

0.5 SOCIO-ECONOMIC EVALUATION

Employment: An increase of productivity in agriculture derives from intensive farm practice helped by irrigation system and mechanization. In the Circasia cooperative, each of 400 households has to have between 2.5 and 3 workforces to manage. In the lower reaches of Quindio, smallholders would be busy all the year round. While bigger farms have to hire more labourers from outside. So rural population would not decrease so sharply as before, and phenomenon of rural exodus would be milder. Establishment of processing industry would provide some engineers and a score of labourers with full-time jobs. Besides, though for several years, construction of roads, river banks, mini-hydroelectric power plants and other installation works would give job opportunity to skillful as well as unskillful workers.

Environment: Farmland in the project area will be protected by erosion-preventive method, and with treatment of effluent, people who live its lower reaches will be free from polluted water.

Rural life: Improved roads will provide the rural population with the means of faster access to the urban area without raising a cloud of dust.

0.6 PROJECT EVALUATION

Colombia is one of the best market-oriented coffee producer in the world. In the international market, it has been trying hard to maintain its status as the brand leader of the "colombian mild coffee". At home, it has been attempting to stabilize the production environment of coffee. It has succeeded in increasing productivity without loosing its quality by introducing a new variety. It has attained a high level of public utilities in the rural growing area. Quindio is an exemplary of these achievements.

In Quindio, in reality, coffee cultivation tends to spread out beyond its most appropriate area into marginal zone. Big estates hire seasonal farmhands from other districts, some engage even managers. Smallholders cling to the produce thanks to its low marginal costs. On the other hand, few cattle are seen on the stretches of futile land outside marginal coffee production area.

Diversification movement in Quindio has started against the above mentioned background. Colombia, like other countries with single-crop economies, has tried to diversify produce within the agrosector besides into energy sector. It has a bent for export, and have squeezed into US vegetable-fruits market with some success. But diversification is not necessarily export-oriented for the time being, till the domestic market saturates. It aims at optimum land-use by tapping the so far un-used land resources, and also at social stability by generating small farmers. They are called farmers because they ponder over crops and look after plants.

This array of proposed projects is in line with the ideas mentioned above. Though, an agro-based project cannot enhance a GRP much, it acts as a social stabilizer, especially in the developing economy.

Creation of smallholders needs sensitive treatment. Medium size farms tend to be merged into bigger ones as far as the economy of scale works. Small farms tend to be broken up by inheritance to such an extent that they act as a brake on efficiency. If the proposed Circasia small producer's cooperative proves that fulltime vegetable and fruits growers of 3 ha farm can enjoy the same level of economic life as average coffee growers, this will surely encourage more people to come.

A Processing industry always requires a stable supply of material to process. So the plans are wise not to include many agro-based processing industries at once in near future, though, of course, they are important to the regional economy in a long run.

EIRR of 14.90% for the total project as a package speaks itself the potential of farmland, marginal to the coffee growing, considering the inclusion of such projects as road improvement, coffee effluent treatment and flood control which have very low EIRRs.

TABLE O.1 AGRO-BENEFIT:NORTH QUINDIO

	potato	pea	cabbage	carrot	kidney bean#	maize*#	wel.onion:1	wel.onion:2
price_factor	1	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1	1
unit price: col\$/ton	22000	67500	16000	16000	218500	57000	20000	20000
unit yield: ton/ha	19	14	30	26	2.5	6	20	38
-:labour: col\$/ha	-101600	-209300	-86200	-53500	-37000	-33600	-99100	-87700
-:fertilizer: col\$/ha	-28000	-28000	-11200	-14000	-5600	-5600	-14000	-14000
-:material: col\$/ha	-155400	-209700	-52600	-55500	-31400	-8800	-202900	-112300
area: ha	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2
% of yield: year 1	70%	70%	70%	70%	32%	50%	70%	0%
% of yield: year 2	90%	90%	90%	90%	100%	83%	0%	70%
% of yield: year 3	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 4	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 5	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 6	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 7	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 8	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 9	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 10	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 1	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 2	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 3	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 4	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 5	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 6	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 7	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 8	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 9	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 10	100%	100%	100%	100%	100%	100%	0%	100%

TABLE.O.1 AGRO-BENEFIT:NORTH QUINDIO

	lulo:1	lulo:2<=	tr.tomato:1	tr.tomato:2<=	bl.berry:1	bl.berry:2<=	k.beon:int#
price_factor	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1
unit price: col\$/ton	65000	65000	25000	25000	55000	55000	218500
unit yield: ton/ha	0	15	0	20	0	16	0.9
-:labour: col\$/ha	-95200	-132000	-83500	-87900	-122000	-202000	-21000
-:fertilizer: col\$/ha	-56000	-56000	-23100	-27700	-67200	-67200	-3200
-:material: col\$/ha	-74800	-45000	-70400	-26400	-402800	-191800	-17800
area: ha	0.6	0.6	0.6	0.6	0.5	0.5	0.6
% of yield: year 1	0	0	0	0	0	0	100%
% of yield: year 2	0%	0%	0	0	0	0	100%
% of yield: year 3	0%	67%	0%	0%	0	0	100%
% of yield: year 4	0%	100%	0%	75%	0%	0%	0%
% of yield: year 5	0%	53%	0%	100%	0%	88%	0%
% of yield: year 6	0%	0%	0%	75%	0%	100%	100%
% of yield: year 7	0%	67%	0%	0%	0%	88%	100%
% of yield: year 8	0%	100%	0%	75%	0%	0%	0%
% of yield: year 9	0%	53%	0%	100%	0%	88%	0%
% of yield: year 10	0%	0%	0%	75%	0%	100%	100%
% of cost: year 1	0	0	0	0	0	0	100%
% of cost: year 2	100%	0%	0	0	0	0	100%
% of cost: year 3	0%	86%	100%	0%	0	0	100%
% of cost: year 4	0%	100%	0%	92%	100%	0%	0%
% of cost: year 5	0%	75%	0%	100%	0%	95%	0%
% of cost: year 6	100%	0%	0%	92%	0%	100%	100%
% of cost: year 7	0%	86%	100%	0%	0%	74%	100%
% of cost: year 8	0%	100%	0%	92%	100%	0%	0%
% of cost: year 9	0%	75%	0%	100%	0%	95%	0%
% of cost: year 10	100%	0%	0%	92%	0%	100%	100%

TABLE O.2 AGRO-BENEFIT:NORTH QUINDIO (FOR PROJECT LIFE)

	poteto	pea	cabbage	carrot	kidney bean*	maize*	wel.onion:1	wel.onion:2	lulo:1
1	3040	85800	37200	33640	20160	24600	-7200	0	0
2	36480	161400	56400	50280	94450	47400	0	63600	-135600
3	53200	199200	66000	58600	94450	58800	16800	0	0
4	53200	199200	66000	58600	94450	58800	0	109200	0
5	53200	199200	66000	58600	94450	58800	16800	0	0
6	53200	199200	66000	58600	94450	58800	0	109200	-135600
7	53200	199200	66000	58600	94450	58800	16800	0	0
8	53200	199200	66000	58600	94450	58800	0	109200	0
9	53200	199200	66000	58600	94450	58800	16800	0	0
10	53200	199200	66000	58600	94450	58800	0	109200	-135600
11	53200	199200	66000	58600	94450	58800	16800	0	0
12	53200	199200	66000	58600	94450	58800	0	109200	0
13	53200	199200	66000	58600	94450	58800	16800	0	0
14	53200	199200	66000	58600	94450	58800	0	109200	-135600
15	53200	199200	66000	58600	94450	58800	16800	0	0
16	53200	199200	66000	58600	94450	58800	0	109200	0
17	53200	199200	66000	58600	94450	58800	16800	0	0
18	53200	199200	66000	58600	94450	58800	0	109200	-135600
19	53200	199200	66000	58600	94450	58800	16800	0	0
20	53200	199200	66000	58600	94450	58800	0	109200	0
21	53200	199200	66000	58600	94450	58800	16800	0	0
22	53200	199200	66000	58600	94450	58800	0	109200	-135600
23	53200	199200	66000	58600	94450	58800	16800	0	0
24	53200	199200	66000	58600	94450	58800	0	109200	0
25	53200	199200	66000	58600	94450	58800	16800	0	0
26	53200	199200	66000	58600	94450	58800	0	109200	-135600
27	53200	199200	66000	58600	94450	58800	16800	0	0
28	53200	199200	66000	58600	94450	58800	0	109200	0
29	53200	199200	66000	58600	94450	58800	16800	0	0
30	53200	199200	66000	58600	94450	58800	0	109200	-135600
31	53200	199200	66000	58600	94450	58800	16800	0	0
32	53200	199200	66000	58600	94450	58800	0	109200	0
33	53200	199200	66000	58600	94450	58800	16800	0	0
34	53200	199200	66000	58600	94450	58800	0	109200	-135600
35	53200	199200	66000	58600	94450	58800	16800	0	0

