G-2 The Selection of Tree Species and Field Crops: Points Requiring Consideration

(1) The Selection of Tree Species and Field Crops

Tree species and field crops were examined for selection according to their suitability in the Project Area. They were evaluated in a comprehensive manner based upon studies of natural conditions (precipitation, atmospheric temperature, altitude and the soil quality), economic conditions (market demand, their marketability, transport factors and the extent to which they could be cultivated intensively) and other factors (their durability under conditions with no sunlight as well as their immunity to blight and insect infestation). The points of view of the region's inhabitants were also surveyed. Suitable tree species and field crops were identified based upon the above conditions in the Project Area.

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In particular, with respect to being suitable for natural conditions, tree species and field crops were selected according to the following criteria.

- Their suitability to Schmit and Ferguson's "Type A" classification of climates, the "volcanic ash" classification of soil and the altitude of the Project Area, as described in Pedoman Agroforestry Dalam Perhutanan Sosial, Perum Perhutani, 1990. (The "Type A" classification refers to a climate where the ratio of the dry season, when precipitation is less than 60 mm per month, to the wet season, when the precipitation is more than 100 mm per month, is 0 14.3 percent; the dry season lasts for only 0 1.5 months.)
- Their suitability to the "B1" agricultural climate region, as described in Oldeman, L.R.'s An Agro-Climatic Map of Sumatra: Contributions from the Central Research Institute for Agriculture Bogor, No. 52, 1979. (The "B1" classification refers to areas where seven to nine months of the year are wet months with high humidity, when precipitation exceeds 200 mm per month, and less than two months during the year are dry when precipitation is less than 100 mm per month. According to this factor, there is enough water to allow paddy rice cultivation to be carried out with a dependence on rain and it is possible to cultivate dry-field crops throughout the year.)

(2) Necessary Points to Consider

In the Project Area, there are permanent markets set up in Kepahiang and Curup. There are also simple markets in other villages and these are open regularly, once a week. The principal roads connecting villages to the markets are paved and maintained relatively well. From, among other things, marketability and transport angles, it can be considered that

there is wide scope for the selection of crops which can be cultivated. The possibility to introduce new field crops such as mushrooms is high, but in introducing such crops, trial facilities for experimenting with their cultivation are necessary. Such things as home gardens and demonstration plots are required. Furthermore, accompanying an introduction of the merchandising agricultural and forestry products, and an introduction of the merchandising of processed goods and exportable crops, there is a degree of risk. Sufficient examination of the special character of each of the products is necessary before they are introduced.

Thorough caution must be taken in the selection of tree species and field crops where insect infestation can be expected.

G-3 Estimating the Harvest Volume After Planning

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In the Republic of Indonesia, monitoring examinations of an increase in the harvest volume of tree species and field crops in the post-planning stage are carried out at demonstration plots and through conservation projects. There are many examples of increases in harvests after a development programme is begun. The effectiveness of a careful selection of tree species and field crops is evident in the volume of the harvests. In the post-planning stage, there is a difference in the growth of the volume of the harvest from year to year, from region to region and from one undertaking to the other, depending on such factors as the introduction of improved types of products, the development of technology to do such things as fertilize and prevent insect infestation, the influence of dry weather according to the year, and the degree to which businesses can carry out their plans when they face budgetary restrictions in any given year. There is a tendency to have lower yields of tree and crops after the end of business periods when there is a lowering in incentives for farmers.

In this study, yield estimates of tree and crops for successive years following the post planning period were made with reference to examples of an increase for yields of a maximum of five percent in areas enclosed with wood-fenced/strip planting, a maximum of ten percent for bench terraced areas and some ten percent with improvements in cultivation technology. The UP-UPSA natural resource conservation project model units in Air Bening Village of the Study Area and Kampung Melayu Village in the Project Area, as well as similar conservation project cases were examined. The results of this are shown in Table G-1.

Table G-1 Forecast of Changes Over Time in Tree and Crop Yields Following the Project

, p	The perce	entage r	ate of in	crease i	n yields	of tree	s and cre	ops			
Number of year of the project	ers from the beginning	1	2	3	4	5	6	7	8	9	10
Coffee fields	Wood-Fenced and Strip Planting	0	0	0.5	1	2	3	4	5	5	5
Farm land	Bench terraced	0	0	0	0.5	1	2	3	5	7.5	10
Coffee fields and farm land	Cultivation technology improvement	10	10	10	10	10	10	10	10	10	10

Source: 1) Institutional Strengtheing for Evaluation and Effectiveness of the Upper Solo (Wonogili) Watershed Protection Project. Project Planning and Implementation Unit, 1992

- 2) Feasiblity Study on Soil and Water Conservation Project for Uement Consultants Korea and Indonesia, 1988
- 3) Results of survey in Pusat Penelitian Kopi dan Kakao, Jember, Dinas Perkebunan, agricultural extension centers and demonstration plots, etc.

G-4 Measures to Improve Coffee Production: a Social Forestry Approach

Trees play three roles in agricultural production. They:

- a) Improve the productivity of agricultural lands,
- b) Enhance animal husbandry, and they serve to
- c) Offer by -products for farming and income generation.

The social forestry development plan in the Project Area is aimed at providing the third role above. As examined under this paper, a large part of the population living in the Project Area is involved in traditional methods of coffee cultivation. Because of their involvement, increasing the volume of coffee produced and securing its stable growth are important incentives to encourage the participation of the local populace in the social forestry development plan.

The social forestry approach examined here is recognized to contribute to the improvement of coffee production through a technical study of research results without specific research undertakings of coffee cultivation, utilizing general data on coffee cultivation.*1

Dr.Ir. Ika Rochdhatun Sastrahidajat, D. Ir. Soemarno D.S.M.S. (1991): Budidaya Tanaman Tropika P.S. Siswoputranto (1993): Kopi Internasional dan Indonesia Ir. Sri Njiyati, Ir. Dantri (1995): Kopi Budidaya dan Penanganan Lepas Panen Aksi Agraris Kanisuius (1974): Bereccok Tanam Kopi

(1) Natural conditions where coffee is cultivated in the Project Area

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① Climate: The clearly dry season is short while the year to year change in precipitation levels during the dry season is marked.

As shown in section 3.1 of this paper, most of the areas in the Project Area receive more than 1,500 mm of precipitation annually; and there are many areas which receive more than 100 mm of precipitation a month throughout the year. It can be considered that there is no need to worry about insufficient levels of water for coffee production. However, the variation of precipitation, subject to wide fluctuation from year to year is marked. Dry years, when there is little rain and a parched climate, and years when the dryness is less severe during the dry season, and there is high precipitation, almost always alternate every other year. There is also the tendency to have especially dry years every three years.

It is said that *Coffea robusta*, cultivated by the large part of the populace, requires three to four dry months where monthly precipitation is less than 100 mm. Precipitation is the principal factor which determines whether the coffee plants flower, as rainfall has an effect on the water level within the plant. To be released from their dormant stage, the buds of coffee trees require dry conditions. When it is not dry, the plant flowers in an irregular way or, in an unusual phenomenon, does not flower at all. While the plant grows from the budding stage to the flowering stage, seven to eight days of rain in one to 1.5 months are ideal. Because rain can harden the pollen and hinder pollination, a period of about one month with no rain is required after the flowers bloom. On the other hand, when it is extremely dry and the dry period lasts for a long period, the plant will flower abnormally and may not bear fruit.

② Soil: Highly acidic soil is distributed widely and favorable lands, in terms of soil conditions for coffee cultivation, are limited.

It can be considered that soil conditions suitable for coffee cultivation are limited to the ACC I and AN I and AN II soil classes. (The most appropriate soil class is AN I.) (Refer to Table G-2.) Suitability is based on judgments made principally of soil acidity in the Project Area. The soil standards² originally deemed appropriate by the *Rejong* people, who form the dominant ethnic group in the Project Area, as passed down through customarily received tradition, can be thought to be farmland other than paddy fields, the characteristics of which resemble those of ACC I, AN I and AN II soil classes. These soils contain large basalt stones and have a thick black stratum. It can be thought that the traditional cultivation of coffee is widespread even on

Departemen Pendidikan dan Kebudayaan (1977/1978): Adat Istiadat Daerah Bengkulu

inappropriate lands where soil conditions are not good because soil standards deemed appropriate through custom were not transmitted in centers of population and among increasing populations which had difficulty in securing appropriate lands (for example, among populations of people of other tribes, young social classes or people who immigrated spontaneously from other areas).

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- (2) Important problems with the coffee cultivation methods of people dwelling in the region
 - ① Coffee production levels are unstable due to the every other year effect of flowering and fruition volumes of the plants.

It can be thought that one cause for the unstable levels of coffee production, and hence coffee cultivation income, aside from the fluctuation of coffee prices, is the year to year change in precipitation levels.

During years when there is much rain during the dry season, the amount of sun light is insufficient: the number of plants which flower decrease. The rain prevents the plants from receiving pollen and fruition levels go down. On the other hand, during years when there is little rainfall during the dry season, because conditions hampering fruition are less, the flowering and pollination of plants are promoted and it can be thought that the phenomenon of fruit in abundance is produced. It is said that even if there is an abundance of fruit produced, the coffee plant is not physiologically forced to drop its fruit. When there are not sufficient carbohydrates produced, carbohydrates stored in the trunk and branches of the tree are sucked upwards and the roots of the plant decay. As a result, the coffee trees lose their strength and their branches experience die back; the trees stop growing branches. The following year, the branches on which buds form become fewer in number and there is a decrease in the volume of fruit borne. When this die back process is repeated (alternate year), it can be thought that the tree age for fruition becomes shorter, due to an early decline in the tree's strength, and the life-force of the trees drops rapidly.

According to results gathered from interviewing people involved with the study, in comparison with Lana coffee which was cultivated formerly, the branches of the Mana coffee plant, which has begun to be cultivated recently because of its large fruit size, begin to decay and the tendency is for the plant's fruition period to shorten to about five years. This phenomenon, of an alternate year repetition of this tendency, is thought to take place. The decrease in the abundance of fruit can be thought to be connected with the stability of the volume of coffee harvested.

The volume of coffee produced decreases according to the increase in obstacles, including insect infestation and a growth of impediments due to inadequate nutritional levels.

Color discoloration and the decay of leaves can be observed on coffee plants cultivated in the Project Area as shown in Table G-3. As the immunity against blight and insect infestation of *Coffea robusta is* high, there are few outbreaks of damaging factors to the crop on a large scale. Planters are, however, very much concerned about the possibility of damaging factors as they fear drastic decreases in harvest volumes. The *die back* phenomenon as an alternate year effect as discussed above, and impediments to growth due to filamentous fungi or insufficient nutrition, are a cause of worry.

The soil in the Project Area is considerably acidic (about pH5) with one part being excessively so (about pH4). The level of exchangeable bases, substances capable of combining with acids to form salts, is low. Furthermore, the supply of organic matter in the soil is limited due to the pruning of branches during the pruning season and the cutting of trees during the felling season. These branches and trees are taken away to be used as firewood, while the surface of the ground is burned and cleared away at the renewal time for trees. On the other hand, weeds mostly belonging to the herbaceous plant family of Gramineae, with mat-type roots, grow in conflict with the many thin roots of the coffee trees which grow in the upper layers of the soil. Weeding is required habitually. And it is these conditions which trigger crosion. The surface soil is lost and necessary elements in the soil tend to be exhausted. The depletion of organic matter and the class of bases in the soil is rapid as only a small level of organic matter can be retained.

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The field survey of people dwelling in the area indicates that the places known by inhabitants to produce low coffee yields are excessively acidic areas. The chemically low fertility of CM I, CM II, AC and ACC II soil classes tends to be scattered widely, as indicated in Table G-4 of this paper which examines elements which impede coffee growth in the Project Area. There is the possibility that there are nutritional deficiencies of potassium and nitrogen in some soil units (Dystric Leptosols) even in favorable AN I soil class zones. The withering of branches, in particular, is thought to relate to a shortage of potassium. The standard number of trees planted on one hectare of plantation land requires 135 kilograms of nitrogen, 34 kilograms of phosphoric acid and 145 kilograms of potassium chloride (potassium 60.9 kilograms), assuming that the supply of these elements is none except from the soil (the depth of the soil is supposedly 1.5 meters). In ANC soil zones where inorganic substance accumulations are presumed to be the highest, these elements will be depleted in about

44 years. For ACC I soil areas where the accumulation of effective phosphoric acid is estimated to be the highest, the elements will be depleted in about 54 years and in ACC I soil areas where the exchangeable potassium content is assumed to be the highest, depletion will take place in about 41 years. It is necessary to pay attention to the circulation of the bases. (Table G-5 refers.)

- (3) Counter measures to improve coffee production through a social forestry approach.
 - 1) Agro-forestry: the planting and management of shelter trees
 - ① The stabilization of blooming trees and the volume of fruit borne depend on the effectiveness of shelter provided by sheltering trees.

The effect of shade provided by shelter trees is to reduce the number of flower buds, and as a consequence, the number of flowers blooming. However, shelter trees prevent the flowering of the tree beyond the ability of its leaves to assimilate nutrition and the absorption power of its roots during dry seasons when there is little rainfall. It is also possible that shelter trees prevent the die back phenomenon and also stabilize the annual range of fluctuations in fruition. In this respect, they make prevention possible to not waste nutritious substances stored in trees. As a result, shelter trees prevent a decrease of fruition during the following year and make yearly fluctuations in the volume of coffee produced smaller. On the other hand, when there is much rain during the dry season, the rain drops can hit the flowers directly and harden the pollen, diminishing the number of flowers pollinated. Trees to form a crown which can obstruct the rain are thus required. The number of shelter trees must be increased, but they must allow the level of light which hit the coffee plants to be maintained so that light saturation levels (of 10,000 - 20,000 lux) do not fall. (Reference is made to Section 5-3(1) 1) 3 and E-6 which shows the results of an examination of sunlight levels in the coffee cultivation area.)

② Planning the maintenance of organic matter in the soil surface to maintain the soil's productive strength.

As Fig. G-1 of this paper shows, there is the tendency for the volume of organic matter in the surface layer which fosters coffee cultivation to increase as the average height of sheltering trees grows and the soil surface becomes thicker. The more that the volume of organic matter in the soil increases, the stronger is its resistance to eclipse damaging elements. The richness of the soil contributes to prevent soil erosion. When soil erosion decreases, there is a decrease in nutrition lost and the supply sources of bases can be maintained.

For these reasons, the preservation of surface soil and the circulation of organic matter in the soil are important. The difference in factors which are dependent on the average height of the trees which shelter the coffee plants is thought to result from the difference in the volume of fallen leaves (the leaf volume) which corresponds to the number of years which pass from the planting and germination of the plants. The maintenance and increase of organic matter in the soil require the growth of *Kayu res* (Gliricidia maculate) (of Fig. G-1) and other shelter trees which remain even during the coffee tree renewal period.

The traditional coffee cultivation methods of the inhabitants of the area does not require flat surfaces, and the influence of letting lands lie fallow which accompanies the development of terracing is great because coffee is a tree crop. To maintain organic matter levels in the soil which are appropriate for coffee production, it is advisable to introduce methods which require limited working of the earth to preserve the surface of the soil and retain suitable organic substances.

2) Fertilization

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Since it requires a long period of time before shelter trees have grown tall and a cultivation method is established to maintain the circulation of organic substances, fertilization of coffee trees is carried out to supply organic matter and salts which flow out or have been leeched from the fields for cultivation and revive the strength of the trees. If the soil condition can be revived with fertilization, growth impediments or the alternate year effect diminish in number. Fertilization is considered to be useful in preventing harvests from diminishing or fluctuating.

3) The introduction of apiculture

From the results of the study described under (1) ①, during years when there is much rain during the dry season, pollination should be encouraged as rapidly as possible on days when there is no rain. Bee cultivation is being introduced to promote pollination during the flowering period when there is rain.

