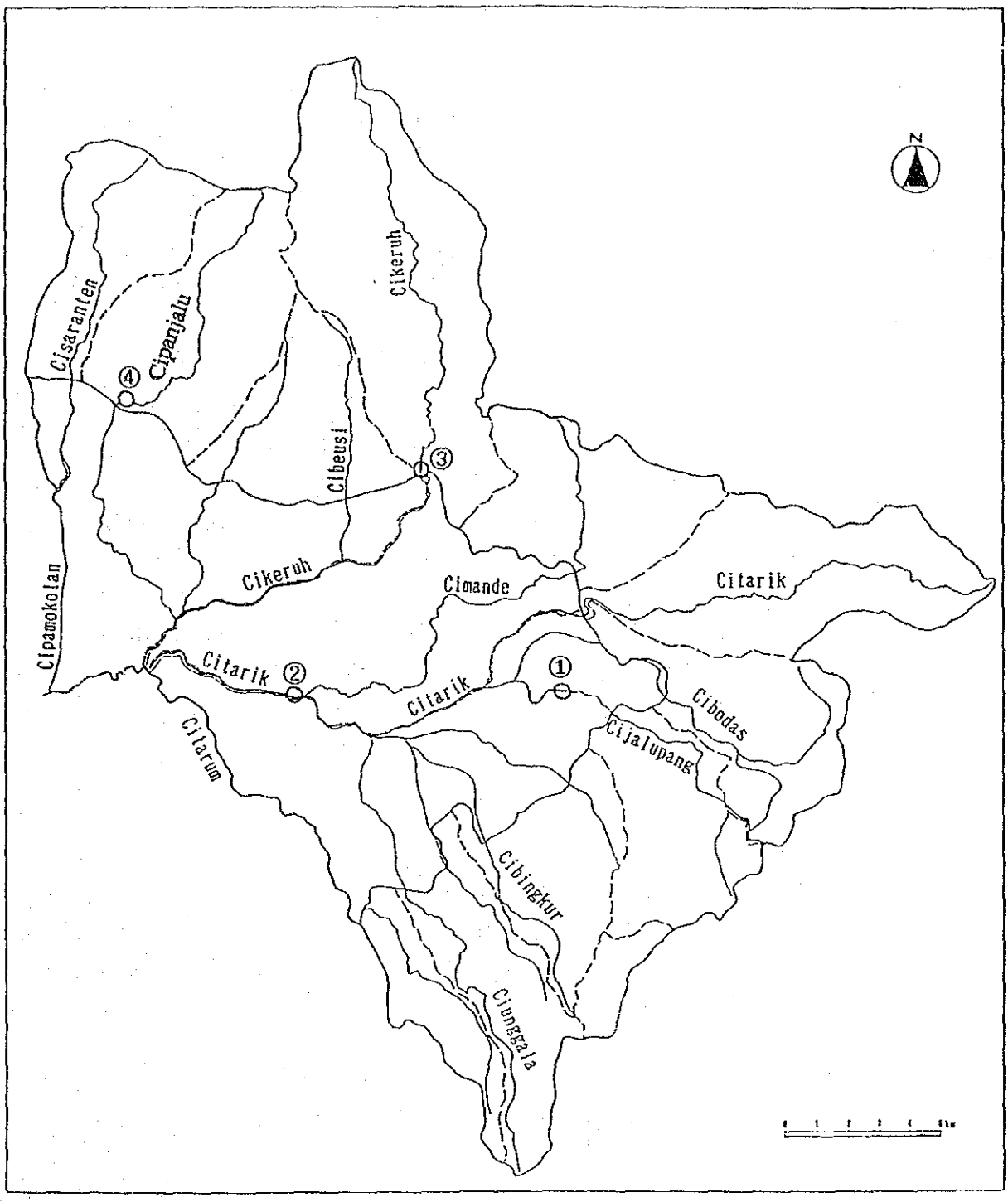
The Cisaranten River of the 1st Sub-Watershed and the Cipalemahan River of the 11th Sub-Watershed flow directly into the Citarum River, without joining the Cikeruh River and the Citarik river.

(2) *Observation of Hydrologic Regime*

The hydrologic regime of the rivers in the watershed of the Citarik has been observed since around 1986 by the Research Institute for Water Resources Development (DPMA: Pusat Penelitian Dan Pengembangan Pengairan) indicated in *Fig. E1-1.*

(3) Hydrologic Regime Characteristics of the Rivers

Table E1-1 shows the data obtained by the stations in 1987 on the hydrologic regime of the rivers. These data have less missing data than those of other years.