TABLE O.2 AGRO BENEFIT: NORTH QUINDIO (FOR PROJECT LIFE)

	lulo:2<=	tr.tomato:1	tr.tomato:2<=	bl.berry:1	bl.berry:2<=	k.beans:1#	k.beans:2<=	total:(x400)
1	0	0	0	0	0	92790	0	116.01
2	0	0	0	0	0	92790	0	186.88
3	270000	-106200	0	0	0	92790	0	321.46
4	445200	0	146382.616	-296000	0	92790	0	374.01
5	207000	0	214800	0	166500	0	0	454.14
6	0	0	146981.036	0	209500	92790	0	381.25
7	270000	-106200	0	0	214500	92790	0	407.26
8	445200	0	146382.616	-296000	0	0	0	374.01
9	207000	0	214800	0	166500	0	0	454.14
10	0	0	146981.036	0	209500	92790	0	381.25
11	270000	-106200	0	0	214500	92790	0	407.26
12	445200	0	146382.616	-296000	0	0	0	374.01
13	207000	0	214800	0	166500	0	0	454.14
14	0	0	146981.036	0	209500	92790	0	381.25
15	270000	-106200	0	0	214500	92790	0	407.26
16	445200	0	146382.616	-296000	0	0	0	374.01
17	207000	0	214800	0	166500	0	0	454.14
18	0	0	146981.036	0	209500	92790	0	381.25
19	270000	-106200	0	0	214500	92790	0	407.26
20	445200	0	146382.616	-296000	0	0	0	374.01
21	207000	0	214800	0	166500	0	0	454.14
22	0	0	146981.036	0	209500	92790	0	381.25
23	270000	-106200	0	0	214500	92790	0	407.26
24	445200	0	146382.616	-296000	0	0	0	374.01
25	207000	0	214800	0	166500	0	0	454.14
26	0	0	146981.036	0	209500	92790	0	381.25
27	270000	-106200	0	0	214500	92790	0	407.26
28	445200	0	146382.616	-296000	0	0	0	374.01
29	207000	0	214800	0	166500	0	0	454.14
30	0	0	146981.036	0	209500	92790	0	381.25
31	270000	-106200	0	0	214500	92790	0	407.26
32	445200	0	146382.616	-296000	0	0	0	374.01
33	207000	0	214800	0	166500	0	0	454.14
34	0	0	146981.036	0	209500	92790	0	381.25
35	270000	-106200	0	0	214500	92790	0	407.26

col \$million

TABLE 0.3 BENEFIT : PIGGERY COMPLEX (NORTH)

	(Col\$)			
per head	center	member farm	center: eco	member:eco
baby pig		4951.8125		4041.8125
feed	55936	12540	55936	12540
veterinary service	1500	500	1500	500
labour	5120	1280	2560	640
bliding deprecistion	12000	300	0	0
others	4673	928	4673	979
total*	79229	20499.8125	64669	18700.8125
*each sow produces 16 baby a year				
sale: 95kg x col\$30	28500			28500
profit:1 **	8000.1875			9799.1875
	51201200 (** x16heads x 400farms)			62714800
**profit be devided 5:3 to center and farm.				
meat processing:				
cost per head	12000			10200
sale: 700x95x0.7	46550			46550
profit:2***	6050			7850
	38720000 (**x16heads x 400farms)			50240000

TABLE.O. 4 AGRO-BENEFIT:QUINDIO RIGHT BANK

	tomsto	onion	pimenton	kidney_bean*	ground_nut	snap_bean	cassava	maize**
price_factor	1	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1	1
unit price: col\$/ton	25560	29000	31000	218500	60000	30000	25000	57000
unit yield: ton/ha	52	30	40	2.5	1.8	24	30	6
-:labour: col\$/ha	-496500	-232600	-293600	-37000	-39200	-222400	-78200	-33600
-:fertilizer: col\$/ha	-33600	-33600	-84000	-5600	-9000	-22400	-14000	-5600
-:material: col\$/ha	-119900	-210800	-75400	-31400	-19600	-217200	-53800	-8800
area: ha	70	70	60	70	70	60	200	100
% of yield: year 1	70%	70%	70%	32%	70%	70%	77%	50%
% of yield: year 2	90%	90%	90%	100%	90%	90%	100%	83%
% of yield: year 3	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 4	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 5	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 6	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 7	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 8	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 9	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 10	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 1	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 2	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 3	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 4	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 5	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 6	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 7	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 8	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 9	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 10	100%	100%	100%	100%	100%	100%	100%	100%

TABLE O.4 AGRO-BENEFIT:QUINDIO RIGHT BANK

	sorghum**	soy bean**	coffee*	citrus:1*	citrus:2<=*	k.bean:+cassava	g.nut:+cassava	k.bean:k.bean:+citrus
price_factor	1	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1	1
unit price: col\$/ton	46200	94000	300000	17000	17000	218500	60000	218500
unit yield: ton/ha	4	2.5	2.5	0	50	1	0.8	1.6
-:labour: col\$/ha	-24500	-16400	-136000	-57000	-119400	-15500	-15000	-23500
-:fertilizer: col\$/ha	-9800	-9800	-68000	-6700	-19900	-2300	-3400	-3600
-:material: col\$/ha	-11700	-18800	-136000	-81300	-41700	-13200	-7600	-19900
area: ha	100	200	800	300	300	100	100	300
% of yield: year 1	75%	80%	68%	0%	0%	30%	75%	31%
% of yield: year 2	100%	100%	76%	0%	0%	90%	88%	100%
% of yield: year 3	100%	100%	100%	0%	16%	100%	100%	0%
% of yield: year 4	100%	100%	100%	0%	24%	100%	100%	0%
% of yield: year 5	100%	100%	100%	0%	40%	100%	100%	0%
% of yield: year 6	100%	100%	100%	0%	60%	100%	100%	0%
% of yield: year 7	100%	100%	100%	0%	76%	100%	100%	0%
% of yield: year 8	100%	100%	100%	0%	90%	100%	100%	0%
% of yield: year 9	100%	100%	100%	0%	100%	100%	100%	0%
% of yield: year 10	100%	100%	100%	0%	100%	100%	100%	0%
% of cost: year 1	100%	100%	100%	100%	0%	100%	100%	100%
% of cost: year 2	100%	100%	100%	0%	35%	100%	100%	100%
% of cost: year 3	100%	100%	100%	0%	46%	100%	100%	0%
% of cost: year 4	100%	100%	100%	0%	57%	100%	100%	0%
% of cost: year 5	100%	100%	100%	0%	73%	100%	100%	0%
% of cost: year 6	100%	100%	100%	0%	77%	100%	100%	0%
% of cost: year 7	100%	100%	100%	0%	85%	100%	100%	0%
% of cost: year 8	100%	100%	100%	0%	91%	100%	100%	0%
% of cost: year 9	100%	100%	100%	0%	96%	100%	100%	0%
% of cost: year 10	100%	100%	100%	0%	100%	100%	100%	0%

TABLE.O.4 AGRO-BENEFIT:QUINDIO RIGHT BANK

	tomato:+citrus	pimton:+citrs	plantain:1cafe	plantain:2<=cf	-:cassava	-:sorghum*	-:soy bean*	-:coffee*
price_factor	1	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1	1
unit price: col\$/ton	25560	31000	15000	15000	25000	46200	94000	300000
unit yield: ton/ha	24	26	0	13.8	23	3	2	1.6
-:labour: col\$/ha	-253600	-214500	-39500	-25000	-78200	-24500	-16400	-136000
-:fertilizer: col\$/ha	-17200	-61400	-4200	-4200	-14000	-9800	-9800	-68000
-:material: col\$/ha	-61200	-55100	-26300	-8800	-53800	-11700	-18800	-136000
area: ha	150	150	800	800	170	200	200	940
% of yield: year 1	75%	77%	0%	0%	-100%	-100%	-100%	-100%
% of yield: year 2	100%	100%	0%	83%	-100%	-100%	-100%	-100%
% of yield: year 3	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 4	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 5	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 6	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 7	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 8	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 9	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 10	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 1	100%	100%	100%	0%	-100%	-100%	-100%	-100%
% of cost: year 2	100%	100%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 3	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 4	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 5	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 6	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 7	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 8	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 9	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 10	0%	0%	0%	100%	-100%	-100%	-100%	-100%

TABLE.O.4 AGRO-BENEFIT: QUINDIO RIGHT BANK

	-: citrus*	meize*	sorghum*	soy bean*	-: sorghum*	-: soy bean*
price_factor	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1
unit price: col\$/ton	17000	57000	46200	94000	46200	94000
unit yield: ton/ha	15	6	4	2.5	3	2
-:labour: col\$/ha	-92353.591	-33600	-24500	-16400	-24500	-16400
-:fertilizer: col\$/ha	-15392.265	-5600	-9800	-9800	-9800	-9800
-:material: col\$/ha	-32254.144	-8800	-11700	-18800	-11700	-18800
area: ha	70	175	175	350	210	210
% of yield: year 1	-100%	50%	75%	80%	-100%	-100%
% of yield: year 2	-100%	83%	100%	100%	-100%	-100%
% of yield: year 3	-100%	100%	100%	100%	-100%	-100%
% of yield: year 4	-100%	100%	100%	100%	-100%	-100%
% of yield: year 5	-100%	100%	100%	100%	-100%	-100%
% of yield: year 6	-100%	100%	100%	100%	-100%	-100%
% of yield: year 7	-100%	100%	100%	100%	-100%	-100%
% of yield: year 8	-100%	100%	100%	100%	-100%	-100%
% of yield: year 9	-100%	100%	100%	100%	-100%	-100%
% of yield: year 10	-100%	100%	100%	100%	-100%	-100%
% of cost: year 1	-100%	100%	100%	100%	-100%	-100%
% of cost: year 2	-100%	100%	100%	100%	-100%	-100%
% of cost: year 3	-100%	100%	100%	100%	-100%	-100%
% of cost: year 4	-100%	100%	100%	100%	-100%	-100%
% of cost: year 5	-100%	100%	100%	100%	-100%	-100%
% of cost: year 6	-100%	100%	100%	100%	-100%	-100%
% of cost: year 7	-100%	100%	100%	100%	-100%	-100%
% of cost: year 8	-100%	100%	100%	100%	-100%	-100%
% of cost: year 9	-100%	100%	100%	100%	-100%	-100%
% of cost: year 10	-100%	100%	100%	100%	-100%	-100%

TABLE 0.5: AGRO- BENEFIT(2) : QUINDIO RIGHT BANK

	tomato	onion	pimenton	kidney bean*	ground nut	snep bean	coassays	maize**	sorghum**
1	19626880	9240000	24900000	7056000	532000	2520000	85800000	12300000	9260000
2	38234560	21420000	39780000	33057500	2044000	11160000	120800000	23700000	13880000
3	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
4	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
5	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
6	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
7	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
8	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
9	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
10	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
11	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
12	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
13	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
14	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
15	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
16	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
17	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
18	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
19	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
20	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
21	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
22	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
23	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
24	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
25	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
26	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
27	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
28	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
29	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
30	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
31	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
32	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
33	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
34	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000
35	47538400	27510000	47220000	33057500	2800000	15480000	120800000	29400000	13880000