4) Improving access to technological information

A diffusion and publicity system concentrating on technical information needs to be established as described below.

① Technical standards appropriate for the area and its inhabitants

As the socio-economic cultural condition survey shows, because fertile land in the area is abundant, and the inhabitants are, to a large extent, spontaneous migrants, many inhabitants are careless in managing lands. Many spontaneous migrants are temporary farmers who give up lands as their productivity diminishes. In this respect it is desirable to establish technical standards which would reflect conditions in specific areas and coffee cultivation methods used. Pertilizing the land is costly where the soil is acidic. It is therefore necessary to establish low cost and labor -saving fertilizing systems. To prepare such systems and put them in operation, it is desirable to consider the chemical nature of soil acidity and the balance of elements in the soil. At the same time, enforcement of fertilization and cultivation tests through the application of a mixture of organic fertilizer and green manure is required. This should result in improved soils. With such improvements, the capability and number of staff responsible for specific areas should be enhanced. Technical information should be collected and disseminated more easily.

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② Measures to counter damage caused by blight and harmful insects

Among countermeasures for damage caused by blight and insect infestation, measures against damage by fungi are costly and include the spraying of insecticide and the removal of damaged trees. In particular, with the growth of fungi, soil contagions spread rapidly as repeated coffee tree cultivation of the same species on the same ground is made. A long time can elapse before a serious outbreak becomes obvious. And when blight or insect infestation break out, the resulting damage is substantial. The effect of spraying insecticide can be minimal. Countermeasures are thus very important.

To avoid damage, it is desirable to organize a system for disseminating information. It should be possible to obtain information for ameliorating the soil in areas where growth is not disturbed (damage -contained soil) and in areas where growth is retarded easily. An information system for distributing sterilized saplings to replace damaged trees is also desirable. Market prices tend to fall when mutations take place in species from autogamy. It should be possible to maintain price levels, however, through lineage management with distributions of distinct lineage saplings.

Table G-2 Comparison of Suitable Factors for Coffee Cultivation and Soil Conditions in the Project Area

× 0 0 0 0 × ×	Soil Hardness Drainability Surface soil: soft good	Water Retention good — — — — — — — — — — — — — — — — — —	Effective Soil Depth deep by A COOOO A	Acidity pH 5.2-6.2 3, pH 4.5-6.5 4, cr Ca	\$ 6	Organic 11%		Organic Content 11%	<u> </u>	
×	× (×		×××	0 0			1	
× O	0 8	1 1	0 0	00 00 	×0 0C	0 0	0 0		1 1	× × 1 1
×	0		x		00	0	0		1	×
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C					(-				>

 \bigcirc : suitable; x: unsuitable; (x): unsuitable but ignorable due to other favourable factors. Notes

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Fine grain if the water retention is not good. Coarse grain if the drainability is not good. Can grow with a low pH value but growth may be hindered if the physical properties are unfavourable. Unsuitable for coffee growth if the pH value is higher than 6.5. difficult to judge as the observation/measurement results are not conclusive. The following documents were referred to in the compilation of the table.

Dr. Ir. H. Ika Rochdjatun Sastrahidajat, Dr. Ir. Soemarno D. S. MS (1991): Budidaya Tanaman Tropika P. S. Siswoputranto (1993): Kopi Internasional dan Indonesia Ir. Sri Najiyatir, Ir. Danarti (1995): Kopi Budidaya dan Penanganan Lepas Panen Akak Agraris Kanisius (1974): Bercocok Tanam Kopi

Table G-3 Estimated Relationship between Symptoms of Growth Impediment and Causes for Coffee Trees

(Unit: %)

				0					
Cause (Estimated)		Cha	Change of Leaves	į		Change of Branch/Stem	Change of stanch/Stem	Change of Fruit	of Fruit
	Yellowing	Purple Browning	Orange/ White Spot	Defoliation	Defoliation Partial Death Brown Spot	White Spot	Dead	Rotten	Dead
Nutrition deficiency (excl. Micro-Constituents) Nutrition deficiency N P K Mg	O leaf margin O between veins	O spotty			0				
+ <u></u>	00			0		0			00
Penyakit akar hitam Rosellina bunodes R. arcuata Penyakit karat duan Hemileia vastratrix Penaykit busuk buah Colletotrichum coffearum Penykit pucuk mati Rhizoctonia	0 0		0	0 0	0			0	0 0
Penyakit mati ujung Nematodes	0			0					

Notes (1) The symptoms of damage by harmful insects are not included here as the field suvey failed to firmly establish the relationship between specific types of damage and the locational conditions.

(2) The relationship between the symptoms and causes are estimated based on the following documents. Henry D. Foth (1984): Fundamental of Soil Science. Seventh Edition

Dr. Ir. H. Ika Rochdjatun Sastrahidajat, Dr. Ir. Soemarno D.S.M.S. (1991): Budidaya Tanaman Tropika Ir. Sri Njiyati, Ir. Danrti (1995): Kopi Budidaya dan Penanganan Lepas Panen

Aksi Agraris Kanisius (1974): Bercocok Tanam Kopi

Pinus Lingga (1995); Petunjuk Penggunaan Pupuk

Table G-4 Sample Analysis of Quantity of Main Coffee Elements Preventing Growth in the Project Area

(Unit: %)

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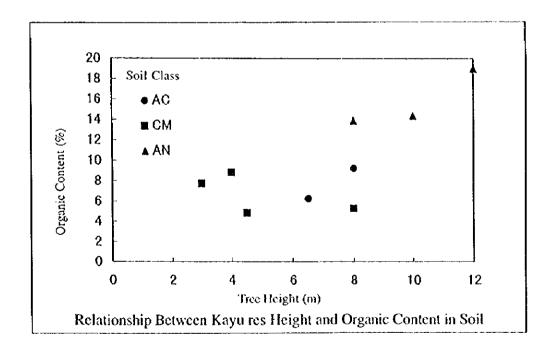
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Sample Collection Point			OP3 ²³	ລ			OP13-7	7			OF LA		.J. —
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				Ę	-		ANIGO	(F)			Anc (ANu)	Ne.	
Soil Division of Collection Point	Point		ACC II					1					
Symptoms of Growth Prevention	ntion												
Leaf discoloration	Yellow	0				×				×			
	Purple-brown	×				0				0			
Branch and trunk alteration Spots (orange, white)	n Spots (orange, white)	×				×				×			
	Dying (branches)	×				О				×			
Dying		0				0							
Element Crit	Critical Minimum Value"												4
	(Leaves)	Leaves	Branches	Trunk	Roots	Leaves	Leaves Branches	Trunk	Roots	Leaves	Branches	Trunk	Roots
	1 80	1.16			I	1.71	1.61	1.31	3.22	3.12	1,41	1.31	0.91
ζ ρ	010	0.08	I	I		0.21	0.0	0.14	0.05	0.21	0.04	0.27	0.31
r 2	1.20	0.26	1	1		0.22	0.26	0.22	0.91	0.30	0.26	0.24	0.24
4	7.1	À:->											

Note 1) According to M. N. Clifford, K. C. Wilson et al./Coffee (1985)
2) Analysis was consigned to Bengkulu University. Agriculture Department, Soil Research Unit

					[Pie G	S Est	imatee	i Accn	nulatic	of t	Chem	Table G-5 Estimated Acemulation of Chemical Elements in the project Avea	ement	s in th	e proje	ct Av	'ca			Ì		ŀ			
Grouping	Soil class		Horizon Dry Weight (t/hn) 土(1) (第5 〇 年) ③	(c/ha)	1	englit (Weight (t/ha)			N 12)			Inorganic N	z	Repla	Replaceability P2O,	P_2O_5		Replaceability K	× ۲	Repla	Replaceability	8	Replac	Replaceability	S. S.
Acrusols	γς	< 10	9.5(4) 13,690	(E) 21 918 9,990	vy ∺:	36.5	.8 36.5 199. H	5 36.5 R 253.8	5 4.05 7 12.92	84.05 34.97	4 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5 0.041 0.129	1 0.041 9 0.350 0 0.390	0.041	0, 0030 0, 0083 0, 0113	0.0030 0.0225 0.0255	0.0030	0.08	994 846	0.08	0.0.1	944 282	32%	000 545	0.12 1.21 1.33	0.12 1.83 1.46
	ACC 1	÷ < n;	52.50	L	1	1	1			n ci x		000		0.056	0.0130 0.0496 0.0025	0. 0130 0. 0220 0. 0359	0, 0130 0, 2044 0, 2174	1.00.26	0.28	3.46	6.5.98 8.13	3.24	985		0.65	9. 65 4. 58 3. 34
	ACC #	< 20 4	885°	i i			9 18.9 2 89.9	9 18.9 9 114.2 8 133.1	9 2.21 2 3.69 1 5.90	1 2.21 9 9.99 0 12.20	~1점점	21 0.022 69 0.037 99 0.959	0.022 7 0.100	0.022	0.0025	0.0025 0.0230 0.0255	0.0025 0.0306 0.0332	90.00	0.071	0.00 0.00 0.00	0.36			90 0 88 86 0 80 0	### ###	9 % % % % % % % % % % % % % % % % % % %
Carbisols	CM:	<≈≇	2,870	ļ .	ر ۾	50 30.8 70 96.1 127.0	.1 260.3 .0 291.1	8 30.8 3 330.6 1 361.5	8 2 48 6 8 61 5 11 00	8 2,48 1 23,31 9 25,79	e 8 8	48 0.025 61 0.086 09 0.111	15 0.025 16 0.233 1 0.258	0.025	0.0015 0.0085 0.0100	0.0029	0.0015	2000	0,07 0.55 0.55	0000	0.00 0.03 88.88	8 8 8 0 0 0	88 H	ညာသွား ဝေဝဝ	និន្និស ខ្លួក	2 6 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
	OM E	. ≺∞,	21.6 21.0	l .	i	1		ම සි දැනී දි වැනි දැ	9 2.86 7 6.24 6:910	5 2.86 4 17.44 0 20.30	ម្មដូង	86 0.029 24 0.062 10 0.091	29 0.029 22 0.174 31 0.203	9 0.029 4 0.222 3 0.253	0.0028 0.0012 0.0012	0.0038	0.0028	0.03	0.07 0.82 0.89	0.07	4.4.4 28.8	41.0 28.5	3 % E	0.24	9.25 9.25 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.0	0 5 4 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
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_	≥ % 0	< 03 ‡	1,840				72.8 X2.4 14.6 52.4 97.4	. H R2. R	8 5.52 4.86	2 5.52 17.46 18.22.98	~, 원 원	52 0.055 86 0.049 35 0.104	55 0,056 19 0,175 24 0,000	5 0.055 5 0.229 9 0.384	0.0103	0.0358	0.0103	900 988	00.00	0.09 1.08	9 -1 cs		0,8 8 22 22 22	0.20	88 S	2 G E
slosopuv -74 –	ONC	< ± ±	2, 160 1, 150 3, 310	į i	L		i l	.5 168.5 .8 215.3 .7 343.7	£1 . W	8 292.68 90 279.00 84 571.68	8 292, 68 0 369, 00 18 561, 58	5; Q E	927 2,927 690 2,790 637 9,717	7 2.927 0 3.690 7 6.517	0.0095	0.0000	000	5 0.20 7 0.43 2 0.64	1.75	0, 20 2, 32 2, 53	લંજલ	(1 -1 4	1148		288 66-1	0, 75 0, 37 1, 15 1, 15
	× ×	≺ຫ≴	888 888 888		0 1,000 0 6,500 0 7,500	90 88.0 00 54.0 00 142,0	1.0 RR.0 1.0 190.0 1.0 268.0	.0 88.0 .0 234.0	0.00	6. 60 50 50 51, 00	2 83 2	00 0.060 50 0.135 50 0.135	50 0.050 35 0.450 35 0.510	0 0.060 0 0.585 0 0.585	0.0046	0.0046 0.0265 0.0311	0.0046	0.05	38.88	0.05 0.31 0.35		러하다	288		300	ក្តី ភូមិត្រ
	N N	< ∞ ‡.	780 780 7. 550 1. 330	1 1			26.5 26.5 11.0 81.0 37.5 107.5	.5 26.5 .0 111.0 .5 137.5	5 4.68	58 4, 68 55 4, 05 57 8, 73	4.00	88 88 0.00	047 0.047 005 0.041 052 0.087	7 0.047 1 0.056 7 0.102	0.0012	0.0022	0.0012 0.0003 0.0003	0.00	0.07	0.00	0.39 0.95	9.2.5. 4.8.5.7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,00 0,00 13,00 13,00 13,00 13,00 13,00 13,00 13,00 13,00 14,00 15	오급호 6 6 6 년	9 6 6
Immature soils	s LPR	≺ ∞ ‡	1 % % 8 %	1 6 6 8 8 8	12,000	00 16. 00 15.	1 0 0 3 8 3 8	2.2 84.0	14.80	1 2 2	20 24.0 24.0	88	048 9, 192 048 0, 192	2 0.240	0.0001	0.0005	0.000	100	10.0 54.0 54.0	0.57	100	H 10	3.8		3,48	35°
Wettish/senapy	% W &	. ≺ co <u>‡</u>	1, 190 2, 646 3,830				2.4 2.2 23.8 77 26.1 79	2.4 2.4 77.0 95.8 79.4 98.8	8.33 1 3.95 1 12.29	85 8.33 86 12.84 80 21.17	8, 23 %	888	083 0,083 040 0,128 123 0,212	3 0,083 8 0,160 7 0,243	0.0092	2 0.0092 5 0.0702 8 0.0704	0,0092 0,0970 0,1062	0.02	2 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2011	0.33	9 9 - 8 43 84	9 9 - 9 9 -	0.91 1.37	9 8 8 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 1	0,00 0,00 0,00 0,00 0,00 0,00 0,00 0,0

(1) Work layer (2) Notifient absorption (3) Depth (4) Assumption
1) Average valves in each stratum abtained from analysis in the soil investigation weve usece
2) Inorganic investigation / Assyming total nitrogen = 0.01
the total nitrogen valve was used



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Fig. G-1 Relationship Between Sheltered Tree Height and Soil Thickness and Organic Substances Content on Coffee Cultivation Land at the Soil Survey Point

G-5 Project Area, Number of Trees to be Planted and Breakdown of Trees to be Planted by Work Item in National Forest and Private Land

Table G-6 Planned Land Areas Concerning the Project in National Forest and Private Land

		Work		Planned Area
National forest	Social Oriented Rehabilitation	Planting of useful species	Altitude 900 m or less	930 ha
		(1,597 ha)	Altitude 901-1,500 m	637 ha
			Altitude 1,501 m or more	30 ha
	Social Oriented Border tree	planting		30 km
Private land	Agro-Forestry Complex Development (Existing)	Upper tree planting	Altitude 900 m or less	20,542 ha
		(24,809 ha)	Altitude 901-1,500 m	4,267 ha
		Soil conservation	Wood-fenced	6,150 ha
		measures (6,330 ha)	rec planting (2,145 ha) Planting Altitude 900 m or less 1,775 ha	180 ha
	Agro-Forestry Complex Development (New)	Tree planting (2,145 ha)		1,775 ha
	<u> </u>		Altitude 901-1,500 m	370 ha
		Soil conservation	Wood-fenced	530 ha
		measures (545 ha)	Wood-fenced and strip planting	15 ha
	Conservation plantation of	levelopment		418 ha
	Dry crops field improvem	ent: bench terrace formation		1,442 ha
	Check dams			16
	Riparian afforestation			205 ha