INDEX

= MAIN DRAINAGE SYSTEM

SYMBOL HYDROLOGIC STATION

① CIJALUPANG-PEUNDEUY

② CITARIK-RANCAKEMIT

③ CIKERUH-CIKUDA

④ CIPANJALU-KEPUH

Fig. E1-1 Drainage Sytstem and Hydrologic Stations

Table E1-1 Hydrologic Regime of the Observed Rivers

Hydrologic Station No.	Name of Hydrologic Station	Name of River	Catchment Area (km^2)	Specific Discharge ($l/sec./km^2$)	Qmax. ($m^3/sec.$)	Qmin. ($m^3/sec.$)	Qmean ($m^3/sec.$)	Coefficient of River Regime	Annual Runoff ($x10^6 m^3$)
1	CIJALUPANG-PEUNDEUY	CIJALUPANG	20.7	28.3	11.50	0.13	0.59	88	18.4
2	CITARIK-RANCAKEMIT	CITARIK	447.1	12.8	35.00	0.72	5.74	49	181.0
3	CIKERUH-CIKUDA	CIKERUH	54.2	14.9	19.70	0.05	0.80	394	25.4
4	CIPANJALU-KEPUH	CIPANJALU	15.3	28.6	4.22	0.03	0.44	141	13.8

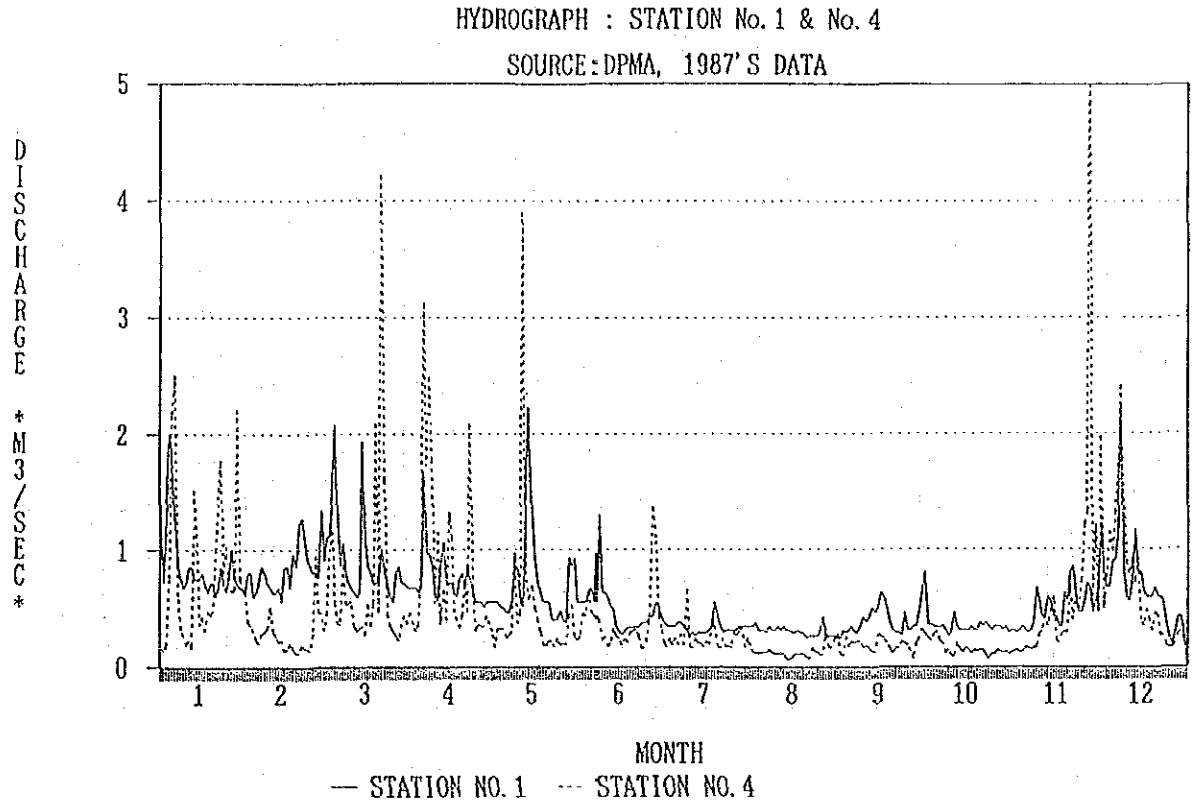
Source: Modified from the data (1987) of DPMA