TABLE 0.5 AGRO- BENEFIT(2) : QUINDIO RIGHT BANK

	soy	bean**	coffee*	citrus:1*	citrus:2:=*	k.bean:+cassava	g.nut:+cassava	k.bean:+citrus	tomato:+citrus	pimton:+citr
1	28600000	136000000	-43500000	0	3455000	1000000	18675000	19212000	433500000	
2	38000000	184000000	0	-19200000	16565000	1600000	90780000	42216000	712500000	
3	38000000	328000000	0	15600000	18750000	2200000	0	0	0	
4	38000000	328000000	0	30000000	18750000	2200000	0	0	0	
5	38000000	328000000	0	62100000	18750000	2200000	0	0	0	
6	38000000	328000000	0	111300000	18750000	2200000	0	0	0	
7	38000000	328000000	0	147900000	18750000	2200000	0	0	0	
8	38000000	328000000	0	180000000	18750000	2200000	0	0	0	
9	38000000	328000000	0	202800000	18750000	2200000	0	0	0	
10	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
11	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
12	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
13	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
14	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
15	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
16	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
17	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
18	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
19	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
20	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
21	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
22	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
23	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
24	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
25	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
26	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
27	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
28	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
29	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
30	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
31	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
32	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
33	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
34	38000000	328000000	0	200700000	18750000	2200000	0	0	0	
35	38000000	328000000	0	200700000	18750000	2200000	0	0	0	

TABLE 0.5 AGRO- BENEFIT(2) : QUINDIO RIGHT BANK

	soy bean*	-: sorghum*	-: soy bean*	right:10*6
1	50050000	-19446000	-30030000	101
2	66500000	-19446000	-30030000	660
3	66500000	-19446000	-30030000	748
4	66500000	-19446000	-30030000	763
5	66500000	-19446000	-30030000	795
6	66500000	-19446000	-30030000	804
7	66500000	-19446000	-30030000	841
8	66500000	-19446000	-30030000	873
9	66500000	-19446000	-30030000	896
10	66500000	-19446000	-30030000	894
11	66500000	-19446000	-30030000	894
12	66500000	-19446000	-30030000	894
13	66500000	-19446000	-30030000	894
14	66500000	-19446000	-30030000	894
15	66500000	-19446000	-30030000	894
16	66500000	-19446000	-30030000	894
17	66500000	-19446000	-30030000	894
18	66500000	-19446000	-30030000	894
19	66500000	-19446000	-30030000	894
20	66500000	-19446000	-30030000	894
21	66500000	-19446000	-30030000	894
22	66500000	-19446000	-30030000	894
23	66500000	-19446000	-30030000	894
24	66500000	-19446000	-30030000	894
25	66500000	-19446000	-30030000	894
26	66500000	-19446000	-30030000	894
27	66500000	-19446000	-30030000	894
28	66500000	-19446000	-30030000	894
29	66500000	-19446000	-30030000	894
30	66500000	-19446000	-30030000	894
31	66500000	-19446000	-30030000	894
32	66500000	-19446000	-30030000	894
33	66500000	-19446000	-30030000	894
34	66500000	-19446000	-30030000	894
35	66500000	-19446000	-30030000	894

(4)

TABLE 0.6 BENEFIT: IRRIGATION, MINI-HYDRO, ETC.

Irrigation: following assumption is taken.
 * proposed vegetable culture makes use of irrigated water.
 * unit quantity and quality of coffee fluctuate because of uneven rainfall.
 2.5ton/ha*col\$300000/ton is an average. Fluctuation is as follows:

	year 1	year 2	year 3	3-1.5 co,\$million
ton/ha	3	3	3	330-90
col\$1000/ton	330	330	330	
so benefit would be:	col\$900000*1.5/3*(200+80)=			12.60
the economic factor is:	1.848333333 eco.price=			23.29

mini hydro: Campesdre and Vallona

- * annual energy output: GWh col\$million
 =0.85*9.8*(2.4*60+4.6*35) *8760 22.26
- * financial energy value col\$8/kWh 8 178.05
- * economic energy value col\$5/kWh 5 111.28

agro-process:

- Sale 30t*0.9*365*col\$40000= 394.20
- Cost:material tomato:20t*365*col\$25560= 186.59
- labour pineapple:10t*365*col\$21000= 76.65
- other cost 18.25
- benefit: financial 27.38
- economic =financial + 1/2*labour 85.34
- 94.46

Flood control yearly benefit: col\$million

	Pijao	Genove
according to our expert's estimate	27.79	33.84
financial	28.38	35.10
economic		
Pijao: economic	=(0.13*0.7+0.56*0.8)*9.056+(0.13*0.6+0.56*0.7)*50	
Genove: economic	=(0.43*0.7+0.02*0.8)*25.59+(0.43*0.6+0.02*0.8)*98.5	

TABLE 0.7 AGRO-BENEFIT : LEFT BANKS

	maize*	sorghum*	soy bean*	citrus:1	citrus:2<=*	pineapple:1	pineapple:2
price_factor	1	1	1	1	1	1	1
labor_factor	1	1	1	1	1	1	1
fertilizer_factor	1	1	1	1	1	1	1
unit price: col\$/to	57000	46200	94000	17000	17000	21000	21000
unit yield: ton/ha	6	4	3	0	50	0	70
-:labour: col\$/ha	-33600	-24500	-16400	-57000	-119400	-233000	-337000
-:fertilizer: col\$/h	-5600	-9800	-9800	-6700	-19900	-58400	-28000
-:material: col\$/h	-8800	-11700	-18800	-81300	-41700	-227600	-182000
area: ha	350	350	700	270	270	140	140
% of yield: year 1	50%	86%	80%	0%	0%	0%	0%
% of yield: year 2	83%	100%	100%	0%	0%	0%	100%
% of yield: year 3	100%	100%	100%	0%	16%	0%	43%
% of yield: year 4	100%	100%	100%	0%	24%	0%	43%
% of yield: year 5	100%	100%	100%	0%	40%	0%	43%
% of yield: year 6	100%	100%	100%	0%	60%	0%	0%
% of yield: year 7	100%	100%	100%	0%	76%	0%	100%
% of yield: year 8	100%	100%	100%	0%	90%	0%	43%
% of yield: year 9	100%	100%	100%	0%	100%	0%	43%
% of yield: year 10	100%	100%	100%	0%	100%	0%	43%
% of cost: year 1	100%	100%	100%	100%	0%	100%	0%
% of cost: year 2	100%	100%	100%	0%	35%	0%	100%
% of cost: year 3	100%	100%	100%	0%	46%	0%	40%
% of cost: year 4	100%	100%	100%	0%	57%	0%	40%
% of cost: year 5	100%	100%	100%	0%	73%	0%	40%
% of cost: year 6	100%	100%	100%	0%	77%	100%	0%
% of cost: year 7	100%	100%	100%	0%	85%	0%	100%
% of cost: year 8	100%	100%	100%	0%	91%	0%	40%
% of cost: year 9	100%	100%	100%	0%	96%	0%	40%
% of cost: year 10	100%	100%	100%	0%	100%	0%	40%

TABLE O.7 AGRO-BENEFIT : LEFT BANKS

	pinepl: +citrus	-: sorghum*	-: soy bean*	-: coffee*
price_factor	1	1	1	1
labor_factor	1	1	1	1
fertilizer_factor	1	1	1	1
unit price: col\$/to	21000	46200	94000	300000
unit yield: ton/ha	37	3	2	1.2
-:labour: col\$/ha	-178049.36	-24500	-16400	-136000
-:fertilizer: col\$/h	-14793.419	-9800	-9800	-68000
-:material: col\$/h	-96157.221	-11700	-18800	-136000
area: ha	270	310	310	290
% of yield: year 1	0%	-100%	-100%	-100%
% of yield: year 2	100%	-100%	-100%	-100%
% of yield: year 3	43%	-100%	-100%	-100%
% of yield: year 4	0%	-100%	-100%	-100%
% of yield: year 5	0%	-100%	-100%	-100%
% of yield: year 6	0%	-100%	-100%	-100%
% of yield: year 7	0%	-100%	-100%	-100%
% of yield: year 8	0%	-100%	-100%	-100%
% of yield: year 9	0%	-100%	-100%	-100%
% of yield: year 10	0%	-100%	-100%	-100%
% of cost: year 1	96%	-100%	-100%	-100%
% of cost: year 2	100%	-100%	-100%	-100%
% of cost: year 3	40%	-100%	-100%	-100%
% of cost: year 4	0%	-100%	-100%	-100%
% of cost: year 5	0%	-100%	-100%	-100%
% of cost: year 6	0%	-100%	-100%	-100%
% of cost: year 7	0%	-100%	-100%	-100%
% of cost: year 8	0%	-100%	-100%	-100%
% of cost: year 9	0%	-100%	-100%	-100%
% of cost: year 10	0%	-100%	-100%	-100%

TABLE 0.8 AGRO-BENEFIT : LEFT BANKS

	maize*	sorghum*	soy bean*	citrus:1	citrus:2<=*	pineapple:1
1	43050000	39340000	126420000	-39150000	0	-72660000
2	82950000	48580000	165900000	0	-17280000	0
3	102900000	48580000	165900000	0	14040000	0
4	102900000	48580000	165900000	0	27000000	0
5	102900000	48580000	165900000	0	55890000	0
6	102900000	48580000	165900000	0	100170000	-72660000
7	102900000	48580000	165900000	0	133110000	0
8	102900000	48580000	165900000	0	162000000	0
9	102900000	48580000	165900000	0	182520000	0
10	102900000	48580000	165900000	0	180630000	0
11	102900000	48580000	165900000	0	180630000	-72660000
12	102900000	48580000	165900000	0	180630000	0
13	102900000	48580000	165900000	0	180630000	0
14	102900000	48580000	165900000	0	180630000	0
15	102900000	48580000	165900000	0	180630000	0
16	102900000	48580000	165900000	0	180630000	-72660000
17	102900000	48580000	165900000	0	180630000	0
18	102900000	48580000	165900000	0	180630000	0
19	102900000	48580000	165900000	0	180630000	0
20	102900000	48580000	165900000	0	180630000	0
21	102900000	48580000	165900000	0	180630000	-72660000
22	102900000	48580000	165900000	0	180630000	0
23	102900000	48580000	165900000	0	180630000	0
24	102900000	48580000	165900000	0	180630000	0
25	102900000	48580000	165900000	0	180630000	0
26	102900000	48580000	165900000	0	180630000	-72660000
27	102900000	48580000	165900000	0	180630000	0
28	102900000	48580000	165900000	0	180630000	0
29	102900000	48580000	165900000	0	180630000	0
30	102900000	48580000	165900000	0	180630000	0
31	102900000	48580000	165900000	0	180630000	-72660000
32	102900000	48580000	165900000	0	180630000	0
33	102900000	48580000	165900000	0	180630000	0
34	102900000	48580000	165900000	0	180630000	0
35	102900000	48580000	165900000	0	180630000	0