Table G-7 Number of Trees to be Planted

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		Work		Planned Area	Species and Numbers of Trees	Total Number of Trees	Remarks
National forest	Social Oriented Rehabilitation	Planting of useful species	Altitude 900 m or less	930 ha	Mahogany (200 trees/ha), Damar mata kucing (200 trees/ha), durian (20 trees/ha), Aren (20 trees/ha), jengkol (20 trees/ha), Petai (20 trees/ha). Kemiri (20 trees/ha)	465,000	
	··		Altitude 901-1,500 m	637 ha	Merkusi pine (200 trees/ha), Damar mata kucing (200 trees/ha), apokat (30 trees/ha), Melinjo (30 trees/ha), Kemiri (40 trees/ha)	318,500	
			Altitude 1,501 m or more	30 ha	Merkusi pine (1,660 trees/ha)	49.800	
	Social Oriented Border tree planting	xder tree plantin	ફા	30 km	Salak (1 tree/10 m). Pinang (1 tree/10 m). Aren (1 tree/50 m)	9.600	
Private land	Agro-Forestry Complex Development	Upper tree planting	Altitude 900 m or less	20.542 ha	Durian (5 trees/ha), Aren (5 trees/ha), Jack fruit (5 trees/ha), Petai (10 trees/ha), Kayu bawang (5 trees/ha), Kayu manis (70 trees/ha), Lamtoro (33 trees/ha)	2.732.086	* Weighted average
	(\$mmstv a)		Altitude 901-1,500 m	4,267 ha	Apokat (15 trees/ha), Melinjo (15 trees/ha), Kayu manis (70 trees/ha), Lamtoro (33 trees/ha)	567.511	* Weighted average
		Soil conservation measures	Strip planting	180 ha	Kayu manis (1 tree/2 m). Kayu res (1 tree/1 m)	270,000	0 m intervals on average
	Agro-Forestry Complex Development	Tree planting	Altitude 900 m or iess	1,775 ha	Durian (5 trees/ha), Aren (5 trees/ha), Jack fruit (5 trees/ha), Petai (10 trees/ha), Kayu bawang (5 trees/ha), Kayu manis (70 trees/ha), Lamtoro (300 trees/ha)	710,000	
	(10)				Coffee (robusta) (1,600 reces/ha)	2.840.000	
			Altitude 901-1,500 m	370 ha	Apokat (15 trees/ha), Melinjos (15 trees/ha), Kayu manis (70 trees/ha), Lamtoro (300 trees/ha)		
					Coffee (robusta) (1.600 trees/ha)	592,000	
		Soil conservation measures	Strip planting	15 ha	Kayu manis (1 tree/2m). Kayu res (1 tree/1m)	22.500	10 m intervals on average
	Conscrvation plantation development	itation developn	nent	418 ha	Bamboo (100 trees/ha), kapok (100 trees/ha), Kayu res (1,600 trees/ha)	752,400	
	Ringrian afforestation	ion		205 ha	Bamboo (200 trees/ha)	41,000	
		Total				9,515,397	6,083,397 excluding coffee

Table G-8 Breakdown of Trees to be Planted by Work Item

(Unit: trees)

7		Vational	National Forest					Priv	Private Land				
work	Social Or	Social Oriented Rehabilitation	bilitation	Social Oriented Border tree	Agro-F Develo	Agro-Forestry Complex Development (Existing)	nplex sting)	Agro-F Deve	Agro-Forestry Complex Development (New)	olex v)	Conservation plantation development	Riparian afforestation	Total
Species	m 006	901-	1.501 m		m 000	901-	Vegetation	900 m or less	901- 1.500 m	Vegetation belt			
	orless	m 995,1	or more	009	102.710	0	0	8,875	0	0	0	0	130.785
Arcn	18.600	5 6	> 0	200	2 (2)		C	0	0	0	0	0	3,000
Salak	0	o ,		200.0	5 6		, c	O	0	0	0	0	3,000
Pinang	0	0	0	3,000		> (0 074		c	0	0	130,185
Dunian	18,600	0	0	0	102.710	0	0	6,6,0	> -			C	18 600
Jengkol	18,600	0	0	0	0	0		s†	- -	> 0			080
Kemiri	18,600	25,480	0	0	0	٥	0	0	0	0	O		2000
Melinio	0	19,110	0	0	0	64,005	0	0	5.550	0	0	0	88.665
Tack fasis	0	0	0	0	102,710	0	0	8.875	0	0	0	0	111.585
Jack Aran		19 110	C	0	0	64,005	0	0	5,550	0	0	0	88,665
Apokat	200		C	C	205.420	0	0	17.750	0	0	0	0	241.770
retai	10,000) c	C	0	0	0	0	0	0	41,800	0	41.800
Карок	>	> 3	2 4	, (C	c	0	0	0	0	177.200
Merkusi pine	0	127,400	49.800	>	2 4	, (c	C	41.800	41,000	82,800
Bamboo	0	0	0	0	0	0	0	>	> (> <			000 98.
Mahogany	18,600	0	0	0	0	٥	0	0	0	> ·	>		200,001
Kayu bawang	0	0	0	0	102,710		0	8,875	0	0	0	5	585,111
Damar mata	18,600	127,400	0	0	0	0	0	Ó	0	о О	0	0	313,400
kucing					•	ľ	000		6	15 000	668 800	0	863,800
Kayu res	0	٥		0	9		180,000	>	>	2001			1001.00
Kavu manis	0	0	0	0	1,437,940	298,690	90.000	124,250	25.900	7.500	٥	0	1.984.230
Lamtoro	0	0	0	٥	677,886	140,811	0	532,500	111.000	٥	٥	0	1,462,197
Subrotal	465,000	318,500	49.800	6,600	2,732,086	567,511	270,000	710.000	148,000	22,500	752,400	41,000	6.083,397
Coffee (robusta)	C	0	0	0	0	0	0	2.840,000	592,000	0	0	0	3,432,000
Total	465 000	318,500	49.800	6,600	2,732,086	567.511	270,000	3,550,000	740,000	22.500	752,400	41,000	9,515,397
10tal	200.00	2020				1							

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G-6 Main Changes in Land Use Resulting from Project Implementation

The main changes in land use resulting from the Project are indicated in Table G-9.

Concerning national forest, the area of coffee fields is reduced while the area of manmade forest increases. Concerning private land, the area of coffee fields possessing upper trees of sparse crown, dry crops field without terraces and shrub land is reduced, whereas the area of coffee fields possessing upper trees of dense crown, dry crops field with terraces and man-made forest increases.

Table G-9 Main Changes in Land Use Resulting from the Project

		L	Before	Project	After	Project
	Land Use		Area (ha)	Ratio (%)	Area (ha)	Ratio (%)
National forest	Coffee field	10% or less *	324	0.61	0	0
		11 ~ 30% *	472	0.89	0	0
		31 ~ 70% *	801	1.52	0	0
		71% or more *	0	0	0	0
	Man-made for	est	1,039	1.97	2,636	4.99
Private land	Coffee field	10% or less *	4,688	88 8.87 0 22 5.15 0 28 33.56 0	0	0
		11 ~ 30% *	2,722		0	
	31 ~ 70% * 17,728 33.56	0	0			
		71% or more *	63	0.12	26.954	51.02
	Dry crops fiel	d without terraces	4,213	7.97	2,745	5.19
	Dry crops fiel	d with terraces	175	0.33	1,617	3.06
	Shrub land		3,575	6.77	1,430	2.71
	Man-made for	rest	0	0	418	0.79
	Total		35,800	67.76	35,800	67.76

Note: The ratio of land use is the ratio with respect to the whole Project Area.

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^{*;} Crown density of upper trees

G-7 Effect of the Project on Soil Erosion

Table G-10 Estimated Soil Erosion Prevention Effect Ratio after Project Implementation

(Unit: %)

	National Forest	····	Privat	e Land		
Project Year	Social Oriented Rehabilitation	Agroforestry Complex Development (Existent)	Agroforestry Complex Development (Newly)	Conservation Plantation Development	Dry Crops Field Improvement	Total
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	7.2	7.2
3	0.0	0.0	0.0	0.0	14.7	14.7
4	0.0	0.0	0.0	0.0	22.1	22.1
5	0.0	0.0	0.0	0.0	29.6	29.6
6	1.3	7.0	0.4	0.9	37.0	46.6
7	3.0	14.0	0.8	1.9	37.0	56.7
8	4.9	21.0	1.2	3.0	37.0	67.1
9	7.2	28.0	1.6	4.0	37.0	77.8
10	9.7	35.0	2.0	5.0	37.0	88.7
11	11.1	42.0	2.0	5.0	37.0	97.1
12	12.3	42.0	2.0	5.0	37.0	98.3
13	13.1	42.0	2.0	5.0	37.0	99.1
14	13.7	42.0	2.0	5.0	37.0	99.7
15	14.0	42.0	2.0	5.0	37.0	100.0
16	14.0	42.0	2.0	5.0	37.0	100.0
17	14.0	42.0	2.0	5.0	37.0	100.0
18	14.0	42.0	2.0	5.0	37.0	100.0
19	14.0	42.0	2.0	5.0	37.0	100.0
20	14.0	42.0	2.0	5.0	37.0	100.0
21	14.0	42.0	2.0	5.0	37.0	100.0
22	14.0	42.0	2.0	5.0	37.0	100.0
23	14.0	42.0	2.0	5.0	37.0	100.0
24	14.0	42.0	2.0	5.0	37.0	100.0
25	14.0	42.0	2.0	5.0	37.0	100.0
26	14.0	42.0	2.0	5.0	37.0	100.0
27	14.0	42.0	2.0	5.0	37.0	100.0
28	14.0	42.0	2.0	5.0	37.0	100.0
29	14.0	42.0	2.0	5.0	37.0	100.0
30	14.0	42.0	2.0	5.0	37.0	100.0

Note: This table shows the percentage of reduction in soil crossion caused by the implementation of each project item. The persentage is 100 when the the project has enough effect.

Table G-11 Prediction of Soil Erosion in a Watershed of a Planned Check Dam and Sediment at a Planned Check Dam

	Without Project Implementation	Afte	r Project Implemen	tation
Project Ye ar	Annual Soil Erosion (t/year)	Reduction in Soil Erosion (t/year)	Soil Erosion (Vyear)	Sediment at a Planned Check Dam (Uyear)
1	4,263	0	4,263	0
2	4,263	84	4,179	1,439
3	4,263	170	4,093	1,409
4	4,263	257	4,006	1,379
5	4,263	343	3,920	1,350
6	4,263	541	3,722	1,281
7	4,263	658	3,605	1,241
8	4,263	779	3,484	1,199
9	4,263	903	3,360	1,157
10	4,263	1,030	3,233	1,113
11	4,263	1,128	3,135	1,079
12	4,263	1,141	3,122	1,075
13	4,263	1,151	3,112	1,071
14	4,263	1,158	3,105	1,069
15	4,263	1,161	3,102	1,068
16	4,263	1,161	3,102	70
Total	68,208	11,665	56,543	17,000

Notes:

- 1) A sedimentation capacity of a planned check dam is assumed to be 17,000 t.
- 2) Catchment area of a planned check dam is assumed to be 125 ha.
- 3) Current average annual soil erosion in the watersheds of planned check dams was estimated at 34.1 *Vhalyear*. (Cf. main report)
- 4) SDR of the catchment area of a planned check dam is calculated to be 0.344 using the following formula. SDR=36A^{-0.2} "where, A: land area (km²)"

Table G-12 Controlled Soil Erosion in the Project Area and Controlled Sediment Runoff from the Project Area after the Project Implementation

ari aanaan sa Tira ministin ya Ariba Tiraka dhiba ya Ariba ya Arib		Controlled Sediment R Area (unoff from the Project Vyear)
Project Year	Contorlled Soil Erosion in the Project Area (t/year)	Excluding Effect of Check Dams	Including Effect of Check Dams
1	0	0	0
2	18,719	1,449	3,120
3	37,968	2,939	6,247
4	57,218	4,429	9,673
5	76,467	5,919	11,052
6	120,473	9,326	14,304
7	146,633	11,351	16,162
8	173,532	13,433	18,052
9	201,170	15,572	20,038
10	229,548	17,769	22,077
11	251,301	19,453	23,611
12	254,258	19,682	23,735
13	256,476	19,853	23,849
14	257,955	19,968	23,952
15	258,694	20,025	24,000
16	258,694	20,025	22,837
17	258,694	20,025	21,595
18	258,694	20,025	20,123
19	258,694	20,025	20,025
20	258,694	20,025	20,025
21	258,694	20,025	20,025
22	258,694	20,025	20,025
23	258,694	20,025	20,025
24	258,694	20,025	20,025
25	258,694	20,025	20,025
26	258,694	20,025	20,025
27	258,694	20,025	20,025
28	258,694	20,025	20,025
29	258,694	20,025	20,025
30	258,694	20,025	20,025
Total	6,220,822	481,543	544,727

G-8 Preparation of Social Forestry Project Maps

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The social forestry project maps will be prepared in accordance with the basic concept described in 7.1 of the Main Report and based on the land use and vegetation map (scale: 1/25,000), incorporating the findings of the present Study.

There is a total of eight maps which are submitted separately from this report. The legend used on these maps is shown in Table G-13.

Table G-13 Legend of Social Forestry Project Maps

LEGEND Social Oriented Rehabilitation Upper Tree Plantation Upto 900m Suitable Species 901 ~ 1,500m Suitable Species 3 More than 1,500m Suitable Species Agroforestry Complex Development (Existent) Upper Tree Plantation Upto 900m Suitable Species 901 ~ 1,500m Suitable Species Soil Conservation Work No Conservation Work Wood-Fenced Conservation Work Wood-Fenced and Strip Planting Conservation Work C Agroforestry Complex Development (Newly) D Conservation Plantation Development Dry Crops Field Improvement: Bench Terrace Work - : New Road

: Type A Trial Plot

: Type B Trial Plot

H. Data Relating to Project Analysis

H-1 Results of Financial Analysis

Financial Analysis Project Effect

With Project - Without Project Estimation (Nominal Price)

- 000 3	ſ						, , ,
┼┼╌╏╌╏	Protect Plan(a)	Without project(b)	Difference(c)=(a)=(b)	Project Plan(d) W	Without project(e) Difference(f)=(d)−(e)	erence(f)=(d)-(e)	(a)-(c)
┦ ┈┨╼┨╌┥	0	50.550	-44,740	5.377	119,160	-113.783	20.69-
	2,0:0	54 088		31,806	127,502	-95,696	-63 074
-	1000 10	A797A		57.167	135,106	-77,959	-58,034
	かけかしつ	20000	1, 27, 3-	85,899	143 622	-57,723	-50,985
f	22,188		1090	118,565	152.667	-34,102	-42,703
S	14,851		00000	160.206	161 796	-1 341	-27 721
မ	95.841	09.460		055.00	172.058	34 452	-6.251
	115,025	74.323		010,100	1029 660	100 000	62 035
8	118,480	79.525	38.954	253,335	700'70'	145 560	113346
6	127,308	85.092		(0/8/602	010,40	300,000	1 50 011
9	136.734	91,048		281,057	77.460	980'802	1 10 00 0
2 :	149.413	235 878	-86,415	301,611	159,053	142,559;	228.974
t,	A61 081	169 044		338,751	170,186	168,565	155,475
١,	910 690	120,001		380,312	112,138	268,174	169,964
2 ;	103 000			397,887	172,623	225,264	114,415
<u>-</u> ;	100,607			433.286	241,026	192,260	67,741
2	407,20 2			494.136	318,160	175,977	34,826
<u>_t</u>	268,003			569,464	340,431	229,034	78,803
	700,000	121,16.		612,825	364.261	248,564	117,441
2	088,882			656.732	389,7591	266,973	154,829
_	232,725	100,000	117 749	737,060	417,042	320.018	202,276
⇉	310,304			816.492	446.235	370,257	243.657
,	333,348	04/007	700,02	880 137	477.472	402.665	270,129
,†	353,757			939.219	510.895	428.425	288,998
_	376,133	236,706		003 000	546 657	455 952	306,834
2	402,393			1 079 245	584 923	487.522	327,974
2	430,552		040,80	300 43 - 1	694 858	539.058	361.184
-	467,849		177.874	1,104,320	000000	1360 673	761 682
-	501,115	310,273	190,842	1,242,715	6/0/600	00000	240.000
28	539,789	331,592	207,807	1,339,122	512.974	820,148	10.04
 	581870		226,639	1,397,231	403,660	0/5,588	100,332
t	626 900		246,802	1,408,353	276,529	1,131,824	885.022
100	7 954 445	5	2,768,353	17,626,596	9,060,756	8,565,840	5.797,487
d :	Inflation rate Discount Rate(nomin	lat)	1% Discount Rate(nominal) 18% Constant Rate(nominal)	(Unit: Mil. Rp) 878.698			
<u>~</u> '	Present Values of De	enetits in nominal ter	ms (without myself)	470 308			
	Present Values of co	osts in nominal terms	s (Without Project)	905,004			
-	Net Present Values (Without Project) (1)	(Without Project) (1)		98,390			
~	Cost Benefit Ratio			1.8.1			
	Present Values of benefits in nominal terms (With Project)	enefits in nominal ter	ms (With Project)	997,233			
	Present Values of costs in nominal terms (With Project)	osts in nominal terms	(With Project)	529,666			
_ `	Net Present Values (With Project) (2)	(With Project) (2)		467,568 1.88			
	Cost Benefit Aatio						
6	3 Incremental Net Present Value (2)–(1)	sent Value (2)–(1)		59,178			
_	Internal Rate of Return	Ę		F. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.			
	Strong						