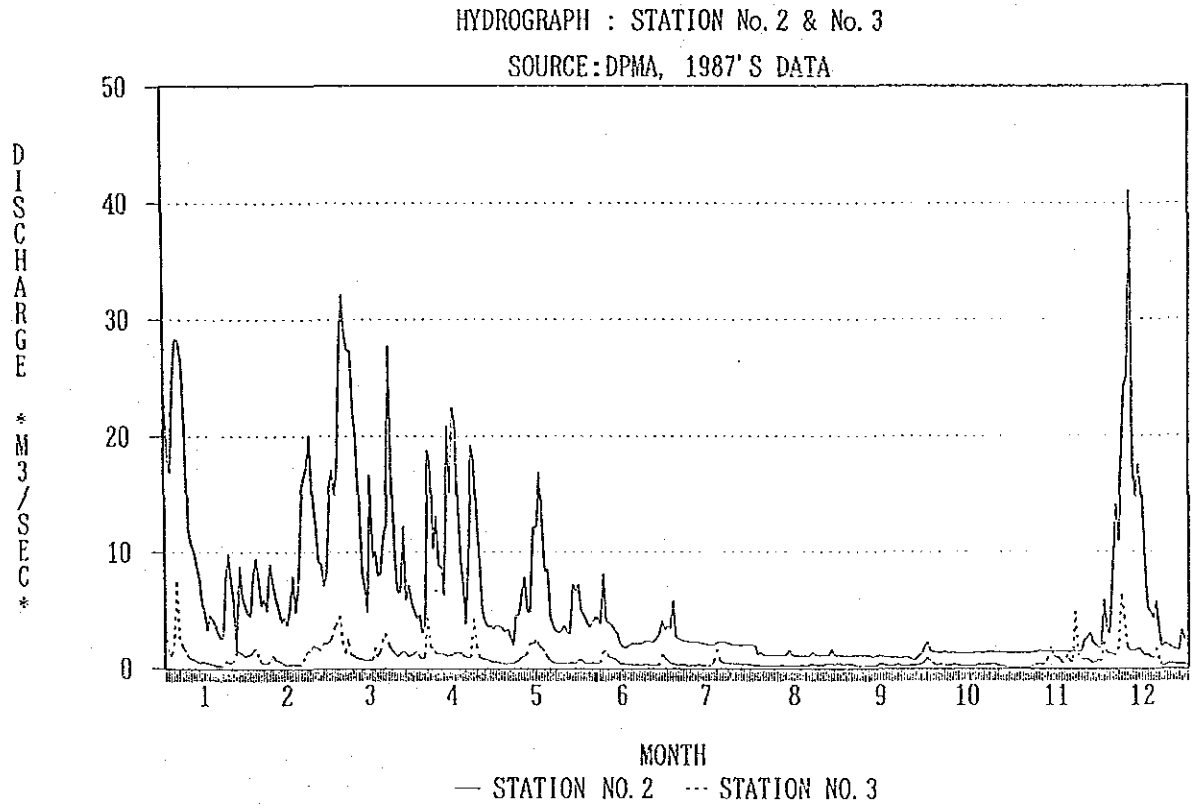
The specific discharge values of the Stations No. 1 and No. 4 are twice as high as those of the Stations No. 2 and No. 3. These high values show certainly the local conditions of these Stations of which the catchment area is small. The specific discharge depends on the situation of ground cover, but its high value generally indicates that the amount of rainfall is large in the mountain area.

With respect to discharge quantity, that of the Station No. 2 is the largest and its coefficient of river regime (ratio of the annual maximum discharge to the annual minimum discharge) is the lowest. This is probably because the Station No. 2 recorded the values of the sub-watershed of which the catchment area is large and the discharge fluctuation of each small watershed in the upstream is leveled.

The coefficient of river regime of the Station No. 3 is the largest. According to the information obtained on site, landslides often cause sediment to dam up the upper stream of the Cikeruh River. This is considered one of the reasons for the high coefficient of river regime.

The hydrographs of each Station for 1987 are shown in Fig. E1-2. On the whole, the monthly discharge is larger in March and April, and smaller in August and September.