TABLE 0.8 AGRO-BENEFIT : LEFT BANKS

	pineapple:2	pinepl:+citrus	:- sorghum*	:- soy bean*	:- coffee*	left: 10 ⁻⁶
1	0	-74520000	-28706000	-44330000	-58000000	-56
2	129220000	131760000	-28706000	-44330000	-58000000	462
3	57680000	59400000	-28706000	-44330000	-58000000	370
4	57680000	0	-28706000	-44330000	-58000000	323
5	57680000	0	-28706000	-44330000	-58000000	352
6	0	0	-28706000	-44330000	-58000000	266
7	129220000	0	-28706000	-44330000	-58000000	501
8	57680000	0	-28706000	-44330000	-58000000	458
9	57680000	0	-28706000	-44330000	-58000000	479
10	57680000	0	-28706000	-44330000	-58000000	477
11	0	0	-28706000	-44330000	-58000000	347
12	129220000	0	-28706000	-44330000	-58000000	548
13	57680000	0	-28706000	-44330000	-58000000	477
14	57680000	0	-28706000	-44330000	-58000000	477
15	57680000	0	-28706000	-44330000	-58000000	477
16	0	0	-28706000	-44330000	-58000000	347
17	129220000	0	-28706000	-44330000	-58000000	548
18	57680000	0	-28706000	-44330000	-58000000	477
19	57680000	0	-28706000	-44330000	-58000000	477
20	57680000	0	-28706000	-44330000	-58000000	477
21	0	0	-28706000	-44330000	-58000000	347
22	129220000	0	-28706000	-44330000	-58000000	548
23	57680000	0	-28706000	-44330000	-58000000	477
24	57680000	0	-28706000	-44330000	-58000000	477
25	57680000	0	-28706000	-44330000	-58000000	477
26	0	0	-28706000	-44330000	-58000000	347
27	129220000	0	-28706000	-44330000	-58000000	548
28	57680000	0	-28706000	-44330000	-58000000	477
29	57680000	0	-28706000	-44330000	-58000000	477
30	57680000	0	-28706000	-44330000	-58000000	477
31	0	0	-28706000	-44330000	-58000000	347
32	129220000	0	-28706000	-44330000	-58000000	548
33	57680000	0	-28706000	-44330000	-58000000	477
34	57680000	0	-28706000	-44330000	-58000000	477
35	57680000	0	-28706000	-44330000	-58000000	477

TABLE 0.9 BENEFIT: ROADS

	1	2	3	4
road: central	Yergel-Tebaide	Yergl-Carama	Yerg-Pescador	Grnada-Portgl
distance:km	13.5	3	11.5	11
The four roads would open up the flat lower reaches of the Quindio and fertile Tebaida. The old and new roads to Cali would be connected by the proposed bridge on the Quindio. The expected tangible benefits to be enumerated are as follows:				
*1 El Yergel would become the newly created crossroads in this part, and the area around it would be developed; the land category would rise from 2b to 4a.				
Col\$(1625-875)*10 ³ /ha*(13.5/3+(3+11.5)/2)km*				
1 km*2=			1762500000	
Economic price is as equal as financial price				1762500000
	1		2	
roads: south	Barragen-Genova		La Cabana-Buena Vista	
distance: km	19.2	30km/h	2	15km/h
traffic/day:present	932	60km/h	197	45km/h
traffic in 2005	2084		441	
traffic in 1996	1508		319	
bus: 40 pax	16	640	4	160
taxi: 4 pax	32	128	64	256
:Others: 2 pax	1460	2920	251	502
pax-day		3688		918
1. Col\$75*(19.2/30-19.2/60)*pax-day*365			32306880	
2. Col\$75*(2/15-2/45)*pax-day*365			2233800	
				29883864
				2066265
Increase of passengers is presumed as 2% a year.			financial	economic
Total Benefit:roads(1)	first year	(Col\$10 ⁶)	102.423152	94.7414155
	second year onward:*1.02		104.471615	96.6362438
	Circasia-La Pola:for one year		427.5	427.5
	Roads :central:for one year		1762.5	1762.5
Total Benefit:roads(2)			4.951925	4.951925

TABLE 0.9 BENEFIT: ROADS

Road*: north	Cir-Monte #1	Salnt-Arnl#2	Cir-Pola#3	Sal-Coc+Sib#4
distance: km	15	9	9.5	20
traffic/day: present	356	351	n.a.	n.a.
traffic in 2005	797	786	n.a.	n.a.

* Without having traffic surveys like OD, the analysis is bound to be approximate.

*1 assumption 1: with project, number of cars will increase to a half of 2266, same level as Quimbaya-San Felipe+ its own 797 in 2005, as people would want to go to Pereira more. With 4.5% / annum increase, there would be 1243 cars in 1996.
 assumption 2: running cost of car at the speed of 25km/h equals to that of 80km/h.

assumption 3:		1040	1040
26 buses/day x 40 pax =			
100 taxis x 4 pax =		400	400
1117 cars x 2 pax =		2234	1774
Total		3674	3214

assumption 4: saving per man per hour is Col\$75(600/8h) in average.
 So total value of saving in 1991 would be: eco.price

Col\$75*(15/25-15/80)*3636*365=	41487496.9
among male adult(75%), 10% is under-employed. Eco.factor=0.925	38375934.6

*2 With project, 786*2 cars in 2005; 1013 car-day in 1996, 26 buses, 100 taxis.
 Col\$75*(9/20-9/60)*3214*365= 26394975
 economic factor=0.925 24415351.9

*3 With the project, the two towns would be newly connected.. The benefit would be represented by the increase of the land price, as the potential housing plots.
 assumption 1: the rise of category IIa to IIIb; 625000/ha to 1375000/ha.
 assumption 2: the rise affects the 3/4 of the sector with 400m width each side.
 Col\$(1,375-625)x10⁶x9.5kmx3/4x0.4kmx2= 427500000
 difference of price reflects the human economic activity; eco=fin 427500000

*4 With the project potatoes and milk vans would get less damage;
 assumption: both farm-gate price would get 1% increase; yearly increase 2%.
 Salento produces 2520tons of potato; a half of imported potato is carried thru this road. Salento has 11605 cattle, 1/2 are cows.(51/dayx180days)
 Col\$22000*0.01*(2520+16240/2)+
 Col\$50*0.01*11605/2*5*180= 4951925
 economic price is as equal as financial price. 4951925

TABLE 0.10 DISBURSEMENT SCHEDULE

(unit: 1987 price, million col\$)

	1991	1992	1993	1994	1995	total	O/M expense
Circasia	148.20	452.85	554.52	0.00	0.00	1,155.57	17.65
coop:circasia	1.90	0.00	4.74	8.00	0.00	14.64	0.22
piglet product	3.80	0.00	11.85	13.34	0.00	28.99	0.44
feed mixing	7.60	0.00	0.00	42.68	13.54	63.82	0.97
pork process	7.60	0.00	0.00	42.68	13.54	63.82	0.97
tech.cnt:circs	25.65	81.10	79.98	0.00	0.00	186.73	2.85
right banks:1	152.00	464.46	568.74	0.00	0.00	1,185.20	18.11
right banks:2	17.10	52.25	63.98	0.00	0.00	133.33	2.04
coop:tebaids	1.90	0.00	4.74	8.00	0.00	14.64	0.22
tech.cnt:teba	25.65	81.10	79.98	0.00	0.00	186.73	2.85
water quality	222.30	140.57	415.89	468.11	594.00	1,840.87	28.12
left banks	85.50	261.26	319.92	0.00	0.00	666.67	10.19
agro-process	45.60	0.00	0.00	256.06	81.23	382.89	5.85
road improve	499.70	684.56	1,013.77	1,508.19	471.38	4,177.59	63.82
hill road	9.50	0.00	0.00	0.00	89.62	99.12	1.51
mini-hydro	153.90	0.00	479.87	540.13	0.00	1,173.90	17.93
f1.control:Pjao	172.90	437.32	646.94	0.00	0.00	1,257.16	19.21
f1.control:Snvs	243.20	615.14	909.98	0.00	0.00	1,768.32	27.02
total	1,824.00	3,270.61	5,154.90	2,887.19	1,263.30	14,400.00	220.00

TABLE 0.11 ITEM-WISE CASHFLOW

	f.infra.circasi	coop.circasia	tec.cntr.circa	agro-benefit:n	piglet product	feed mixing
1991	-148.20	-1.90	-25.65		-3.80	-7.60
1992	-452.85	0.00	-81.10		0.00	0.00
1993	-554.52	-4.74	-79.98		-11.85	0.00
1994	-17.65	-8.00	-2.85	116.01	-13.34	-42.68
1995	-17.65	-0.22	-2.85	186.88	-0.44	-13.54
1996	-17.65	-0.22	-2.85	321.46	-0.44	-0.97
1997	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
1998	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
1999	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2000	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2001	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2002	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2003	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2004	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2005	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2006	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2007	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2008	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2009	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2010	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2011	-17.65	-0.22	-2.85	381.25	-29.43	-64.79
2012	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2013	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2014	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2015	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2016	-81.84	-0.22	-2.85	407.26	-0.44	-0.97
2017	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2018	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2019	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2020	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2021	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2022	-17.65	-0.22	-2.85	454.14	-0.44	-0.97
2023	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2024	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2025	-53.93	-0.22	-2.85	374.01	-0.44	-0.97
2026	-17.65	-0.22	-2.85	454.14	-29.43	-64.79
2027	-17.65	-0.22	-2.85	381.25	-0.44	-0.97
2028	-17.65	-0.22	-2.85	407.26	-0.44	-0.97
2029	-17.65	-0.22	-2.85	374.01	-0.44	-0.97
2030	28.63	-0.22	-2.85	454.14	18.89	41.58