H-2 Financial Analysis (Analytical Basis for the With-Project Case)

Financial Analysis

					Unit: Rupiah
	Cost Estimation		Benefit E	stimation	Net Cash Flow
	Constant	Nominal	Constant	Nominal	Nominal
1	5,456,482,184	5,810,035,418	5,025,256,650	5,377,024,616	-433,010,802
2	18,798,247,179	21,466,764,011	27,780,537,074	31,805,936,896	10,339,172,886
3	31,043,981,693	37,949,226,623	46,648,964,980	57,146,988,006	19,197,761,383
4	42,179,502,347	55,188,117,495	65,531,811,853	85,898,837,506	30,710,720,010
5	53,430,688,421	74,860,919,687	84,535,416,536	118,565,294,769	43,704,375,082
6	63,929,231,571	95,840,865,769	106,878,338,851	160,395,567,068	64,554,701,299
7	71,731,086,681	115,025,285,065	129,226,573,582	207,509,638,126	92,484,353,061
8	68,956,238,536	118,479,656,066	135,929,169,300	233,551,620,127	115,071,964,061
9	69,247,173,718	127,308,104,457	141,354,941,724	259,875,294,833	132,567,190,376
10	69,508,385,007	136,733,513,909	142,874,967,349	281,056,685,943	144,323,172,034
11	70,984,881,463	149,412,666,331	143,293,276,645	301,611,133,099	152,198,466,768
12	80,869,614,966	182,133,866,628	150,409,420,514	338,750,831,782	156,616,965,154
13	90,686,057,150	218,539,341,409	157,815,914,582	380,311,892,704	161,772,551,295
14	92,921,577,637	239,601,461,226	154,307,312,134	397,886,673,962	158,285,212,736
15	95,063,787,443	262,283,987,934	157,042,735,805	433,285,861,326	171,001,873,392
16	97,744,991,811	288,559,221,427	167,381,104,039	494,136,427,538	205,577,206,111
17	97,491,417,801	307,957,373,488	180,277,824,612	569,464,334,584	261,506,961,096
18	88,726,685,808	299,890,189,080	181,312,681,090	612,824,582,816	312,934,393,736
19	80,941,026,987	292,725,452,812	181,591,879,434	656,732,032,112	364,006,579,300
20	80,359,073,131	310,964,256,716	190,470,240,392	737,059,729,813	426,095,473,097
21	80,507,856,707	333,347,802,361	197,193,464,400	816,491,839,261	483,144,036,900
22	79,847,546,880	353,756,710,718	198,658,527,676	880,137,086,899	526,380,376,181
23	79,344,044,175	376,132,810,861	198,146,498,336	939,319,392,607	563,186,581,746
24	79,330,451,633	402,393,161,260	197,661,000,277	1,002,609,125,780	600,215,964,520
25	79,328,846,992	430,551,973,470	197,597,107,608	1,072,444,991,423	641,893,017,953
26	80,561,438,247	467,848,704,040	200,595,033,368	1,164,926,153,757	697,077,449,717
27	80,644,545,043	501,114,527,952	199,990,523,555	1,242,714,640,559	741,600,112,607
28	81,186,943,583	539,798,865,129	201,406,958,535	1,339,122,312,635	799,323,447,506
29	81,789,305,646	581,870,144,244	196,398,665,577	1,397,230,591,039	
30	82,354,013,092	626,899,751,447	185,011,310,625	1,408,353,282,255	781,453,530,808
Total	2,174,965,123,530		4,522,347,457,102	17,626,595,803,841	9,672,151,046,807

TOTAL BENEFIT ESTIMATION

Unit: Rupiah	Grand Total	5.025,256,650	27.780,537.074	46,648,964,980	65,531,811,853	84,535,416,536	106.878,338,851	129,226,573,582	135.929.169.300	141,354,941,724	142.874.967.349	143,293,276,645	150,409,420,514	157.815.914,582	154,307,312,134	157,042,735,805	167.381.104.039	180,277,824,612	181,312,681,090	181,591,879,434	190,470,240,392	197, 193, 464, 400	198.658.527.676	198,146,498,336	197.661,000.277	197,597,107,608	200,595,033,368	199,990,523,555	201,406,958,535	196,398,665,577	185,011,310,625	4,522,347,457.102
:	Prev.Soil Fertility	0	25.027.534	50,111,220	77,593,378	88.655,227	114,741.618	129.645.836	144,806,746	160,737,734	177,093,869	189,399,073	190,393,757	191,308,225	192.134.454	192,519,493	183,190,320	173.227,436	161,419,574	160,633,452	160,633,452	160,633,452	160,633,4521	160.633,452	160.633,452	160,633,452	160,633,452	160,633,452	160,633,452	160,633,452		4.369.606.922
	WF & Terrace	0	0	0	0	0	0	32,012,400	64,024,300	128,049,600	192,074,400	320,124,000	738,803,895	1,157,483,790	1,674,719,580	2,191,955,370	2,709,191,160	3,226,426,950	3.226.426,950	3,226,426,950	3.226.426.950		3,226,426,950	3,226,426,950	3.226,426,950		3,226,426,950		3.226,426,950	3,226,426,950	3.226,426,950	54,378,416,295
201	Prev. soil flow	0	43,680,000	87,458,000	135,422,000	154.728.000	200,256,000	226,268,000	252,728,000	280,532,000	309.078.000	330,554,000	332,290,000	333,886,000	335,328,000	336,000,000	319,718,000	302,330,000	281.722,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	280,350,000	7.626.178.000
FFI ESTIMATION	Riparian(Bambu)	0	0	0	0	0	12,000.000	32,000,000	59,000,000	93,000,000	128,000,000	163,000,000	184,000,000	198,000,000	205.000.000	205,000,000	205.000.000	205,000,000	205,000,000	205,000,000	205,000,000	205.000,000	205,000,000	205,000,000	205,000,000	205,000,000	205,000,000	205,000,000	205,000,000	205,000,000	205,000,000	4,354,000,000
TOTAL BENEFIT	Cattle+Goat+Bed F	700,000	325 440 000	360 180 000	662,868,000	386,568,000	266.868.000	401,868,000	401,868,000		386,568,000	300.618.000	435,618,000	435.618.000	696 618 000	420.318.000	300,618,000	435.618.000	435,618,000	696.618.000	420.318,000	300.618,000	435.618.000	435,618,000	696,618,000	420,318,000	300,618,000	435.618,000	435,618,000	696,618,000	420,318,000	13.165.956.000
	Nursen	c	276 602 500		286 257 500	286 257 500	286.257.500	187,555,000	0	0	0																					1,609,187,500
	KIJO Activity		215 157 040	543 853 260	943,000,200 041,075,928	1 397 764 536	1 874 231 712	2 267 102 199	2 387 152 605	2 475 968 152	2 505 185 418	2 510 621 285	2 626 237 394	2 749 502 096	2 672 539 507	2717627675	2 893 851 829	3 110 838 900	3 129 710 120	3 130 070 058	3 291 940 291	3 4 1 2 9 3 5 0 1 8	3 436 452 836	3,427,399,272	3,414,199,896	3,417,955,624	3 473 080 638	3 460 004 826	3,485,049,845	3 391 879 636	3,195,416,974	77,590,231,016
		7 045 220 000	4,040,050,000	1000,000,400	43,321,103,000	000,000,001,000	104 123 984 020	125 050 100 147	132 619 589 149	197 553 786 237	139 176 967 662	120 772 060 287	145.902.077.467	159 750 116 470	1 10 500 070 500	150 979 315 967	180 789 534 930	179 894 888 398	172 879 784 446	173.897.780.974	182 885 571 700	189 607 500 980	190,914,046,437	190,411,070,662	189 677 771 979	189 886 423 581	192 948 924 328	192 222 490 327	193 613 880 288	188 437 757 539	177,523,165,248	4,359,253,881,369
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ANNUAL BENEFIT PLAN

(Application)

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170,704,138,206 170,589,088,206 53.966,482,699 110,943,844,655 119.277,911,614 123.473.522.938 29.676,050.688 36,932,285,910 49.125.655,106 50.358,750.626 51,190,654,789 61.389.547.738 171.041.638.206 170.676,538,206 166,817,316,160 155,285,971,804 3,808,712,701,753 3,593,250,000 37,971,225,000 116,563,269,892 119,028,117,633 117,857,138,323 (Unit: Rupiah) 22,603,950,000 70,105,005,358 89.954.482,697 171,922,732,147 173,104,351,93, 27,162,636,40 25,033,345,73 69,555,592,91 72,808,206,17 -9 Total 000'008'06 90.300.000 õ 48,300,000 2.047.500,000 ō Ó 0 90,300,000 90,300,000 90,300,000 90,300,000 90,300,000 90,300,000 48,300,000 90,300,000 90.300.000 48,300,000 90,300,000 90,300,000 90,300,000 90,300,000 48,300,000 90,300,000 90,300,000 90,300,000 Wood-fence and Coffee plantation | Coffee plantation Strip Planting 10hi-19 22,343,901,570 12,576,375,000 2,987,288,959,211 641,058,082,542 2,802,600,000 21.180.554.019 21,224,746,192 1,500,408.949 15,029,950,034 19,907,286,690 20,755,956,634 20,380,121,949 21,373,231,375 22,256,652,666 27,205,521,444 28,508,507,148 29,160,000,000 29.160,000.000 29,160,000,000 29,160,000,000 29.160,000,000 27,977,745,489 8,597,581,083 18,751,945,955 25,251,042,887 29,160,000,000 29.160.000.000 25,968,026,717 20,547,090,247 24,975,968.127 Improvement of Ichi-8 901-1500 92,757,316,374 98,905,100,215 134,536,038,206 121,507,482,587 41,599,101,616 89,678,473,700 94,009,060,999 01,485,178.022 97.386.061.713 107,059,484,340 116,516,661,738 117,262,482,499 134,536,038,206 134,536,038,206 34,536,038,206 36,442,956,170 135,880,201,932 130,733,998,172 13,838,850,000 27,710.100,000 55,505,896,409 96.751.581.563 117,817,511,902 26,229,676,294 133,416,335,764 72,851,857,663 93,624,658,202 95,057,296,367 135.117.482.147 Improvement of Ichi-7 006-0 Agriculture 0 0 0 $\overline{\circ}$ 0 0 0 0 00 0 O ि $\overline{\circ}$ 0 0 ਠ $\overline{\circ}$ ਰ $\overline{\circ}$ 3.593,250,000 2,515,275,000 ,796,625,000 .077,975,000 3,593,250,000 Present Coffee National Forest Coffee plantation Coffee plantation Coffee plantation Plantation in chi-6 20,250,000 255,000,000 255,000,000 4,005,150,000 27,000,000 36,450,000 43,200,000 47,250,000 33,750,000 4.050,000 02,000.000 93,800,000 224,400,000 244,800,000 255,000,000 255.000,000 255.000.000 13,500,000 10,200,000 30,600,000 61.200,000 53,000,000 255,000,000 255,000,000 255.000,000 255.000,000 214,200,000 Conversion of 1,500m 555,750,000 839,475,000 3.875.950,000 1,627,275,000 2,351,310,000 2,607,020,000 4,275,700.000 86.260.135.000 1,139,775,000 1,477,125,000 1,525,875,000 2,125,500,000 2,892,630,000 3,237,390,000 3.670.550,000 4.289.350,000 4,413,500,000 4,408,300,000 4.086,550,000 3,891,550,000 3,825,250,000 4.398.550,000 4,356,722,500 4,113,362,500 1,979,250,000 4.024,150.000 4,203,550,000 Conversion of 901-1500 837,750,000 2.722,500,000 0 75,476,500,000 2,545,900,000 2,092,500,000 2,896,900,000 3,206,300,000 3,422,600,000 3,603,100,000 3.657,050,000 3,599,850,000 3,051,750,000 2.913.750.000 2.759,250,000 464,750,000 500,000,000 863,500,000 293,500,000 775,500,000 2,189,500,000 3,516,250,000 3,373,500,000 3,200,750,000 2.893,400,000 3,320,300,000 3,418,850,000 3,392,600,000 3.096,400,000 Conversion of lchi-3 006-0 Total He H 9 7 Ė <u>∞</u> 9 2 26 2 2 33 8 22 25 23 ဖ Φ Ø 2 8 O