Source: Quoted from the 1987 Data of DPMA

Fig. E1-2 Hydrographs of Hydrologic Stations in the Study Area

E2 River Water Quality in Study Area

River		Citarik		Cikeruh		Cipamokolan	
Sample No.		1	2	3	4	5	6
[Substance]	[Unit]						
Turbidity	NTU	70	365	215	180	120	106
Water Temperature	°C	22	24	25	24	26	25
pH	-	7.2	7.2	7.2	7.4	8.3	7.7
BOD	mg/l	1.4	3.3	3.1	7.2	23	12
COD	mg/l	6.9	23	36	17	34	23
Coliform	MPN/100ml	4.6×10^5	1.2×10^5	9.5×10^4	1.1×10^5	1.7×10^5	6.1×10^5
Ammonia (NH_4-N)	mg/l	0.36	0.96	0.45	1.8	8.6	4.3
Nitrate (NO_3-N)	mg/l	0.33	0.66	0.46	0.42	0.21	0.34
Nitrite (NO_2-N)	mg/l	0.02	0.16	0.012	0.224	0.012	0.119
Sampling Date		20/1/92	20/1/92	3/12/91	21/1/92	22/1/92	22/1/92

Note
Sample No. 1 Citarik - Cicalengka
Sample No. 2 Citarik - Sapan
Sample No. 3 Cikeruh - Cikeruh
Sample No. 4 Cikeruh - Sapan
Sample No. 5 Cipamokolan - Jl. Soekarno Hatta
Sample No. 6 Cipamokolan - Ciwastra

Source: DPMA

E3 Supply of Agrochemicals (Pesticides) by P. T. Pertani at Kab. Bandung

XI. 1 Pesticide types and quantities used in Kabupaten Bandung supplied by PT Pertani in 1989 (Kg or lt)

Brand name	Group	Quantity	Active ingr	Chem	Content	Persist	Toxicity
Insecticides used in rice							
Indobas 500ec	I. R. PL	51,735.0	BPMC	CB	500 g/l		
Dharmabas 500cc	I. R. PL	1,746.5	BPMC	CB	500 g/l		
Hassa 50ec	I. R. PL	1,112.0	BPMC	CB	500 g/l		
Hopcin 50ec	I. R. PL	1,024.0	BPMC	CB	460 g/l		
Mipcin 50wp	I. R. PL	522.0	MIPC	CB	50 %		
Applaud 100ec	I. R. PL	90.0	Buprofezin	?	100 g/l		
Dharmacin 50wp	I. R. PL	40.0	MIPC	CB	50 %		
Subtot liq & powd form		56,269.5					
Dharmafur 3g	I. R. G	47,914.0	Carbofuran	CB	3 %		
Furadan 3g	I. R. G	24,116.0	Carbofuran	CB	3 %		
Curaterr 3g	I. R. G	17,733.0	Carbofuran	CB	3 %		
Indofuran 3g	I. R. G	3,898.0	Carbofuran	CB	3 %		
Subtot granular form		93,661.0					
Insecticides used in palawija (second crop)							
Thiodan 35ec	Ins. P. PL	9,949.5 f	Endosulfan	OCL	350 g/l		high
Dursban 20ec	I.P.PL	9,573.0 f	Chlorpyrifos	OP	200 g/l		
Gusadrin 150wsc	I.P.PL	1,175.0 f	Monocrotophos	OP	151 g/l		
Petroban 200ec	I.P.PL	883.0 f	Chlorpyrifos	OP	200 g/l		
Basmiban 200ec	I.P.PL	842.0 f	Chlorpyrifos	OP	200 g/l		
Mikarb 50wp	I.P.PL	50.5	MIPC	CB	51.3 %		
Basudin 60ec	I.P.PL	47.5 f	Diazinon	OP	600 g/l		
Sevin 85s	I.P.PL	2.0 f	Carbaryl	CB	85 %		
Subtot liq & powd form		22,522.5					
Other Pesticides							
Klerat	Rod	4,609.0	Brodifacoum		0.003 %		
Racumin	Rod	100.0	Coumatatratyl		0.04 – 2%		
Benlate	Fung	2.0	Benomyl		50 %	low	
Grandtotal		177,164.0					

Note: f-forbidden on sawah rice (Inpres 1986)
Abbreviations under column "Group"
I : insecticide
R : rice
PL : powder or liquid
G : granular