TABLE 0.11 ITEM-WISE CASHFLOW

	pig production	pork process	process.sale	f.infra:r.bank1	f.infra:r.bank2	coop:tebaida
1991		-7.60		-152.00	-17.10	-1.90
1992		0.00		-464.46	-52.25	0.00
1993		0.00		-568.74	-63.98	-4.74
1994		-42.68		-18.11	-2.04	-8.00
1995		-13.54		-18.11	-2.04	-0.22
1996	51.20	-0.97	38.72	-18.11	-2.04	-0.22
1997	51.20	-0.97	38.72	-18.11	-2.04	-0.22
1998	51.20	-0.97	38.72	-18.11	-2.04	-0.22
1999	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2000	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2001	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2002	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2003	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2004	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2005	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2006	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2007	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2008	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2009	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2010	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2011	51.20	-64.79	38.72	-18.11	-2.04	-0.22
2012	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2013	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2014	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2015	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2016	51.20	-0.97	38.72	-146.47	-2.04	-0.22
2017	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2018	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2019	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2020	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2021	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2022	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2023	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2024	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2025	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2026	51.20	-64.79	38.72	-90.66	-2.04	-0.22
2027	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2028	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2029	51.20	-0.97	38.72	-18.11	-2.04	-0.22
2030	51.20	41.58	38.72	74.44	-2.04	-0.22

TABLE 0.11 ITEM-WISE CASHFLOW

	tec.cntr:tebaid	water quality	agro.benefit:r	irrigation	f.infra:l.bank	agro.benefit:l
1991	-25.65	-222.30			-85.50	
1992	-81.10	-140.57			-361.26	
1993	-79.98	-415.89			-319.92	
1994	-2.85	-468.11	100.63	12.60	-10.19	-56.36
1995	-2.85	-593.99	659.98	12.60	-10.19	462.29
1996	-2.85	-28.13	748.25	12.60	-10.19	369.66
1997	-2.85	-28.13	762.65	12.60	-10.19	323.22
1998	-2.85	-28.13	794.75	12.60	-10.19	352.11
1999	-2.85	-28.13	804.20	12.60	-10.19	266.05
2000	-2.85	-28.13	840.80	12.60	-10.19	500.87
2001	-2.85	-28.13	872.90	12.60	-10.19	458.22
2002	-2.85	-28.13	895.70	12.60	-10.19	478.74
2003	-2.85	-28.13	893.60	12.60	-10.19	476.85
2004	-2.85	-28.13	893.60	12.60	-10.19	346.51
2005	-2.85	-28.13	893.60	12.60	-10.19	548.39
2006	-2.85	-28.13	893.60	12.60	-10.19	476.85
2007	-2.85	-28.13	893.60	12.60	-10.19	476.85
2008	-2.85	-28.13	893.60	12.60	-10.19	476.85
2009	-2.85	-28.13	893.60	12.60	-10.19	346.51
2010	-2.85	-28.13	893.60	12.60	-10.19	548.39
2011	-2.85	-28.13	893.60	12.60	-10.19	476.85
2012	-2.85	-28.13	893.60	12.60	-10.19	476.85
2013	-2.85	-28.13	893.60	12.60	-10.19	476.85
2014	-2.85	-28.13	893.60	12.60	-10.19	346.51
2015	-2.85	-28.13	893.60	12.60	-10.19	548.39
2016	-2.85	-28.13	893.60	12.60	-47.64	476.85
2017	-2.85	-28.13	893.60	12.60	-10.19	476.85
2018	-2.85	-28.13	893.60	12.60	-10.19	476.85
2019	-2.85	-28.13	893.60	12.60	-10.19	346.51
2020	-2.85	-28.13	893.60	12.60	-10.19	548.39
2021	-2.85	-28.13	893.60	12.60	-10.19	476.85
2022	-2.85	-28.13	893.60	12.60	-10.19	476.85
2023	-2.85	-28.13	893.60	12.60	-10.19	476.85
2024	-2.85	-28.13	893.60	12.60	-10.19	346.51
2025	-2.85	-28.13	893.60	12.60	-10.19	548.39
2026	-2.85	-28.13	893.60	12.60	-31.36	476.85
2027	-2.85	-28.13	893.60	12.60	-10.19	476.85
2028	-2.85	-28.13	893.60	12.60	-10.19	476.85
2029	-2.85	-28.13	893.60	12.60	-10.19	346.51
2030	-2.85	-28.13	893.60	12.60	16.81	548.39

TABLE O.1] ITEM-WISE CASHFLOW

	agro-process	agro-process	road improve.	road improve.	hill roads	hill roads
1991	-45.60		-499.70		-9.50	
1992	0.00		-684.56	427.50	0.00	
1993	0.00		-1013.77	901.73	0.00	
1994	-256.06		-1508.19	932.46	0.00	
1995	-81.23		-471.38	92.18	-89.62	
1996	-5.85	85.34	-63.83	102.42	-1.51	4.95
1997	-5.85	85.34	-63.83	104.47	-1.51	5.05
1998	-5.85	85.34	-63.83	106.56	-1.51	5.15
1999	-5.85	85.34	-63.83	108.69	-1.51	5.26
2000	-5.85	85.34	-63.83	110.87	-1.51	5.36
2001	-5.85	85.34	-63.83	113.08	-1.51	5.47
2002	-5.85	85.34	-63.83	115.35	-1.51	5.58
2003	-5.85	85.34	-63.83	117.65	-1.51	5.69
2004	-5.85	85.34	-63.83	120.01	-1.51	5.80
2005	-5.85	85.34	-63.83	122.41	-1.51	5.92
2006	-5.85	85.34	-63.83	124.85	-1.51	6.04
2007	-5.85	85.34	-63.83	127.35	-1.51	6.16
2008	-5.85	85.34	-63.83	129.90	-1.51	6.28
2009	-5.85	85.34	-63.83	132.50	-1.51	6.41
2010	-5.85	85.34	-63.83	135.15	-1.51	6.53
2011	-388.74	85.34	-63.83	137.85	-1.51	6.66
2012	-5.85	85.34	-63.83	140.61	-1.51	6.80
2013	-5.85	85.34	-63.83	143.42	-1.51	6.93
2014	-5.85	85.34	-63.83	146.29	-1.51	7.07
2015	-5.85	85.34	-63.83	149.21	-1.51	7.21
2016	-5.85	85.34	-63.83	152.20	-1.51	7.36
2017	-5.85	85.34	-63.83	155.24	-1.51	7.51
2018	-5.85	85.34	-63.83	158.34	-1.51	7.66
2019	-5.85	85.34	-63.83	161.51	-1.51	7.81
2020	-5.85	85.34	-63.83	164.74	-1.51	7.96
2021	-5.85	85.34	-63.83	168.04	-1.51	8.12
2022	-5.85	85.34	-63.83	171.40	-1.51	8.29
2023	-5.85	85.34	-63.83	174.82	-1.51	8.45
2024	-5.85	85.34	-63.83	178.32	-1.51	8.62
2025	-5.85	85.34	-63.83	181.89	-1.51	8.79
2026	-388.74	85.34	-63.83	185.53	-1.51	8.97
2027	-5.85	85.34	-63.83	189.24	-1.51	9.15
2028	-5.85	85.34	-63.83	193.02	-1.51	9.33
2029	-5.85	85.34	-63.83	196.88	-1.51	9.52
2030	249.41	85.34	-63.83	200.82	-1.51	9.71

TABLE 0.11 ITEM-WISE CASHFLOW

	mini-hydros	mini-hydros	fl.cntnl:pijao	fl.cntnl:pijao	fl.cntnl:genova	fl.cntnl:genova
1991	-153.90		-172.90		-243.20	
1992	0.00		-437.32		-615.14	
1993	-479.87		-646.94		-909.98	
1994	-540.13		-19.21	27.79	-27.03	33.84
1995	-17.93	178.05	-19.21	27.79	-27.03	33.84
1996	-17.93	178.05	-19.21	27.79	-27.03	33.84
1997	-17.93	178.05	-19.21	27.79	-27.03	33.84
1998	-17.93	178.05	-19.21	27.79	-27.03	33.84
1999	-17.93	178.05	-19.21	27.79	-27.03	33.84
2000	-17.93	178.05	-19.21	27.79	-27.03	33.84
2001	-17.93	178.05	-19.21	27.79	-27.03	33.84
2002	-17.93	178.05	-19.21	27.79	-27.03	33.84
2003	-17.93	178.05	-19.21	27.79	-27.03	33.84
2004	-17.93	178.05	-19.21	27.79	-27.03	33.84
2005	-17.93	178.05	-19.21	27.79	-27.03	33.84
2006	-17.93	178.05	-19.21	27.79	-27.03	33.84
2007	-17.93	178.05	-19.21	27.79	-27.03	33.84
2008	-17.93	178.05	-19.21	27.79	-27.03	33.84
2009	-17.93	178.05	-19.21	27.79	-27.03	33.84
2010	-17.93	178.05	-19.21	27.79	-27.03	33.84
2011	-17.93	178.05	-19.21	27.79	-27.03	33.84
2012	-17.93	178.05	-19.21	27.79	-27.03	33.84
2013	-17.93	178.05	-19.21	27.79	-27.03	33.84
2014	-17.93	178.05	-19.21	27.79	-27.03	33.84
2015	-17.93	178.05	-19.21	27.79	-27.03	33.84
2016	-17.93	178.05	-19.21	27.79	-27.03	33.84
2017	-17.93	178.05	-19.21	27.79	-27.03	33.84
2018	-17.93	178.05	-19.21	27.79	-27.03	33.84
2019	-17.93	178.05	-19.21	27.79	-27.03	33.84
2020	-17.93	178.05	-19.21	27.79	-27.03	33.84
2021	-17.93	178.05	-19.21	27.79	-27.03	33.84
2022	-17.93	178.05	-19.21	27.79	-27.03	33.84
2023	-17.93	178.05	-19.21	27.79	-27.03	33.84
2024	-17.93	178.05	-19.21	27.79	-27.03	33.84
2025	-17.93	178.05	-19.21	27.79	-27.03	33.84
2026	-17.93	178.05	-19.21	27.79	-27.03	33.84
2027	-17.93	178.05	-19.21	27.79	-27.03	33.84
2028	-17.93	178.05	-19.21	27.79	-27.03	33.84
2029	-17.93	178.05	-19.21	27.79	-27.03	33.84
2030	-17.93	178.05	-19.21	27.79	-27.03	33.84