ANNUAL BENEFIT PLAN

(Unit: Rubiah)	3-15 Total				0	4.845.330.000	26,894,630,000	45,321,105,000	63,418,395,050	82,221,443,274	104,123,984,020	125,950,122,147	132,619,589,149	137,553,786,237	139,176,967,562	139,478,960,287	145,902,077,467	152.750.116,470	148.529.972.592	150.979.315.267	160,769,534,930	1/2.824.383.326	173,872,784,446	173,892,780,974	182,885,571,700	189,607,500,930	190,914,046,437	190,411,070,662	189,677,771,979	189,886,423,581	192,948,924,328	192,222,490,327	193,613,880,288	188,437,757,539	177,523,165,248	4,359,253,881,309
	3-9 Total					3.593,250,000	22.603.950,000	37,971,225,000	53,966,482,699	70,105,005,358	89,954,482,697	110,943,844,655	116,563,269,892	119.277,911,614	119,028,117,633	117,857,138,323	123,473,522,938	129,676,050,688	125.033,345,732	127.162,636,407	136,932,285,910	149,125,655,106	150,358,750,626	151,190,654,789	161,389,547,738	169,555,592,912	171,041,638,205	170.704.138.206	170,589,083,206	170,676,538,206	172.808,206,170	171.922,732,147	173.104,351,932	166,817,316,160		3,808,712,701,753,4
	10-15 Total				0	1,252,080,000	4,290,680,000	7,349,830,000	9.451,912,351	12.116.437.916	14,169,501,323	15.006.277.493	16,056,319,257	18,275,874,623	20,148,850,029	21.621.821.964	22,428,554,530	23.074,065,782	23,496,626,860	23,816,678,860	23,837,249.020	23,698,728,220	23,514,033,820	22,702.126,185	21,496,023,962	20.051,908,068	19,872,408,232	19,706,932,456	19,088,683,774	19,209,885,375	20.140.718.158	20,299,758,179	20,509,528,355	21.620,441,379		550,541,179,616
1 1	lchi-15	Plantation of	Boundary Trees			0	0	0	21,600,000	64,800,000	118,800,000	172,800,000	261,360,000	345,600,000	425,520,000	564,720,000	730,320,000	887,760,000	1.054,320,000	1,203,600,000	1,216,800,000	1,137,600,000	1,032,000,000	900,000,006	768,000,000	702,000,000	702,000,000	702,000,000	659,880,000	589,680,000	544,200,000	483,000,000	448,200,000	503,520,000	608,520,000	16.848,600.000
=	Agriculture chi=14		ı,			1,252,080,000	2.539,680,000	3,827,280.000	5,121,140,400	6,421,438,800	6,446.835,600	6,485,108,400	6.548,778,000	6,638,022,000	6,753,018,000	6,856,026,000	6,946,158,000	7.010,538,000	7,042,728;000	7,042,728,000	7.042,728.000	7.042.728.000	7.042.728,000	7.042,728,000	7.042.728.000	7.042,728,000	7,042,728,000	7,042,728.000	7,042,728,000	7.042,728,000	7.042,728,000	7.042.728.000	7.042,728,000	7,042,728,000	7,042,728,000	192,572,479,200
ANNOAL	Ichi-12	Protection Fores F	ment			0	0	0	0	161,600,000	310,400,000	502,400,000	705,700,000	849,500,000	960,000,000	1,019,500,000	1,036,500,000	1.045,000,000	1,045,000,000	1,045,000,000	1.045,000,000	1.045,000,000	1.045,000,000	1.045,000,000	1.045,000,000	110	1,045,000,000	1.045,000.000	1,045,000,000	1,045,000.000	1,045,000,000	1,045,000,000	1,045,000,000	998,200,000	916	24.179.800.000
	1.11	Coffee Plantation Protecti	pment	ļ —		0	288 400 000	597,400,000	744 158 351	942,644,716	1,272,128,995	1,382,415,965	1,531,278,529	1,889,279,495	2.197.743.701	2,371,837,804	2 459 393 970	2511,800,422	2.528.887.500	2.528.887.500	2,528,887,500	2,528,887,500	2.528.887,500	2,433,199,865	2 266 885,642	2 032 223 108	1,989,340,872	1,960,482,696	1,869,706,014	1,899,323,615	2,065,637,838	2,089,939,459	2,118,797,635	2,299,920,659	2,395,038,725	56,253,415,576
	12421	tation	pment	Ì		0	1 462 600 000	2 925 200 000	2 925 200 000	2 925 200 000	2 925 200 000	1 462 600 000	ō	0	0	0	C	O	0	0	0	0	Ö	0	0	0	1 481 222 400	2 962 444 800	2.962.444,800	2.962.444,800	2.962.444,800	1,481,222,400	O	Ö	0	29,438,224,000
	1-1-1-1	1 2 1 2 1 2 1		1		C	C	0 0	629 813 600	1 800 754 400	3 096 136 728	5 000 953 128	7 009 202 728	8 553 473 128	9812568328	10.809 738 160	200.5	618 967	11 825 691 360	11 996 463 360	12 003 833 520		11865418320	11 281 198 320	10373410320	0 229 956 960	7612116960	5 994 276 960	5.508.924.960	5,670,708,960	6 480 707.520	8.157.868.320	9 854 802 720	10.776.072.720	11,274,906,720	231,248,660,840
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ANNUAL BENEFIT ESTIMATION

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	NURSERY		
1	0		
2	276,602,500		
3	286,257,500		
4	286,257,500		
5	286,257,500		
6	286,257,500		
7	187,555,000		
8	0		
9	0		
10			
Total	1,609,187,500	0 0	0

- 89 -

ANNUAL BENEFIT PLAN

Prevention of flow out of soil flow flow flow flow flow flow flow flo	[-]		[Ţ	Γ	[T	T	1	7]		Ţ	7	1	7		Ţ	<u> </u>	T	1	1	1	1-	<u> </u>	_	-		Γ]	T-	Ţ-	T	- 	Ţ	T	T	<u> </u>		1	
Prevention of flow out of soil flow out		:														:							1																		
Transportation of fow out of soil Transportation Cost of Soil 14,000 Rp/Ton 13,242,000 13,342,000 13,32,256,000 13,32,256,000 13,32,256,000 13,32,256,000 22,256,000 23,256,000 23,256,000 23,256,000 23,256,000 23,256,000 23,356,000					-	-	ļ	+	-		-			-	+	-				-		-	-	+	-	_	-		-		-	-	1-	-	-	-	-	- -	+	-	
Prevention of flow out of soil flow out				,											!																										
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 135,422,422,422,422,422,422,422,422,422,42)
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 87,458,000 135,422,000 133,432,432,432,432,432,432,432,432,432,4																ļ																									
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 135,422,422,422,422,422,422,422,422,422,42																																									
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 135,422,422,422,422,422,422,422,422,422,42			-	-	-		-	-	-			L				-	1		1	-		+	+	+	-		-	1	-	+	1	-	+	-	1	+	1	$\frac{1}{1}$	+	$\frac{1}{1}$	
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 87,458,000 135,422,000 133,432,432,432,432,432,432,432,432,432,4														! !																											
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 135,422,422,422,422,422,422,422,422,422,42						1																	-		_	_	_	-			-					1	1	1	_		
Frevention of flow out of soil Transportation Cost of Soil Cost of Soil 14,000 Rp/Ton 14,000 Rp/Ton 135,422,000 135,422,422,422,422,422,422,422,422,422,42									:																																
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Frevention of flow out of soil flow out of soil Transportation Cost of Soil 14,000 Rp/ 135,422,000 154,728,000 154								Ton																																	
Frevention out of School o	-	-	-			_			-	 -) 5	2 5	2 2	2 5	200	8	8	8	8	8	00	00	00	.00	00	00	8	8	00	8	8	8	8	8	8	8	8	8	8	8	
		ion of	of soil		ntation	Soil	!	14,00			20000	2 0 0 0 0	2007	70 a 27 b	0.256.00	6 268 00	2,728.00	0.532.00	9.078.00	0 554 0	2 290.00	3.886.0	5,328,0(6,000,0	9.718.0	2,330.0	1,722.0	0,350,0	0.350.0	0.350.0	0.350.0	0,350.0	0.350,0	0.350.0	0.3500	0.350.0	0,350,0	0,350,0	0,350,0	6,178,0	
		revent	low out		Transpo	Cost of							٥	3 12	2 0	22	25	28	30	33	33	33	33	33	31	30	28	28	28	28	28	28	28					28	28	7,62	
ity of soil flowing out 1,052 11,052 14,304 14,304 1,052 1			+		soil		g out		167	1	2 4 90	221.0	0,247	3.07.5	4 304	6 162	18.052	20 038	22 077	23 611	23.735	23.849	23,952	24,000	22.837	21.595	20,123	20.025	20.025	20,025	20.025	20,025	20,025	20,025	20,025	20.025	20,025	20.025	20.025	544,727	
						e preve	n flowin											 ` `																						ഹ	1
		a)			Que	to b	fron		 	 -	1	1		+	5	3 5	2 6	 }	3 2	2 5	38	8	00	8	00	00	8	00	000	000	000	900	000	000	000	90	8	000	000	000	
Kajigaki 12.000.000 32.000.000 59.000.000 128.000.000 128.000.000 128.000.000 128.000.000 198.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000 205.000.000				igaki	sprout										0000	2,000,0	0000		0000	0000	2000 45	00008	5 000 0	5.000.0	5.000.0	5,000,0	5.000.0	5.000.0	5,000,0	5.000,0	5,000.0	5.000,0	35.000.0	35.000.0	5.000.0	5,000,0	5,000,0	5,000.0	5.000.0	54,000,0	
Riperian Zon Mr. Kajigaki Bambu sprout 12,000,0 32,000,0 32,000,0 32,000,0 128,000,0 205,000,0		Riper		Mr. Kaj	Bambu												1			1			7	2	2	X	X	×	×	×	×	×	N N	×	×	×	×	K	Ĭ	43,	
Tem t		item		Ţ	1	c	3enefit	100	(2		2		4	ၵ	0 1	0	٥	2	2 7	- 6	13	2 4	15	16	17	8	19	20	21	22	23	24	25	26	27	28	20	30	Total	

BENCH TERRACE AND WOOD FENCE BENEFIT

J

Unit: Rupiah		Grand		Total				Amount				0	0	0	0	0	0	32.012.400	64.024.800	128.049.600	192.074.400	320,124,000	803	1,157,483,790	1.674.719.530	2,191,955,370	2,709,191,160	3.226.426.950	3,226,426,950	3,226,426,950	3,226,426,950	3.226.426.950	3,226,426,950	3,226,426,950	3,226,426,950	3,226,426,950	3.226.426.950	3,226,426,950	3.226,426,950	3.226.426.950	3.226,426.950	54.378.416.295
	lchi-14	Farm Land Dev.		Bench Terrace	3rd	4,440,000	1.442	Amount			o l	0	O	0	ō	0	0	32.012.400	64,024,800	128,049,600	192.074,400	320.124.000	480.186,000	640.248.0001	640,248,000	640,248,000	640.248,000	640.248.000	640.248.000	640.248.000	640.248.000	640.248.000	640.248.000	640.248.000	640.248,000	640,248,000	640.248.000	640,248,000	640,248.000	640,248,000	640,248,000	2.740.935.200
	tot	Farm L		Bench				Inc. Rate			-							0.005	0.01	0.02	0.03	0.05	0.075	0.100	0.100	0.100	0.100	0.19	9	0.100	0:10	0.10	0.100	0.100	010	0.100	0.100	0.100	0.100	0.100	0.100	
פבועבון	ii—11	stry Complex	901-1,500m	& strip	6th	11,311,000	93	Amount		-	0	0	0	0	0	0	0	0	0	0	0	0	5.259.615	10.519.230	21.038.460	31,557,690	42,076,920	52.596,150	52,596,150	52,596,150	52.596,150	52.596,150	52,596.150	52,596,150	52,596,150	52.596.150	52,596,150	52,596,150	52,596,150	y	52.596.150	846,798.015
TENCE	lchi-	Agro-Forestry	Dev. (New)	WF.	9			Inc. Rate															0.005	0.010	0.020	0.030	0.040	0.050	ļ	0.050		-						0.050	0.050	0.050	0.050	
AND WOOD FENCE BENEFI	Ichi-10	stry Complex		& strip	6th	11,318,000	452	Amount	***************************************		0	0	0	0	0	0	0	0	0	C	0	0	25.578.680	51,157,360	102,314,720	153,472,080	204.629.440	255,786,800	255,786,800	255,786,800	255.786.800	255,786,800	255.786.800	255.786.800	255,786,800	255.786.800	255,786,800	255.786,800	255,786,800	255.786,800	255,786.800	4,118,167,480
ACE AN	<u> </u>	Agro-Forestry	Dev. (Ne					Inc. Rate															0.005	0.010	0.020								0.050	1		0.050				0.050		
CH TERRACE	lchi-8	stry Complex	7-	15	6th	7,191,000	1.060				0	0	0	0	0	0	c	C	0	C	C	C	8112.30	224	152,449,200	228,673,800	304,898,400	381,123,000	381,123,000	381,123,000	331,123,000	381,123,000	381.123.000	381,123,000	381,123,000	381,123,000	381,123,000	381,123,000	381.123.000	381,123,000	381,123,000	6.136,080,300
BENCH	ol	Agro-Forestry	Dev. (Exist)90	WF				Inc. Rate			_													0.010	1		0.040	1	0.050	0.050	0.050	0.050	0.050			l		0.050	0.050	0.050	0.050	
	7-j40	stay Complex	0-900m	& strip	6th	7.198.000	5 270				0	0	0	0	C		2						189 667 300	379 334 600	758.669.200	1,138,003,800	1.517.338.400	1.896,673,000	1.896,673,000	1.896,673,000	1.896,673,000	1,896,673,000	1,896,673,000	1.896,673,000	1.896,673,000	1,896,673,000	1.896,673,000	1.896,673,000	1.896.673.000	1.896.673.000	1 896.673.000	30.536,435,300
		A month oractory	Develor (1	1և				Inc. Rate	•								1						0000			0.030					0.050							0.050			0.050	
	0,000	raga tom	Item	Work	> t 0		Work ho				0			, e	V	4	2 4	01	- 0	5 0	0 6	7	- 61	1 8	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	66	30	,

>	Inflation	Annual Benefits in Full Scale: Rp	full Scale= Rp	160,633,452
3		<u>Ş</u>	%	Benefits of Prevor Soil Fertility
-	1.07	0	%0.0	0
2	1.14	3,120	15.6%	25,027,534
3	1.23	6,247	31.2%	50,111,220
4	1.31	9.673	48.3%	77,593,378
ις:	1.40	11,052	55.2%	88,655,227
9	1.50	14,304	71.4%	114,741.618
7	1.61	16,162	80.7%	129,645,836
8	1.72	18,052	90.1%	8
6	1.84	20,038	00.1%	160,737,734
10	1.97	ı	10.2%	177,093,869
=	2.10		17.9%	189,399,073
12	2.25	23.735	118.5%	190,393,757
13	2.41	23,849	19.1%	191,308,225
14	2.58		19.6%	192,134,454
15	2.76		19.9%	192,519,493
16	2.95	22,837	14.0%	183,190,320
1.		21,595	107.8%	173,227,436
18		20,123	100.5%	161,419,574
19		20.025	100.0%	160,633,452
20			100.0%	160,633,452
21		20.025	100.0%	160,633,452
22	4.43	20,025	100.001	160,633,452
23	4	20.025	100.0%	160,633,452
24	5.07	20,025	100.0%	160,633,452
25		20.025	100.001	160,633,452
26		20,025	100.001	160,633,452
27		20,025	100.001	160,633,452
28		20,025	100.0%	160,633,452
29		20.025	100.0%	160.633.452
30	7.51		100.0%	160.633,452

TOTAL COST ESTIMATION (Constant Price)