TABLE O.12 ITEM-WISE CASHFLOW AND FIRR

	f.infra:circacie	sale	process.pork	f.infra:r.banks	f.infra:l.banks	agro-process.
1991	-175.75	-11.40	-7.60	-418.95	-85.50	-45.60
1992	-533.95	0.00	0.00	-738.38	-261.26	0.00
1993	-639.24	-11.85	0.00	-1,133.33	-319.92	0.00
1994	87.51	-56.02	-42.68	-385.88	-66.55	-256.06
1995	166.16	-13.98	-13.54	55.37	452.10	-81.23
1996	300.74	49.79	37.75	709.50	359.47	79.49
1997	353.29	49.79	37.75	723.90	313.03	79.49
1998	433.42	49.79	37.75	756.00	341.92	79.49
1999	360.53	49.79	37.75	765.45	255.86	79.49
2000	386.54	49.79	37.75	802.05	490.68	79.49
2001	353.29	49.79	37.75	834.15	448.03	79.49
2002	433.42	49.79	37.75	856.95	468.55	79.49
2003	360.53	49.79	37.75	854.85	466.66	79.49
2004	386.54	49.79	37.75	854.85	336.32	79.49
2005	353.29	49.79	37.75	854.85	538.20	79.49
2006	433.42	49.79	37.75	854.85	466.66	79.49
2007	360.53	49.79	37.75	854.85	466.66	79.49
2008	386.54	49.79	37.75	854.85	466.66	79.49
2009	353.29	49.79	37.75	854.85	336.32	79.49
2010	433.42	49.79	37.75	854.85	538.20	79.49
2011	360.53	-43.02	-26.07	854.85	466.66	-303.40
2012	386.54	49.79	37.75	854.85	466.66	79.49
2013	353.29	49.79	37.75	854.85	466.66	79.49
2014	433.42	49.79	37.75	854.85	336.32	79.49
2015	360.53	49.79	37.75	854.85	538.20	79.49
2016	322.35	49.79	37.75	726.49	429.21	79.49
2017	353.29	49.79	37.75	854.85	466.66	79.49
2018	433.42	49.79	37.75	854.85	466.66	79.49
2019	360.53	49.79	37.75	854.85	336.32	79.49
2020	386.54	49.79	37.75	854.85	538.20	79.49
2021	353.29	49.79	37.75	854.85	466.66	79.49
2022	433.42	49.79	37.75	854.85	466.66	79.49
2023	360.53	49.79	37.75	854.85	466.66	79.49
2024	386.54	49.79	37.75	854.85	336.32	79.49
2025	317.01	49.79	37.75	854.85	538.20	79.49
2026	433.42	-43.02	-26.07	782.30	445.49	-303.40
2027	360.53	49.79	37.75	854.85	466.66	79.49
2028	386.54	49.79	37.75	854.85	466.66	79.49
2029	353.29	49.79	37.75	854.85	336.32	79.49
2030	479.70	111.66	80.30	947.40	565.21	334.75
FIRR	19.34%	33.76%	37.73%	19.15%	33.54%	15.84%

TABLE O.12 ITEM-WISE CASHFLOW AND FIRR

	road improve.	hill road impr.	mini-hydro	fl.control:p+g	Total
1991	-499.70	-9.50	-153.90	-416.10	-1,824.00
1992	-257.06	0.00	0.00	-1,052.46	-2,843.11
1993	-112.04	0.00	-479.87	-1,556.92	-4,253.17
1994	-575.73	0.00	-540.13	15.39	-1,820.14
1995	-379.20	-89.62	160.12	15.39	271.57
1996	38.59	3.44	160.12	15.39	1,754.28
1997	40.64	3.54	160.12	15.39	1,776.95
1998	42.73	3.64	160.12	15.39	1,920.25
1999	44.86	3.75	160.12	15.39	1,772.98
2000	47.04	3.85	160.12	15.39	2,072.69
2001	49.25	3.96	160.12	15.39	2,031.22
2002	51.52	4.07	160.12	15.39	2,157.04
2003	53.82	4.18	160.12	15.39	2,082.58
2004	56.18	4.29	160.12	15.39	1,980.71
2005	58.58	4.41	160.12	15.39	2,151.86
2006	61.02	4.53	160.12	15.39	2,163.02
2007	63.52	4.65	160.12	15.39	2,092.74
2008	66.07	4.77	160.12	15.39	2,121.42
2009	68.67	4.90	160.12	15.39	1,960.56
2010	71.32	5.02	160.12	15.39	2,245.35
2011	74.02	5.15	160.12	15.39	1,564.23
2012	76.78	5.29	160.12	15.39	2,132.65
2013	79.59	5.42	160.12	15.39	2,102.35
2014	82.46	5.56	160.12	15.39	2,055.15
2015	85.38	5.70	160.12	15.39	2,187.20
2016	88.37	5.85	160.12	15.39	1,914.80
2017	91.41	6.00	160.12	15.39	2,114.75
2018	94.51	6.15	160.12	15.39	2,198.13
2019	97.68	6.30	160.12	15.39	1,998.22
2020	100.91	6.45	160.12	15.39	2,229.49
2021	104.21	6.61	160.12	15.39	2,128.16
2022	107.57	6.78	160.12	15.39	2,211.81
2023	110.99	6.94	160.12	15.39	2,142.51
2024	114.49	7.11	160.12	15.39	2,041.85
2025	118.06	7.28	160.12	15.39	2,177.94
2026	121.70	7.46	160.12	15.39	1,593.38
2027	125.41	7.64	160.12	15.39	2,157.62
2028	129.19	7.82	160.12	15.39	2,187.60
2029	133.05	8.01	160.12	15.39	2,028.06
2030	136.99	8.20	160.12	15.39	2,839.71
FIRR	*NUM!	3.58%	12.16%	*DIY/0!	13.46%

TABLE.O.13 ECONOMIC FARM-GATE PRICE

	coffee *2	orange *3	maize	*4 sorghum	*5 soy bean	*6 urea	*7
IBRD 1995: US\$*1	3000	422.5	118.75	112.5	256.25	203.75	
quality factor: %	120%	80%	100%	100%	100%	100%	100%
price in 1995:US\$	3600	338	118.75	112.5	256.25	203.75	
I+F *8	-110	-132	90	90	90	0	
CIF/FOB :US:	3490	206	208.75	202.5	346.25	203.75	
Buenaventura :Col\$	872500	51500	52187.5	50625	86562.5	50937.5	
port charge:Col\$	-2812.5	-2812.5	2812.5	2812.5	2812.5	-2812.5	
transport	-2500	-2500	2500	2500	2500	-2500	
mill-gate(out) *9	867187.5	46187.5	57500	55937.5	91875	45625	
processing factor:%	80%	30%	100%	100%	100%	100%	
proces.cost	173437.5	4618.75	0	0	0	0	
by-product	0	3233.125	0	0	0	0	
mill-gate(in)	555000	15703.75	57500	55937.5	91875	45625	
transport	-500	-500	-500	-500	-500	500	
at farm-gate	554500	15203.75	57000	55437.5	91375	46125	
price factor *10	1.84833333	0.89433824	1	1.19994589	0.97207447	1.64732143	

*1 adjusted from "commodity prices and price projections" prepared by IBRD, dated Sep. 87.

1987 price = 1.25 x 1985 price

*2 indicator price of ICO; other mild Arabicas, average New York, ex-dock.

*3 EEC indicative import price, CIF Paris.

*4 No.2, yellow, FOB Gulf ports.

*5 No.2, milo yellow, FOB Gulf ports.

*6 from USA, CIF Rotterdam

*7 of any origin, bagged, FOB N.W. Europe; supposition: FOB Buenaventura.

*8 Colombia exports coffee, and will export orange and urea.

We assume coffee to be exported to New York, orange to Europe.

*9 (mill_gate(out) - processing_cost) x processing_factor + by_product = mill_gate(in)

*10 economic price/financial price

TABLE.O.14 AGRO-BENEFIT NORTH QUINDIO(ECONOMIC PRICE)

	lulo:1	lulo:2<=	tr.tomato:1	tr.tomato:2<=	bl.berry:1	bl.berry:2<=	k.bean:int#
price_factor	1	1	1	1	1	1	1
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	65000	65000	25000	25000	55000	55000	218500
unit yield: ton/ha	0	15	0	20	0	16	0.9
-:labour: col\$/ha	-95200	-132000	-83500	-87900	-122000	-202000	-21000
-:fertilizer: col\$/ha	-56000	-56000	-23100	-27700	-67200	-67200	-3200
-:material: col\$/ha	-74800	-45000	-70400	-26400	-402800	-191800	-17800
area: ha	0.6	0.6	0.6	0.6	0.5	0.5	0.6
% of yield: year 1	0	0	0	0	0	0	100%
% of yield: year 2	0%	0%	0	0	0	0	100%
% of yield: year 3	0%	67%	0%	0%	0	0	100%
% of yield: year 4	0%	100%	0%	75%	0%	0%	0%
% of yield: year 5	0%	53%	0%	100%	0%	88%	0%
% of yield: year 6	0%	0%	0%	75%	0%	100%	100%
% of yield: year 7	0%	67%	0%	0%	0%	88%	100%
% of yield: year 8	0%	100%	0%	75%	0%	0%	0%
% of yield: year 9	0%	53%	0%	100%	0%	88%	0%
% of yield: year 10	0%	0%	0%	75%	0%	100%	100%
% of cost: year 1	0	0	0	0	0	0	100%
% of cost: year 2	100%	0%	0	0	0	0	100%
% of cost: year 3	0%	86%	100%	0%	0	0	100%
% of cost: year 4	0%	100%	0%	92%	100%	0%	0%
% of cost: year 5	0%	75%	0%	100%	0%	95%	0%
% of cost: year 6	100%	0%	0%	92%	0%	100%	100%
% of cost: year 7	0%	86%	100%	0%	0%	74%	100%
% of cost: year 8	0%	100%	0%	92%	100%	0%	0%
% of cost: year 9	0%	75%	0%	100%	0%	95%	0%
% of cost: year 10	100%	0%	0%	92%	0%	100%	100%

TABLE.O.14 AGRO-BENEFIT:NORTH QUINDIO (ECONOMIC PRICE)

	potato	pea	cabbage	carrot	kidney bean	mize*#	wel.onion:1	wel.onion:2
price_factor	1	1	1	1	1	1	1	1
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	22000	67500	16000	16000	218500	57000	20000	20000
unit yield: ton/ha	19	14	30	26	2.5	6	20	38
-:labour: col\$/ha	-101600	-209300	-86200	-53500	-37000	-33600	-99100	-87700
-:fertilizer: col\$/ha	-28000	-28000	-11200	-14000	-5600	-5600	-14000	-14000
-:material: col\$/ha	-155400	-209700	-52600	-55500	-31400	-8800	-202900	-112300
area: ha	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2
% of yield: year 1	70%	70%	70%	70%	32%	50%	70%	0%
% of yield: year 2	90%	90%	90%	90%	100%	83%	0%	70%
% of yield: year 3	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 4	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 5	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 6	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 7	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 8	100%	100%	100%	100%	100%	100%	0%	100%
% of yield: year 9	100%	100%	100%	100%	100%	100%	100%	0%
% of yield: year 10	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 1	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 2	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 3	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 4	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 5	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 6	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 7	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 8	100%	100%	100%	100%	100%	100%	0%	100%
% of cost: year 9	100%	100%	100%	100%	100%	100%	100%	0%
% of cost: year 10	100%	100%	100%	100%	100%	100%	0%	100%

TABLE 0.1.5 AGRO BENEFIT: NORTH QUINDIO (ECONOMIC PRICE)

	potato	pea	cabbage	carrot	kidney bean #	maize #	we1.onion:1	we1.onion:2	lulo: 1
1	16110	120410	44370	37177.5	23135	27235	897.5	0	0
2	49550	196010	63570	53817.5	97425	50035	0	70557.5	-128790
3	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
4	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
5	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
6	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
7	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
8	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
9	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
10	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
11	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
12	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
13	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
14	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
15	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
16	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
17	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
18	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
19	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
20	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
21	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
22	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
23	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
24	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
25	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
26	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
27	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
28	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
29	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
30	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
31	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
32	66270	233810	73170	62137.5	97425	61435	0	116157.5	0
33	66270	233810	73170	62137.5	97425	61435	24897.5	0	0
34	66270	233810	73170	62137.5	97425	61435	0	116157.5	-128790
35	66270	233810	73170	62137.5	97425	61435	24897.5	0	0

TABLE 0.15 AGRO BENEFIT: NORTH QUINDIO (ECONOMIC PRICE)

	lulo:2<=	tr.tomato:1	tr.tomato:2<=	bl.berry:1	bl.berry:2<=	k.bean:int#	total:(x400)
1	0	0	0	0	0	97847.1429	146.87
2	0	0	0	0	0	97847.1429	220.01
3	285321.888	-90121.875	0	0	0	97847.1429	364.88
4	463050	0	160787.977	-287250	0	0	418.80
5	220406.652	0	230411.518	0	193753.254	0	505.49
6	0	0	161276.746	0	238250	97847.1429	431.60
7	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
8	463050	0	160787.977	-287250	0	0	418.80
9	220406.652	0	230411.518	0	193753.254	0	505.49
10	0	0	161276.746	0	238250	97847.1429	431.60
11	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
12	463050	0	160787.977	-287250	0	0	418.80
13	220406.652	0	230411.518	0	193753.254	0	505.49
14	0	0	161276.746	0	238250	97847.1429	431.60
15	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
16	463050	0	160787.977	-287250	0	0	418.80
17	220406.652	0	230411.518	0	193753.254	0	505.49
18	0	0	161276.746	0	238250	97847.1429	431.60
19	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
20	463050	0	160787.977	-287250	0	0	418.80
21	220406.652	0	230411.518	0	193753.254	0	505.49
22	0	0	161276.746	0	238250	97847.1429	431.60
23	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
24	463050	0	160787.977	-287250	0	0	418.80
25	220406.652	0	230411.518	0	193753.254	0	505.49
26	0	0	161276.746	0	238250	97847.1429	431.60
27	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
28	463050	0	160787.977	-287250	0	0	418.80
29	220406.652	0	230411.518	0	193753.254	0	505.49
30	0	0	161276.746	0	238250	97847.1429	431.60
31	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18
32	463050	0	160787.977	-287250	0	0	418.80
33	220406.652	0	230411.518	0	193753.254	0	505.49
34	0	0	161276.746	0	238250	97847.1429	431.60
35	285321.888	-90121.875	0	0	235766.269	97847.1429	459.18

col \$million

TABLE.O.16 AGRO-BENEFIT:QUINDIO RIGHT BANK:ECONOMIC

	tomato	onion	pimenton	kidney bean*	ground nut	snap bean	cassava	meize**
price_factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	25560	29000	31000	218500	60000	30000	25000	57000
unit yield: ton/ha	52	30	40	2.5	1.8	24	30	6
-:labour: col\$/ha	-496500	-232600	-293600	-37000	-39200	-222400	-78200	-33600
-:fertilizer: col\$/ha	-33600	-33600	-84000	-5600	-9000	-22400	-14000	-5600
-:material: col\$/ha	-119900	-210800	-75400	-31400	-19800	-217200	-53800	-8800
area: ha	70	70	60	70	70	60	200	100
% of yield: year 1	70%	70%	70%	32%	70%	70%	77%	50%
% of yield: year 2	90%	90%	90%	100%	90%	90%	100%	83%
% of yield: year 3	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 4	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 5	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 6	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 7	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 8	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 9	100%	100%	100%	100%	100%	100%	100%	100%
% of yield: year 10	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 1	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 2	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 3	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 4	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 5	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 6	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 7	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 8	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 9	100%	100%	100%	100%	100%	100%	100%	100%
% of cost: year 10	100%	100%	100%	100%	100%	100%	100%	100%

TABLE.O.16 AGRO-BENEFIT:QUINDIO RIGHT BANK:ECONOMIC

	sorghum**	soy bean**	coffee*	citrus:1*	citrus:2<=*	k.bean:+cassava	g.nut:+cassava	k.been:+citrus
price_factor	1.20	0.97	1.85	0.89	0.89	1.00	1.00	1.00
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	46200	94000	300000	17000	17000	218500	60000	218500
unit yield: ton/ha	4	2.5	2.5	0	50	1	0.8	1.6
-:labour: col\$/ha	-24500	-16400	-136000	-57000	-119400	-15500	-15000	-23500
-:fertilizer: col\$/ha	-9800	-9800	-68000	-6700	-19900	-2300	-3400	-3600
-:material: col\$/ha	-11700	-18800	-136000	-81300	-41700	-13200	-7600	-19900
area: ha	100	200	800	300	300	100	100	300
% of yield: year 1	75%	80%	68%	0%	0%	30%	75%	31%
% of yield: year 2	100%	100%	76%	0%	0%	90%	88%	100%
% of yield: year 3	100%	100%	100%	0%	16%	100%	100%	0%
% of yield: year 4	100%	100%	100%	0%	24%	100%	100%	0%
% of yield: year 5	100%	100%	100%	0%	40%	100%	100%	0%
% of yield: year 6	100%	100%	100%	0%	60%	100%	100%	0%
% of yield: year 7	100%	100%	100%	0%	76%	100%	100%	0%
% of yield: year 8	100%	100%	100%	0%	90%	100%	100%	0%
% of yield: year 9	100%	100%	100%	0%	100%	100%	100%	0%
% of yield: year 10	100%	100%	100%	0%	100%	100%	100%	0%
% of cost: year 1	100%	100%	100%	100%	0%	100%	100%	100%
% of cost: year 2	100%	100%	100%	0%	35%	100%	100%	100%
% of cost: year 3	100%	100%	100%	0%	46%	100%	100%	0%
% of cost: year 4	100%	100%	100%	0%	57%	100%	100%	0%
% of cost: year 5	100%	100%	100%	0%	73%	100%	100%	0%
% of cost: year 6	100%	100%	100%	0%	77%	100%	100%	0%
% of cost: year 7	100%	100%	100%	0%	85%	100%	100%	0%
% of cost: year 8	100%	100%	100%	0%	91%	100%	100%	0%
% of cost: year 9	100%	100%	100%	0%	96%	100%	100%	0%
% of cost: year 10	100%	100%	100%	0%	100%	100%	100%	0%