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11	1	Dana Canadan phine	Ness	W.S. Air Lanang	KUD Staff	Information Center	ormation CenterCattle+Goat+Bed	Check dam	Riparian Zono	Project Management	Total
N)	704 170 500	462 085 20A	84 827 600	131 176 1001	8	1 323 020 000	440,017,000	249,461,000	0	1,353,669,600	4,385,035,004
1	704,179,000	1 100 500 639	41 271 512	2	45 600 000	338 420 000	150.422.000	249,461,000	28,410,000	1,244,980,800	8,918,535,644
- 1	3 529 350,000		19 561 001		25 600 000	340 300 000	165.788.000	299,353,200	33,145,000	1,146,172,900	8,992,874,438
- 1	5,717,047,000	1	10,00		200	298 790 000	185 788 000	0	33 145 000	1,007,841,600	8,479,482,723
- 1	5.717,047,000	1	40,001,921	olc		294 700 000	165 788 000	0	33,145,000	592,848,000	
H	000/50/	7, 1	45,001,321			000 000 000		C	33 145 000	592 848 000	
- 1	5,510,085,500	<u>, </u>		5		200,000,000			22 1 45 000	765 769 000	5 025 723 010
-	3,386,607,250	50,931,993	21,346,767	0	0	26/ 930,008			0000	000.307,007	
1	0	0	0	0	0	0		0	3		
1	0	0	0	0	0	0		O	o	0	0
1		C	C	0	0	0		0	0	0	O
1.	22 881 279 750	6.485.380.699	321 793 563	131 176 10	136,800,000	3.152.860,000	1.087,803,000	798,275,200	194,135,000	6,704,122,800	50,893,726,042
-1	3	20,000									Project Funds +
10 1			VeT cancer)	Cattle+Goat+Bod	Check dam	Riparian Zone	Grand Total	Farmers Funds
. J	o-rorastry ato	Agro-rorestry etohogo Construction	A8 - 900 00					C	0	571,446,180	5,456,482,184
- 1			30,000,100						C	9 879 711 535	18 798 247 179
	9,714,731,500		164,980,035						5 6	320 101 101	200 000 000
ı " "	21,775,302,000		275,805,255					O	2	52,701,150,22	01.040.301.03
ı '	33,313,814,500		386,205.123					0	Э.	33,700,019,623	42,179,502,647
ı٦	44 857 872 000		497,365,613					2.689.000	960,000	45,358,886,613	53,430,688,421
1 "	56 333 349 500		628 134 657				440.017,000	5,378,000	2.080,000	57.408.959.157	63,929,231,571
1"	65,782,707,600		759 429 271				150,422,000	8.604,800	3,200,000	66,705,363,671	71,731,085,681
1*	67 928 111 000	50 921 993	798 482 743				165,788,000	8.604,800	4,320,000	68.956,238,536	68.956,238,53\$
11	0001111000	00100	820,352,735				165.788.000	8,604,800	5,440,000	69,247,173,713	69.247,173,718
- 1°	00.100.331.000	3	029,007,020				165 788 000	8,604,800	6.560.000	69,508,385,007	69.508.385.007
- I `	000,100,000	00.001.000	000 455 470				440 017 000	8 604 800	6.560,000	70.984.831.463	70,984,881,463
~1'	09.039.112.200	000,000	029,600,410				150 499 000	8 604 800	6 560 000	80 869 614 966	30 869 614 966
- 1	79.773.966.000	50.00	8/9,130,173				700,424,000	000,400,0	8 560 000	00 888 057 150	Q0 688 057 150
1	89,533,869,950	50,931,993	920,302,407				100.700.000	6,004,000	000,000,0	CO CC 577 500	50.000,000,000
	91,793,103,300	50.931,993	896,589,544				165,788,000	0.004,800	000.000.0	52.521.071.051	100.110.120.20 01.00.100.100.10
- ´ ′	93,922,274,850	50,931,993	909,627,800				165,788,000	8,604,800	6,560,000	95,053,787,443	95,063,787,443
1~′	96,271,227,100	50,931,993	967,650,918				440,017,000	8,604,800	6,560,000	97,744,991,311	97,744,991,811
١~,	96 234 109,000	50.931.993	1,040,790,008				150,422,000	8,604,800	6,560,000	97.491.417.801	97,491,417,801
1	87 447 720 600	50.931.993	1,047,080,415				165,788,000	8,604,800	6,560,000	88,725,685,808	88,726,685,808
ľ	79 860 375 800	50 931 993	1 048 766 394				165,788,000	8,604,800	6,560,000	80.941,026,987	80.941,026,987
1	79 028 123 000		1 101 065 338				165,788,000	8,604.800	6.560,000	80,359,073,131	80,359,073,131
1	78.861.064.200	•	1 140 678 714				440.017.0001	8,604,800	6,560,000	80.507,856,707	80,507,856,707
1	001,007,100,40	003	1 149 227 927				150.422.000	8,604,800	6.560,000	79,847,546,880	79,847,546,880
1'	77 955 949 950	200	1 146 210 129				165 738 0001	8,604,800	6.560,000	79.344.044.175	79,344,044,175
ı.	77.900.049,200	200	1 1 1 2 1 7 8 9 7 0				165 788 000	8 604 200	6.560.000	79 230 451 633	79,230,451,633
-1'	7 955 090,000	┸	1 1 4 0 0 10 0 10 10				165 788 0001	8 604 200	6.560.000	79.378.848.992	79 328 846 992
- 11	007.180.008.77	2 6	01100001				1000,000,000	000,000	6 550 000	90 561 A39 9A7	CAC 951 A39 947
- 1	78,894,597,200	2	1,160,727,254				440.017.000	000.400.0	000.000.0	7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	743.004.100.00 743.004.100.00
. 1	79,270,847,600	993	1,157,178,650				150.422,000	8,604.800	000,000,0	80.644,545,043	80.644.345.043
, '	79,789,531,800	50.931,993	1,165,526,990				165,788,000	8,604,800	6,560,000	81,186,943,533	81,186,943,583
1~~	80.421.384,600	931,993	1,136,036,253				165,738,000	8.604.800		81,789,305,646	81,789,305,646
ı^	91 063 937 400	50 031 993	1 068 890.899				165.788.000	8,604,800		82,354,013,092	32,354,013,092
•	・シンと、こうがつつつ	;									

TOTAL OF ANNUAL INVESTMENT PLAN

						Unit: Rupiah
[Ichi-4	lchi-5	lchi-6	lchi-8	lchi-9	lchi-10a
	930	637	30	20,542	4,267	6,150
1	0	0	0	0	0]	233,160,000
2	138,720,000	63,238,500	5,364,000	2,901,887,250	424,888,000	235,840,000
3	155,040,000	70,265,000	5,364,000	2,908,681,250	439,010,000	235,840,000
4	155,040,000	70,265,000	5,364,000	2,908,681,250	439,010,000	235,840,000
5	155,040,000	70,265,000	5,364,000	2,908,681,250	439,010,000	235,840,000
6	155,040,000	70,265,000	5,364,000	2,908,681,250	439,010,000	469,000,000
7	0	0	0	2,908,681,250	439,010,000	471,680,000
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0,	0	0	0	0	0
Total	758 880 000	344 298 500	26 820 000	17 445 293 500	2 619 938 000	2.117.200.000

	Ichi-10b	Ichi-11a	lchi-11b	lchi−12	Ichi−13	Ichi-14
	530	180	15	1,775	370 ha	418 ha
1	24,120,000	0	0	0	0	0
2	29,480,000	24,210,000	3,631,500	1,010,915,750	182,868,000	68,484,000
3	29,480,000	48,420,000	3,631,500	1,010,915,750	195,930,000	74,630,000
4	29,480,000	48,420,000	3,631,500	1,010,915,750	195,930,000	74,630,000
5	29,480,000	48,420,000	3,631,500	1,010,915,750	195,930,000	74,630,000
6	24,120,000	48,420,000	3,631,500	1,010,915,750	195,930,000	74,630,000
7	29,480,000	10,640,000	1,596,000	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
Total	195,640,000	228,530,000	19,753,500	5,054,578,750	966,588,000	367,004,000

	lchi−16	lchi-17	lchi-18	Total		
	1,442 ha	1,442 ha	30 km			
1	326,203,500	120,696,000	0	704,179,500		
2	335,457,500	124,120,000	80,262,000	5,629,366,500		
3	335,457,500	124,120,000	80,262,000	5,717,047,000		
4	335,457,500	124,120,000	80,262,000	5,717,047,000		
5	335,457,500	124,120,000	80,262,000	5,717,047,000		
6	0	24,816,000	80,262,000	5,510,085,500		
7	0	25,520,000	0	3,886,607,250		
8	0	0	0	0		
9	0	0	0	0		
10	0	0	0	0		
Total	1,668,033,500	667,512,000	401,310,000	32,881,379,750	0	0

ANNUAL INVESTMENT PLAN
Cost Estimation of 30 Years for Farmers' Account

Unit Rupian																				Ĭ]									lch+8	20,542		713,224,000	257,658,000	0 806 358 000	000 000 000	ON 100 620 677 07	026 206 750	46 350 166 750	45 534 156 750	525 618 650	126,312,250	749 503 950	527 372,500	222 918 850		755324 000	308 209 950	372,237,450	000 550 961	528 810 550	466 197 750	4.484 999 000	405,600,250	269,385,400	461,605,700	729 209 250	507 596 650	
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ANNUAL INVESTMENT PLAN
Cost Extrastion of 30 Years for Farmors' Account

1200.000	48.000 e. 69.000	(전) [전]	Work plan	1,042 ha	Seedink	Pertilizar	Chemicals 730,000	i i	Mainte 1.200,000 1.200,000	88	9	7.200.000 7.200.000	Selek	Aran	yueu.
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Annual Investment Plan for Road, Nursery, and W.S. Air Lanang (Government Accout)
Unit: Rupiah

						Unit: Rupiah	
	Year		Road		Nursary	W.S. Air Lanang	Grand Total
		Construction	Maintenance	Total			
М	1	509,291,241	0	509,291,241	84,827,600	131,176,100	
Α	2	1,091,338,373	2,787,323	1,094,125,696	29,111,040	0	1,123,236,736
T	3	1,091,338,373	8,760,158	1,100,098,531	30,652,320		1,130,750,851
Ē	4	1,091,338,373	14,732,993	1,106,071,366	30,652,320		1,136,723,686
R	5	1,091,338,373	20,705,828	1,112,044,201	30,652,320		1,142,696,521
1	6	0	26,678,663	26,678,663	30,652,320		57,330,983
Α	7	0		26,678,663	15,020,640	0	41,699,303
l.	8	0		0	0		
S	9	0	0	0	0	0	0
	10	0	0	0	0		
Г	Tota	4,874,644,734	100,343,628	4,974,988,362	251,568,560	131,176,100	5,357,733,022
	1	43,793,963	0	43,793,963	0		
	2		2,533,930	96,378,136		*	
A	3	93,844,206	7,963,780	101,807,986	12,909,601		
В	4		13,393,630			0	
0	5		18,823,480	112,667,686		0	
R	6	0	24,253,330				
	7				6,326,127	0	
	8				0		
	9	C	0	0	0		
	10		· · · · · · · · · · · · · · · · · · ·	1	0		
	Tota	419,170,787	91,221,480	510,392,267	70,225,003	0	580,617,270
	L.		<u> </u>				
1	1	553,085,204	0	V			
T	2		5,321,253				1,231,875,344
0	3	1,185,182,579					1,245,468,438
T			28,126,623				1,256,871,123
Α		1,185,182,579	39,529,308				
l.			50,931,993				
				50,931,993	21,346,767		
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	Tota	5,293,815,52	191,565,108	5,485,380,629	321,793,563	131,176,100	5,938,350,292

COST ESTIMATION FOR 8TH TO 30TH ROAD MAINTENANCE

Unit:	Ru	piah

[Ro	ad Maintenance Co	st One Repair	
	Material Cost	Labor Cost	Total	Materials+Labor+Tax
8	26,678,663	24,253,330	48,506,660	50,931,993
9	26,678,663	24,253,330	48,506,660	50,931,993
10	26,678,663	24,253,330	48,506,660	50,931,993
11	26,678,663	24,253,330	48,506,660	
12	26,678,663	24,253,330	48,506,660	50,931,993
13	26,678,663	24,253,330	48,506,660	
14	26,678,663	24,253,330	48,506,660	
15	26,678,663	24,253,330	48,506,660	50,931,993
16	26,678,663	24,253,330	48,506,660	
17	26,678,663	24,253,330	48,506,660	
18	26,678,663	24,253,330	48,506,660	
19	26,678,663	24,253,330	48,506,660	
20	26,678,663	24,253,330	48,506,660	
21	26,678,663	24,253,330	48,506,660	
22	26,678,663	24,253,330	48,506,660	
23	26,678,663	24,253,330	48,506,660	4
24	26,678,663			
25	26,678,663	24,253,330		
26	26,678,663	24,253,330		
27	26,678,663			
28	26,678,663			
29	26,678,663			
30	26,678,663			
Total	613,609,249	557,826,590	1,115,653,180	1,171,435,839

COST AND BENEFIT ESTIMATION

For	Strengthening KUD A	ctivities by Profession	al Staff	Prepared by: Mr. Ozawa	Unit: Rupiah
No.	Item	Revenues	Increase %	Benefit estimation	Cost estimation
1	Increase of revenue	4,845,330,000	0.50%	24,226,650	45,600,000
2		26,894,630,000	0.80%	215,157,040	45,600,000
3		45,321,105,000	1.20%	543,853,260	45,600,000
4_		63,418,395,050	1.50%	951,275,926	
5		82,221,443,274	1.70%	1,397,764,536	
6		104,123,984,020	1.80%	1,874,231,712	
7		125,950,122,147	1.80%	2,267,102,199	
8		132,619,589,149	1.80%	2,387,152,605	
9		137,553,786,237	1.80%	2,475,968,152	
10		139,176,967,662	1.80%	2,505,185,418	
11		139,478,960,287	1.80%	2,510,621,285	
12		145,902,077,467	1.80%	2,626,237,394	
13		152,750,116,470	1.80%	2,749,502,096	
14		148,529,972,592	1.80%	2,673,539,507	
15		150,979,315,267	1.80%	2,717,627,675	
16		160,769,534,930	1.80%	2,893,851,629	
17		172,824,383,326	1.80%	3,110,838,900	
18		173,872,784,446	1.80%	3,129,710,120	
19		173,892,780,974	1.80%	3,130,070,058	
20		182,885,571,700	1.80%	3,291,940,291	
21		189,607,500,980	1.80%	3,412,935,018	
22		190,914,046,437	1,80%	3,436,452,836	
23		190,411,070,662	1.80%	3,427,399,272	
24		189,677,771,979	1.80%	3,414,199,896	
25		189,886,423,581	1.80%	3,417,955,624	
26		192,948,924,328	1.80%	3,473,080,638	
27		192,222,490,327	1.80%	3,460,004,826	
28		193,613,880,288	1.80%	3,485,049,845	
29		188,437,757,539	1,80%	3,391,879,636	
30		177,523,165,248	1.80%	3,195,416,974	
31	Grand Total			77,590,231,016	136,800,000

No.

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Note: Through the strengthening measures of the project including employment of professional staff, it is expected that selling prices of the products can be raised by 2 to 5%.

Considering reduction by some unsuccessful business, the selling prices can be raised average 2%. In this projection, however, the average increase of the selling price is more safely estimated as 1.8%.

Information Center, etc.						nit: 1000 R		~ ~
Year	1938	1999	2000	2001	2002	2003 6	200415	ub-Tota
Calendar Year	1		3		5			
Supporting Village Level Groups								
A Supporting System for Participation								
Supporting Village Level Groups								
Materials	·	{					l-	
Office	300,000					L		300,000
	55,800		1-				1	55,800
Typewriter	18,600							18,60
Whiteboard	18,600							18,60
Desk	93,000							93,00
Chair				40 600	18,600	18,600	18,600	130,20
Stationary	18,600	18,600	18,600	18,600			18,600	616,20
Sub-Total of Material Costs	504,600	18,600	18,600	18,600	18,600	18,600	18,000	010,20
Labor								
Assist for LKMD A type	62,400	62,400	62,400				——⊦	187,20
Assist for LKMD B type	[34,320	34,320	31,200	31,200	131,04
Allowance for Study/Training A type	29,700	29,700	29,700				- 1	89.10
Allowance for Study/Training B type	10,700		18,150	18,150	34,650	16,500	16,500	103,95
Allowance for Study/ Training B type	}	10,000	10,000	10,000	10,000	10,000	10,000	60,00
C Award to excellent Villagers (incl.training fee)	02400	102,100	120,250	62,470	78,970	57,700	57,700	571.25
Sub-Total of Labor Costs Etc.	92,100	105,1001	120,2301	02,4701	10,310	31,100	-37,1001	
B Lecture	l l						4 400	
Payment to Lecturer(Coffee)	1,400	2,800	1,400	2,800	1,400	2,800	1,400	14.00
Payment to Lecturer(Fruit Tree)	1,400	2,800	1,400	2,800	1,400]	2,800	1,400	14.00
Payment to Lecturer(Others)	600	1,200	600	1,200	600	1,200	600	6.00
Sub-Total of Payment to Lecturer	3,400	6,800	3,400	5,800	3,400	6,800	3,400	34.0
	1,700	3,400	1,700	3,400	1,700	3,400	1,700	17.00
Materials Sub-Total of Lecture Related Expenses	5,100	10.200	5,100	10,200	5,100	10,200	5,100	51.00
200-10fal of Fecture treated Exbenses	3,1001		<u> </u>			: : : : :		
Information Center Office	150,000		 		 			150.0 1.8
Typewriter								4.0
Computer	4,000							1.0
Printer	1,000	<u> </u>			-			28.0
Photo Copy Machine	28,000							1.0
OHP Equipment	1,000				 +			$-\frac{1.0}{2.0}$
Desk	2,000	ll						
Chair	2,500	L1						2.5
IV & Video Set	7.000	1						7,0
Automobile	60,000		1					60,0
Whiteboard	600	1 1						•
I Generator	4,000	11						4,0
Generator			1,000	1,000	1,000	1,000	1,000	4,0
Stationary	1,000	1,000	1,000			1,000 3,000	1,000 3,000	4,(7,(
Stationary News Letter		1,000 3,000	1,000 3,000	3,000	1,000 3,000	3,000		4,0 7,0 21,0
Stationary News Letter Video Film	1,000	1,000 3,000 10,000	3,000	3,000 10,000	3,000	3,000 10,000		4,0 7,0 21,0 30,0
Stationary News Letter Video Film Circuit Show	1,000 3,000	1,000 3,000 10,000 5,000	3,000 5,000	3,000 10,000 5,000	3,000 5,000	3,000 10,000 5,000	3,000	4,0 7,0 21,0 30,0 25,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area	1,000 3,000 10,000	1,000 3,000 10,000 5,000	3,000 5,000 10,000	3,000 10,000 5,000 10,000	3,000 5,000 10,000	3,000 10,000 5,000 10,000	10,000	4,0 7,0 21,0 30,0 25,0 70,0
Stationary News Letter Video Film Circuit Show Lisson Meeting of Project Area Payment to NGO	1,000 3,000 10,000 63,000	1,000 3,000 10,000 5,000 10,000 63,000	3,000 5,000	3,000 10,000 5,000 10,000	3,000 5,000	3,000 10,000 5,000	3,000	4,0 7,0 21,0 30,0 25,0 70,0 441,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle	1,000 3,000 10,000 63,000 180,000	1,000 3,000 10,000 5,000 0 10,000 0 63,000	3,000 5,000 10,000 63,000	3,000 10,000 5,600 10,000 63,000	3,000 5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	10,000 63,000	4,0 7,0 21,0 30,0 25,0 70,0 441,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104)	1,000 3,000 10,000 63,000 180,000	1,000 3,000 10,000 5,000 0 63,000 0 18,000	3,000 5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	3,000 10,000 63,000	4,6 7,6 21,0 30,6 25,6 70,6 441,6 180,4 126,6
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle	1,000 3,000 10,000 63,000 180,000	1,000 3,000 10,000 5,000 0 63,000 0 18,000	3,000 5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	3,000 5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	3,000 10,000 63,000	4,6 7,6 21,0 30,6 25,6 70,6 441,6 180,4 126,6
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104)	1,000 3,000 10,000 63,000 180,000 18,000 536,900	1,000 3,000 10,000 5,000 0 10,000 0 63,000 0 18,000 0 110,000	3,000 5,000 10,000 63,000 18,000 100,000	3,000 10,000 5,600 10,000 63,000 18,000 110,000	3,000 5,000 10,000 63,000 18,000	3,000 10,000 5,000 10,000 63,000 18,000 110,000	3,000 10,000 63,000 18,000 95,000	4,0 7,0 21,0 30,0 25,0 70,0 441,0 126,0 1,161,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor	1,000 3,000 10,000 63,000 180,000	1,000 3,000 10,000 5,000 0 10,000 0 63,000 0 18,000 0 110,000	3,000 5,000 10,000 63,000 18,000 100,000	3,000 10,000 5,000 10,000 63,000 18,000 110,000	5,000 10,000 63,000	3,000 10,000 5,000 10,000 63,000	3,000 10,000 63,000	4,0 7,0 21,0 30,0 25,4 70,0 180,0 126,0 1,161,0
Stationary News Letter Video Film Circuit Show Lisson Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc.	1,000 3,000 10,000 63,000 180,000 18,000 536,900	1,000 3,000 10,000 5,000 0 10,000 0 63,000 0 18,000 0 110,000	3,000 5,000 10,000 63,000 18,000 100,000	3,000 10,000 5,000 10,000 63,000 110,000 110,000	3,000 5,000 10,000 63,000 18,000	3,000 10,000 5,000 10,000 63,000 18,000 110,000	3,000 10,000 63,000 18,000 95,000	4,0 7,0 21,0 30,0 25,4 70,0 180,0 126,0 1,161,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc. KUD Experts	1,000 3,000 10,000 63,000 180,000 18,000 536,900	1,000 1,000 10,000 10,000 10,000 10,000 110,000 110,000 110,000 4,320	3,000 5,000 10,000 63,000 18,000 100,000 60,000 4,320	3,000 10,000 5,000 10,000 63,000 18,000 110,000 60,000 4,320	3,000 5,000 10,000 63,000 18,000	3,000 10,000 5,000 10,000 63,000 18,000 110,000	3,000 10,000 63,000 18,000 95,000	4,0 7,0 21,0 30,0 25,6 70,0 126,0 1,161,0 420,0 12,0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee	1,000 3,000 10,000 63,000 18,000 536,900 60,000	1.000 3.000 10.000 5.000 0 10.000 0 63.000 110.000 0 18.000 0 110.000 4.320 0 20.000	3,000 5,000 10,000 63,000 18,000 100,000 4,320 20,000	3,000 10,000 5,000 10,000 63,000 110,000 110,000 4,320 20,000	3,000 5,000 10,000 63,000 100,000 60,000 20,600	3,000 10,600 5,000 10,000 63,000 110,000 60,000	3,000 10,000 63,000 18,000 95,000 60,000	4,0 7,0 21,0 30,0 25,0 70,0 441,0 180,0 126,0 1,161,0 420,0 12,0 140,0
Stationary News Letter Video Film Gircuit Show Lisson Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 10%) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost	1,000 3,000 10,000 63,000 18,000 536,900 60,000	1,000 1,000 10,000 10,000 1,000	3,000 5,000 10,000 63,000 100,000 60,000 4,320 20,000 84,320	3,000 10,000 5,000 10,000 63,000 110,000 110,000 60,000 60,000 20,000 84,320	3,000 5,000 10,000 63,000 100,000 60,000 20,600 80,000	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000	3,000 10,000 63,000 18,000 95,000 60,000 20,000 80,000	4.0 2.1 30.0 25.0 70.0 441.1 180.0 1.161.1 420.0 12.0 140.0 572.0
Stationary News Letter Video Film Circuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost Sub-Total of 2	1,000 3,000 10,000 63,000 18,000 536,900 60,000 20,000 80,000 616,900	1,000 3,000 10,000 5,000 0 10,600 0 3,000 110,000 0 18,000 0 110,000 0 4,320 0 20,000 0 84,320 0 194,320	3,000 5,000 10,000 63,000 18,000 100,000 4,320 20,000 84,320 184,320	3,000 10,000 5,000 10,000 63,000 110,000 110,000 60,000 4,320 20,000 84,320 194,320	3,000 5,000 10,000 63,000 100,000 60,000 20,000 80,000	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000	3,000 10,000 63,000 18,000 95,000 60,000 20,000 80,000 175,000	4.0 2.1 30.0 25.0 70.0 441.0 126.0 1.161.0 420.0 140.0 572.0 1.734.0
Stationary News Letter Video Film Circuit Show Lisson Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 10%) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost Sub-Total of 2 Total of Material Costs	1,000 3,000 10,000 63,000 18,000 536,900 60,000 20,000 615,90 1,043,20	1,000 1,000 10,000 10,000 10,000 10,000 110,000 110,000 110,000 4,320 0 60,000 4,320 0 84,320 0 194,320 0 132,000	3,000 5,000 10,000 63,000 100,000 60,000 4,320 20,000 184,320 120,300	3,000 10,000 5,000 10,000 63,000 110,000 60,000 4,320 20,000 84,320 194,320 132,000	3,000 5,000 10,000 63,000 100,000 60,000 20,000 80,000 180,000	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000 132,000	3,000 10,000 63,000 18,000 95,000 60,000 20,000 175,000 115,300	4.0 21.0 30.0 25.0 441.1 180.0 126.0 1,161. 420.0 140.0 572.0 1,734.0
Stationary News Letter Video Film Gircuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 10%) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost Sub-Total of 2 Total of Material Costs Soles Tax on Material	1,000 3,000 10,000 63,000 18,000 536,900 60,000 20,000 80,000 1,043,20 s 104,32	1,000 1,000 10,000 10,000 10,000 10,000 18,000 110,000 4,320 0 20,000 0 43,320 0 132,000 0 132,000 0 132,000	3,000 5,000 10,000 63,000 18,000 100,000 4,320 20,000 84,320 120,300 12,030	3,000 10,000 5,000 10,000 63,000 110,000 4,320 20,000 84,320 194,320 132,000	3,000 5,000 10,000 63,000 18,000 100,000 60,000 20,000 80,000 180,000 120,300 12,330	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000 190,000 132,000	3,000 10,000 63,000 18,000 95,000 20,000 20,000 175,000 115,300 11,530	4.0 21.0 30.0 25.0 70.0 126.0 1.161.1 420.1 12.1 140.1 1.795.2 1.795.2 1.795.2
Stationary News Letter Video Film Gircuit Show Liason Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost Sub-Total of Sub-Total Ocsts Sub-Total of Material Costs	1,000 3,000 10,000 63,000 18,000 18,000 60,000 20,00 80,00 616,90 1,043,20 5,1043,20 175,50	1,000 1,000 10,000 10,000 10,000 10,000 10,000 110,000 110,000 4,320 0 20,000 0 84,320 0 194,320 0 132,000 0 133,000 0 133,000 0 193,220	3,000 5,000 10,000 63,000 18,000 100,000 4,320 20,000 84,320 184,320 12,030 207,970	3,000 10,000 5,000 10,000 63,000 110,000 4,320 20,000 84,320 194,320 194,320 194,320 153,590	3,000 5,000 10,000 63,000 100,000 60,000 20,600 80,000 120,300 12,030 12,030 162,370	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000 132,000 132,000 144,500	3,000 10,000 63,000 18,000 95,000 60,000 20,000 115,30 11,530 141,100	4.0 7.6 21.0 30.0 441.0 180.0 126.0 1.161.1 420.0 12.0 140.0 572.0 1.734.0 1.734.0 1.735.0 1.735.0 1.735.0
Stationary News Letter Video Film Circuit Show Lisson Meeting of Project Area Payment to NGO Motorcycle Motorcycle (Maintenance and Fuel 104) Sub-Total of Material Cost Labor Staff, etc. KUD Experts Advisory Committee Sub-Total of Labor Cost Sub-Total of 2 Total of Material Costs Soles Tax on Material	1,000 3,000 10,000 63,000 18,000 536,900 60,000 80,000 616,90 1,043,20 5 104,320 175,50 1,323,02	1,000 1,000 10,000 10,000 10,000 10,000 10,000 110,000 110,000 4,320 0 20,000 0 84,320 0 194,320 0 193,320 0 133,220 0 133,220 0 338,420	\$,000 5,000 10,000 63,000 18,000 100,000 4,320 20,000 84,320 184,320 120,300 207,970 340,300	3,000 10,000 5,000 10,000 63,000 110,000 4,320 20,000 84,320 194,320 194,320 132,000 133,590 298,790	3,000 5,000 10,000 63,000 100,000 60,000 20,600 80,000 120,300 12,030 162,370 294,700	3,000 10,000 5,000 10,000 63,000 110,000 60,000 20,000 80,000 132,000 132,000 144,500 289,700	3,000 10,000 63,000 18,000 95,000 60,000 20,000 80,000 175,000 115,300 111,530 141,100 267,930	4.0 2.1,0 30.0 2.1,0 30.0 441.1 180.0 1.161.0 420.0 1.1734.0 1.73

COST AND BENEFIT ESTIMATION Cattle raising etc.

Unit: Rupiah

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				Cont Entimation				Δ.	Benefit Estimation		
	>	5 at a 1 at a 1	Dairing	Bee Keeping	Fish Pond	Total	Cattle Raising	Goat Raising	Bee Keeping	Fish Pond	Total
	Yoar	Cattle Raising	Godt Natality	8	2						
		000 014 010	000 933 607	000 000 74	10 205 000	440.017.000		38,200,000	67,500,000		155,700,000
		252,456,000	10/.356,000	000,002,79	12,603,000	000 000 000	125,000,000	88 200 000	67 500.000	34,740,000	325,440,000
	2	84,456,000	33.156.000	7.200,000	000,016,62	30,422,000	000,000	000,000,000	67 500 0001	69 480 000	360 120 000
	m	84,456,000	33,156,000	7,200.000	40,976,0001	165,788,000	20,000,000	00,000,000	000000000000000000000000000000000000000	000,000,111	000 080 088
		84 456 000	33,156,000	7,200,000	40,976,000	165,788,000	396,000,000	88.200.000	67.500.000	000001	002.505.000
) (۲	84 456 000	33 156 000	7 200,0001	40,976,000	165,788,000	- - -	207,900,000	67.500.000	111.168.000	385,568,000
	2	500,080,082	240 180 000	000 000 96	161 343 000	1,087,803,000	666,000,000	560,700,000	337,500,000	326,556,000	1,890,756,000
	Sub-use	000,000,000	1000,000,000	67 200 000	12 805 000	440 017 000		88,200,000	67,500,000	111,168,000	265,868,000
•	0 5	224.450000	000,000,001	000,000,7	25,610,000	150 422 000	135,000,000	88,200,000	67,500,000	111,168,000	401,868,000
<	,	000,000,000	000.000	7 200,000	40.078.000	165 788 000	135 000 000	88 200 000	67.500,000	111,168,000	401,868,000
	80	84,456,000	000,001,55	7,200,000	40.076,000	185 788 000	398 000 000	88 200 000	67,500,000	111,168,000	662,868,000
LL.	6	84,456,000	33,135,000	7,200,000	000,070,07	185 788 000	2	207 900 000	67 500,000	111,158,000	386,568,000
	2	84,456,000	33,130,000	000,000,70	0000000	440.017.000		88 200 000	101 250 000	111,163,000	300,618,000
F	-	252,456,000	107,556,000	67.200.000	12.805.000	440.017.000	000 000 10 1	000,000,000	101 250 000	111168,000	435 618 000
	12	84,456,000	33,156,000	7,200,000	25.610.000	150,422,000	135,000,000	88.200.000	101,430,000	111 163 000	425,618,000
ш	13	84,456,000	33,156,000	7.200.000	40,976.000	165.788.000	33,000,000	88,200,000	000.007.101	00000	000 010 000
1	4	84,456,000	33,156,000	7,200.000	40.976.000	165,788,000	396,000,000	88.200.000	101,250,000	111.58,000	000.0.000
α	٠	84 456 000	33,156,000	7.200.000	40,976,000	165.788.000		207,900,000	101,250,000	111.158.000	420.318,000
:	9	252 456 000	107 556 000	67,200,000	12.805.000	440,017,000		32,200,000	101,250,000	111,168,000	300,618,000
-		84 456 000	33 156.000	7 200 000	25,610,000	150,422,000	135,000,000	88,200,000	101,250,000	111,168,000	435,618,000
	a	84 456 000	33 156 000	7 200 000	40.976.000	165,788,000	135,000,000	88,200,000	101,250,0001	111,168,000	435,618,000
0	2 0	24.456.000	33 156 000	7 200 000	40.976.000	165,738,000	396,000,000	38.200.000	101,250,000	111.168.0001	696.613,000
L	2 6	000,250,000	22,156,000	7 200 000	40 976 000	165,788,000		207,900,000	101,250,000	111,168,000	420,318,000
û	200	252 458 000	107 556 000	67 200,000	12.805.000	440,017,000		88.200,000	101.250,000	111,168,000	300,618,000
ٔ	200	84.456.000		7 200 000	25,610,000	150,422,000	135,000,000	88.200,000	101,250,000	111,168,000	435.613.000
(22	000.000.00	İ	7 200 000	40,978,000	165 788 000	135,000,000	88,200,000	101,250,000	111,168,000	435,618,000
>	3 8	000,004,40	İ	7 200 000	40 976 000	165.783,000	396,000,000	88,200,000	101,250,000	111,168,000	696,618,000
-	1,00	000 200 40	İ	2 200 000	40 978 000	165.788 000		207,900,000	101,250,000	111,168,0001	420,318,000
>	3	000,000,000		000,002,78	12,805,000	440 017 000		88,200,000	101,250,000	111,168,000	300.618,000
Ľ	3/6	000,000,000		ļ	25 610 000	150.422.000	135,000,000	88,200,000	101,250,000	111,168,000	435.618.000
ı	į a	84.456,000	33 156 000		40.976.000	165,788,000	135,000,000	88.200,000	101,250,000	111,168,000	435,618,000
}-	3 8	24.456.000	ĺ		40 976 000	165,788,000	396,000,000	88,200,000	101,250,0001	111,168,000	696,618,000
-	3 8	84 456 000	33 156 000		40,976,000	165,788,000		207,900,000	101,250,000	111,168,000	420.313.000
	S. Part	6	1 200 900 000	480	806 715 000	5,439,015,000	3,330,000,000	2,803,500,000	2,362,500,000	2.779.200.000	11,275,200,000
	T. 10.		1 441 030.0001	576,000,000	968,058,000	6,526,818,000	3,996,000,000	3,364,200,000	2,700,000,000	3,105,756,000!	13,165,956,000

ANNUAL INVESTMENT PLAN

						C	Oliverian for Dinarian 7000	7000
¥			Check Dam			ב ימווים	101 101 101 101	
	Materials atc	Skilled labor	unskilled labor	Labor Total	Total	Materials, etc.	Unskilled Labor	lotal
Colai Colai	SIBILIZABIA							
ا	000 000	12055 000	131 555 000	144.510,000	249,461,000			
	104,351,000	2000,000	191 555 000	144 510 000	249 461 000	10.650,000	17,760,000	28.410.000
2	104,951,000	12,955,000	000,000,151	000,010,027	200,252,200	12 425 000	20 720 000	33,145,000
દ	125,941,200	15,546,000	157,866,000	13,412,000	299,000,000	12 425 0001	20 720 000	33 145,000
4						19 495 000	20,720,000	33 145 000
າມ						19.425,000	20 720 000	33 145 000
9						12 425 000	000.027.06	33 145 000
-						14,442,000	20,727,000	2000
∞								
6								
ç						6 C	00000	000 HO + 00+
otal	335,843,200	41,456.000	420,976,000	462,432,000	798,275,200	72.775.000	121,360,000	184, 160,000
tem			Riparian Zone					
Detail	Materials, etc.	Skilled labor	Unskilled Labor	Labor Total	Total	Materials, etc.	Labor	0.03
0			ż					
				0	0			
	10,650,000		17,760,000	17,760,000	28,410,000			
, c	12.425.000		20,720,000	20.720.000	33,145,000			
4	12 425 000		20,720.000	20,720,000	33,145,000			
ی ا	12.425.000		20,720,000	20,720,000	33,145,000			
9 6	12,425,000		20,720,000	20,720,000	33,145,000			
	12,425,000		20.720.000	20,720,000	33,145,000			
00				0				
o				0	0			
) -				0	0			
	72.775.000		121,360,000	121,360,000	194,135,000			
3								

(3)

Calculation of Income Tax

1

				\ \ \ \ \	deion of the	
	Auro-Forestry of	Nursen	Cattle, etc.	(Riparian(Bambu)	Grand Total	Income Tax
<u> </u> -	4 845 330 000	0	155,700.000	0	5,001,030,000	30,006,180
-	26.894.630.000	276,602,500	325,440,000	0	27,496,672,500	
m	45.321.105.000	286,257,500	360,180,000	0	45.967.542.500	
4	63.418.395,050	286,257,500	662,868,000	0	64,367,520,550	
ß	82,221,443,274	286,257,500	386,563,000	0	82,894,258,774	
عاد	104 123 984 020	286,257,500	266,868,000	12,000,000	104,689,109,520	628,134,657
-	125,950,122,147	187,555,000	401,868,000	32,000,000	126,571,545,147	
∞	132,619,589,149	0	401,868,000	29,000,000	133,080,457,149	
6	137,553,786,237	0	662,868,000	93,000,000	138,309,654,237	_
10	139,176,967,662	0	386,568,000	128,000,000	139.691,535,662	
-	139,478,960,287		300,618,000	163,000,000	139,942,578,287	
12	145,902.077.467		435,618,000	184,000,000	146,521,695,467	
13	152.750.116,470		435,618,000	198,000,000	153,383,734,470	
4	148,529,972,592		696,618,000	205,000,000	149,431,590,592	
15	150,979,315,267		420,318,000	205,000,000	151,604,633,267	
16	160,769,534,930		300,618,000	205,000,000	161.275.152.930	
17	172,824,383,326		435,618,000	205,000,000	173,465,001,326	
18	173,872,784,446		435,618,000	205,000,000	174,513,402,446	
13	173,892,780,974		696,618,000	205,000,000	174,794,398,974	
2	182,885,571,700		420,318,000	205,000,000	183.510,889,700	1,101,065,338
2	086,002,500,980		300,618,000	205,000,000	190,113,118,980	
22	190,914,046,437		435.618,000	205,000,000	191,554,664,437	
23	190,411,070,662		435,618,000	205,000,000	191,051,688,662	
24	189,677,771,979		696,618,000	205,000,000	190,579,389,979	
25	189,886,423,581		420,318,000	205,000,000	190,511,741,581	
56	192,948,924,328		300,618,000	205,000,000	193,454,542,328	
27	192,222,490,327		435.618,000	205,000,000	192,863,108,327	
58	193,613,880,288		435,618,000	205,000,000	194.254,498.288	
59	188,437,757,539		696,618,000		189.339,375,539	l
30	177,523,165,248		420,318,000	205,000,000	178,148,483,248	
Tota	4,359	1.609.187.500	13,165,956,000	4,354,000.000	4.378.383.024.869	26,270,298,149

The average rate of income tax is estimated at 20% of the net income from the above benefits. The net income is estimated at 3% of the gross benefits.

FARMERS FUND COSTS

Check Dam Maintenance

Riparian Zone

	100		- Short		Total	Komarks	Materials	9.0	Labor		10.0	2
Waterials	Sign	7 - 17 - 10	1.100	16 +0,	÷.00			Skilled	Unskilled	Total	Cost	
	†	Skiled	Onskilled	1010								
0							, ,					
												1
2							2					
2						-	3	_				
2 -							4					
+	240,000	25,000	915,000	940,000	2,689,000		5		960,000	960,000	960,000	
╁	200	2000	1 830,000	1 880 000	5 378 000		9		2.080,000	2,080,000	2.080.000	
2.43	000.000	000,00	000.000	000,000	8 604 800		_		3.200,000	3,200,000	3,200,000	
+	5,580,000	200,00	2020000	2,000,000	8 604 800		80		4.320,000	4,320,000	4,320,000	
+	0,080,000	3 6	2,929,000	0000000	8 804 800		o.		5,440,000	5,440,000	5,440,000	
+	2.595,800	200,00	200,026.2	2000000	000,500,0		10		6.560,000	6.560,000	6,560,000	
1	2,595,800	30.00	2,320,000	2000000	000,100,0		-		6 560 000	6 560,000	6.560,000	
-	5,596,800	80,000	2.928.000	200000	000,000				6 580 000	6 560 000	6.560,000	
2 5.59	96,800	80,000	2.928.000	3,008,000	8,504,800		7,		8 560,000	6 560 000	6 560 000	
13 5,59	36,800	80.000	2,928,000	3,008,000	8,604,800		2		000000	00000	000,000	
-	5.596,800	80,000	2,928.000	3,008,000	8.604,800		14		9.550,000	0.000.000	0.000.000.0	
╁	36 BOO	80,000	2.928,000	3,008,000	8,604,800		15		6,560,000	6.560,000	9.350,000	
╁	5 508 BOO	000008	2 928 000	3 008 000	8.604.800		16		6,560,000	6,560,000	6.560,000	
╀	7 598 BOO	00008	2 928 000	3 008 000	8,604,800		17		6.560,000	6,560,000	6,560,000	
╁	200	000.08	000 8000	3 008 000	8 604 800		18	-	6.560,000	6,560,000	6.560,000	
0.00	000,000	000,00	9 9 8 000	0008008	8 604 800		19		6.560,000	6,560,000	6,560,000	
╁	200	000	000,020,0	3 008 000	8 604 800		20	-	6,560,000	6,560,000	6.560,0001	
21.00	5000,000 800 800	000,00	2020 000	3.008.000	8 604 800		21		6.560,000	6.560,000	6,560,0001	
+	200	200	2 928 000	3 008 000	8 604 800		22		6,560,000	6,560,000	6.560,000	
╀	5 596 300	0000	2928 000	3 008 000	8 604 800		23		6,560,000	6,560,000	6,560,000	
╀	5 598 800	000 08	2 928 000	3 008 000	8 604 800		24		6,560,000	6,560,000	6 550,000	
╁	A 500.000	000 08	2 928 000	3 008 000	8 604 800		25		6,560,000	6,560,000	6.580,000	
26 4.00	5 596 800	000 08	2 928 000	3 008 000	8 604 800		26		6,560,000	6.560,000	6,560,000	
╀	5 596 800	80,000	2 928 0001	3,008,000	8 604 800		27		6.560,000	6,560,000	6,560,000	
╀	5 598 800	000 08	2 928 000	3 008 000	8.604.800		28		6.560,000	6,560,000	6,560,000	
╀	5 596 800	80 000	2 928 000	3.008.000	8,604,800		23		6,560,000	6,560,000	6.560,000	
╀	5 598 800	000 08	2 928 000	3,008,000	8 604 800		တ္တ		6.560.000	6.560,000	6.560,000	
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				000 000 010 000 010	000 000 V		10.01		1153 760 000 153 760 000 153 760 000	153 780 000	153 760 000	

Project Management	
1 Exchange Pate	21.43 Rp: Yen
2 Domestic Inflation	74 ра
Foreign Inflation	2 \ p z
3 Monthly Remuneration	
Foreign Consultant	
Management Finance Procuem	2,200,000 Yan
Engineers	2,000,000 Yan
Local Consultant	
Managament	500,000 Yan
Engineers	400,000 Yan
4 Office & Mobilization Cost	15 GN of 3 above

Assingment Flan of Consultants

							i <u>l Mag-Manth</u>	
'ear	1998	1939	2000	2001	2002	2003]	2004	Sub-Tot
Catendar Year	1		3	4		6]	7	
Foreign Consultants								
Management Finance Trocurers	8	6	6	6		2	3	
Civil Engineer		2		2				
g Arghtactura	- 2	2		2				
d Water Quality	2	2]		2				
4 Sol	2		0	0	0	2		
1 Environment		0	0	0		2}	3	
Local Consultants								
a Management			12	12	12	12	12	
b Finance & Procurament	12	12	12}	12	12	12	12	
c Civit Engineer		12	12]	12	0	0	♀	
d Architecture		12]	12	0	12]	· O	0	
e Sol		2	5	0	0	0	2	
f Environment	oi			0	0	2		

	(Unit Yen)							
Year	1999]	1999	2000	2001	2002	2003	2004	Sub-Total
Calendar Year	1	2	3	4	5	6]		
Relative Inflation	1.043	1.100	1.154	1 211	1.270	1 333	1 399	
1. Foreign Consultants								
attlanagement Finance Procurers	17,600,000	13 200 000	13,200,000	13.200,000	4,400,000	4,400,000	6,600,000	72 600,000
b Civil Engineer	4,000,000	4,000,000	4,000,000	4,000,000	0	Q	0	16,000,000
c Architecture	4,000,000	4,000,000	4,000,000	4,000,000	0	0	0	18,000,000
d Water Quality	4,000,000	4,000 000	4,000,000	4,000,000	C	0	0	18,000,000
. S⇔l	4,000,000	4,000,000	ō	0	0	4,600,000	6 000 000	18,000,000
f.Environment	0	. 0	0	0	4,000,000	4,000,000	6,000,000	14,000,000
2 Local Consultants								L
a Management	6,000,000	6,000,000	6,000,000	6.000,000	6.000.000	6 000,000	6,000,000	42,000,000
b Finance & Procurement	4,800,000	4,800,000	4,900,000	4,800,000	4,600,000	4,800,000	4,800,000	33.600.000
a Civil Engineer	4,800,000	4,800,000	4,800,000	4,800,000	0	0		19.200,000
d Architecture	4,800,000	4,800,000	4,800,000	0	4,800,000	- 0	0	19,200,000
sSc≷ e	800,000	800 000	800 000	0	0	0	800,000	3 200,000
f.Environment	0	0	0	0	0	800,000	800,000	1,600,000
3 Office & Mobilization	8,220,000	7,550,000	8.950,000	6.120.000	3,600,000	3,600,000	4 650 000	40,710,000
Total of 1.2 and 3.	63,020,000	57,960,000	53 360,000	46 920,000	27,600,000	27,600,000	35,650,000	312,110,000

	(Unit Ro*							
Year	1998	1999	2000	2001	2003	2003	2004	Sub-Total
Calendar Year	1	2		4	5	6	1	L
Relative Inflation	1 049	1 100	1.154	1211	1 270	1 333	1 399	
Expected Exchg (Rp/Yen)	22.53	2364	2480	26 01	2729	28 62	30 03	<u> </u>
1.Foreign Consultants								
Management/Finance/Frocures	378,043,000	283,538,000]	283,538,000	283 536 000	94,512,000	94,512,000	141,768,000	
b Civil Engineer	85 920 000	85,920,000	85,920,000	85,920,000	0	0	0	343,680,000
c Archtecture	85,920,000	85,920,000	85,920,000	85 920 000	- 0	0		343,680,000
dWater Quality	85,920,000	85,920,000	85,920,000	85,920,000	0	0	0	343,690,000
e Sol	85,920,000	85,920,000	0	0	0	85,920,000	128 880 000	
1 Environment	0	. 0	0	0	85,920,000	B5 920,000	128 880 000	300,720,000
2 Local Consultants								l
a Management	128,890,000	128,880,000	128,830,000	128,890,000	123,680,000	129,880,000		
b.Finance & Procurement	103 104 000	103,104,000	103,104,000	103,104,000	103,104,000	103,194,000	103,104,000	
a Civil Engineer	103,104,000	103,104,000	103,104,000	103.104.000	0	0	0	412,418,000
d Architecture	103,104,000	103,104,000	103.104.000		183,104,000	0	0	412 418 000
e Soil	17,184,000	17,184,000	17,184,000	0	. 0	0	17,184,000	
1 Environment	0	Q.	0	0	0	17,184,000	17,184,000	
3 Office & Mobilization	176,555,600	152,336,800	143,500,800	131,457,600	77,328,000	17,328,000	99,882,000	
Total of 1.2 and 3 (Costant)	1 353 669 600	1244590,900	1,146,172,800	1.007.841,600	592,843,000	592,843,000	765,762,000	6,704,122,800
Total of 12 and 4. (Nominal	1,420,025,953	1,370,029,333	1,323,125,123	1 220 468 863	753,115,158	790 032 588	1,070,431,220	7,547,278,215