TABLE.O.16 AGRO-BENEFIT:QUINDIO RIGHT BANK:ECONOMIC

	tomato: +citrus	pinaton: +citrus	plantain: 1cafe	plantain: 2<cf	caeseva	:- sorghum*	:- soy bean*	:- coffee*
price_factor	1.00	1.00	1.00	1.00	1.00	1.20	0.97	1.85
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	25560	31000	15000	15000	25000	46200	94000	300000
unit yield: ton/ha	24	26	0	13.8	23	3	2	1.6
-:labour: col\$/ha	-253600	-214500	-39500	-25000	-78200	-24500	-16400	-136000
-:fertilizer: col\$/ha	-17200	-61400	-4200	-4200	-14000	-9800	-9800	-68000
-:material: col\$/ha	-61200	-55100	-26300	-8800	-53800	-11700	-18800	-136000
area: ha	150	150	800	800	170	200	200	940
% of yield: year 1	75%	77%	0%	0%	-100%	-100%	-100%	-100%
% of yield: year 2	100%	100%	0%	83%	-100%	-100%	-100%	-100%
% of yield: year 3	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 4	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 5	0%	0%	0%	125%	-100%	-100%	-100%	-100%
% of yield: year 6	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 7	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 8	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 9	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of yield: year 10	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 1	100%	100%	100%	0%	-100%	-100%	-100%	-100%
% of cost: year 2	100%	100%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 3	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 4	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 5	0%	0%	0%	108%	-100%	-100%	-100%	-100%
% of cost: year 6	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 7	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 8	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 9	0%	0%	0%	100%	-100%	-100%	-100%	-100%
% of cost: year 10	0%	0%	0%	100%	-100%	-100%	-100%	-100%

TABLE. O.16 AGRO-BENEFIT:QUINDIO RIGHT BANK:ECONOMIC

	-:citrus*	maize*	sorghum*	soy bean*	-:sorghum*	-:soy bean*
price_factor	0.89	1.00	1.20	0.97	1.20	0.97
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	17000	57000	46200	94000	46200	94000
unit yield: ton/ha	15	6	4	2.5	3	2
-:labour: col\$/ha	-92353.591	-33600	-24500	-16400	-24500	-16400
-:fertilizer: col\$/ha	-15392.265	-5600	-9800	-9800	-9800	-9800
-:material: col\$/ha	-32254.144	-8800	-11700	-18800	-11700	-18800
area: ha	70	175	175	350	210	210
% of yield: year 1	-100%	50%	75%	80%	-100%	-100%
% of yield: year 2	-100%	83%	100%	100%	-100%	-100%
% of yield: year 3	-100%	100%	100%	100%	-100%	-100%
% of yield: year 4	-100%	100%	100%	100%	-100%	-100%
% of yield: year 5	-100%	100%	100%	100%	-100%	-100%
% of yield: year 6	-100%	100%	100%	100%	-100%	-100%
% of yield: year 7	-100%	100%	100%	100%	-100%	-100%
% of yield: year 8	-100%	100%	100%	100%	-100%	-100%
% of yield: year 9	-100%	100%	100%	100%	-100%	-100%
% of yield: year 10	-100%	100%	100%	100%	-100%	-100%
% of cost: year 1	-100%	100%	100%	100%	-100%	-100%
% of cost: year 2	-100%	100%	100%	100%	-100%	-100%
% of cost: year 3	-100%	100%	100%	100%	-100%	-100%
% of cost: year 4	-100%	100%	100%	100%	-100%	-100%
% of cost: year 5	-100%	100%	100%	100%	-100%	-100%
% of cost: year 6	-100%	100%	100%	100%	-100%	-100%
% of cost: year 7	-100%	100%	100%	100%	-100%	-100%
% of cost: year 8	-100%	100%	100%	100%	-100%	-100%
% of cost: year 9	-100%	100%	100%	100%	-100%	-100%
% of cost: year 10	-100%	100%	100%	100%	-100%	-100%

TABLE 0.17 AGRO BENEFIT: QUINDIO RIGHT BANK ECONOMIC

	tomato	onion	pimenton	kidney bean*	ground nut	snap bean	cassava	maize**	sorghum**
1	35461880	15858500	30445500	8097250	1496187.5	8322000	91807500	13617500	12621875
2	54089560	28038500	45325500	34098750	3008187.5	16962000	126807500	25017500	18165625
3	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
4	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
5	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
6	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
7	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
8	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
9	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
10	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
11	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
12	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
13	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
14	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
15	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
16	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
17	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
18	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
19	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
20	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
21	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
22	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
23	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
24	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
25	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
26	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
27	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
28	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
29	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
30	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
31	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
32	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
33	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
34	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625
35	63393400	34128500	52765500	34098750	3764187.5	21282000	126807500	30717500	18165625

TABLE 0.17 AGRO BENEFIT: QUINDIO RIGHT BANK: ECONOMIC

	soy	bean*	#	coffee*	citrus:1*	citrus:2<=*	k.bean:+cassava	g.nut:+cassava	1529910.71	k.bean:+citrus	21500892.9	tomato:+citrus	36561910.7	pimton:+citrus	53475669.6
1	27921250	501305714	-36251116	0	4081116.07	1529910.71	21500892.9	36561910.7	53475669.6	0	0	0	0	0	0
2	37058750	590025714	0	-14233639	1719116.1	2129910.71	93605892.9	59565910.7	81375669.6	0	0	0	0	0	0
3	37058750	856185714	0	17807349.4	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
4	37058750	856185714	0	31603837.4	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
5	37058750	856185714	0	61643220	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
6	37058750	856185714	0	105920066	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
7	37058750	856185714	0	139295458	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
8	37058750	856185714	0	168554526	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
9	37058750	856185714	0	189358545	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
10	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
11	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
12	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
13	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
14	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
15	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
16	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
17	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
18	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
19	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
20	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
21	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
22	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
23	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
24	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
25	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
26	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
27	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
28	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
29	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
30	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
31	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
32	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
33	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
34	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0
35	37058750	856185714	0	187801741	19376116.1	2729910.71	0	0	0	0	0	0	0	0	0

TABLE 0.17 AGRO BENEFIT: QUINDIO RIGHT BANK: ECONOMIC

	plantain:lcafe	plantain:2<=cf	-:cassava	-:sorghum*	-:soy bean*	-:coffee*	-:citrus*	maize*	sorghum*
1	-42375000	0	-78036375	-25243750	-27921250	-536911214	-8698851.2	23830625	22088281.3
2	0	115425000	-78036375	-25243750	-27921250	-536911214	-8698851.2	43780625	31789843.8
3	0	183395490	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
4	0	183395490	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
5	0	183395490	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
6	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
7	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
8	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
9	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
10	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
11	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
12	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
13	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
14	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
15	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
16	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
17	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
18	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
19	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
20	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
21	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
22	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
23	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
24	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
25	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
26	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
27	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
28	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
29	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
30	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
31	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
32	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
33	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
34	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8
35	0	143025000	-78036375	-25243750	-27921250	-536911214	-8698851.2	53755625	31789843.8

TABLE O.17 AGRO BENEFIT: QUINDIO RIGHT BANK: ECONOMIC

	soy bean*	-: sorghum*	-: soy bean*	right: 10'6
1	48862812.5	-26505938	-29317313	148
2	64852812.5	-26505938	-29317313	741
3	64852812.5	-26505938	-29317313	919
4	64852812.5	-26505938	-29317313	933
5	64852812.5	-26505938	-29317313	963
6	64852812.5	-26505938	-29317313	967
7	64852812.5	-26505938	-29317313	1,001
8	64852812.5	-26505938	-29317313	1,030
9	64852812.5	-26505938	-29317313	1,051
10	64852812.5	-26505938	-29317313	1,049
11	64852812.5	-26505938	-29317313	1,049
12	64852812.5	-26505938	-29317313	1,049
13	64852812.5	-26505938	-29317313	1,049
14	64852812.5	-26505938	-29317313	1,049
15	64852812.5	-26505938	-29317313	1,049
16	64852812.5	-26505938	-29317313	1,049
17	64852812.5	-26505938	-29317313	1,049
18	64852812.5	-26505938	-29317313	1,049
19	64852812.5	-26505938	-29317313	1,049
20	64852812.5	-26505938	-29317313	1,049
21	64852812.5	-26505938	-29317313	1,049
22	64852812.5	-26505938	-29317313	1,049
23	64852812.5	-26505938	-29317313	1,049
24	64852812.5	-26505938	-29317313	1,049
25	64852812.5	-26505938	-29317313	1,049
26	64852812.5	-26505938	-29317313	1,049
27	64852812.5	-26505938	-29317313	1,049
28	64852812.5	-26505938	-29317313	1,049
29	64852812.5	-26505938	-29317313	1,049
30	64852812.5	-26505938	-29317313	1,049
31	64852812.5	-26505938	-29317313	1,049
32	64852812.5	-26505938	-29317313	1,049
33	64852812.5	-26505938	-29317313	1,049
34	64852812.5	-26505938	-29317313	1,049
35	64852812.5	-26505938	-29317313	1,049

col \$million

TABLE.O.18 AGRO-BENEFIT:QUINDIO LEFT BANK:ECONOMIC

	maize*	sorghum*	soy bean*	citrus:1	citrus:2<=*	pineapple:1	pineapple:2	pinepl:+citrus
price_factor	1.00	1.20	0.97	0.89	0.89	1.00	1.00	1.00
labor_factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
unit price: col\$/ton	57000	46200	94000	17000	17000	21000	21000	21000
unit yield: ton/ha	6	4	3	0	50	0	70	37
-:labour: col\$/ha	-33600	-24500	-16400	-57000	-119400	-233000	-337000	-178049.36
-:fertilizer: col\$/ha	-5600	-9800	-9800	-6700	-19900	-58400	-28000	-14793.419
-:material: col\$/ha	-8800	-11700	-18800	-81300	-41700	-227600	-182000	-96157.221
area: ha	350	350	700	270	270	140	140	270
% of yield: year 1	50%	86%	80%	0%	0%	0%	0%	0%
% of yield: year 2	83%	100%	100%	0%	0%	0%	100%	100%
% of yield: year 3	100%	100%	100%	0%	16%	0%	43%	43%
% of yield: year 4	100%	100%	100%	0%	24%	0%	43%	0%
% of yield: year 5	100%	100%	100%	0%	40%	0%	43%	0%
% of yield: year 6	100%	100%	100%	0%	60%	0%	0%	0%
% of yield: year 7	100%	100%	100%	0%	76%	0%	100%	0%
% of yield: year 8	100%	100%	100%	0%	90%	0%	43%	0%
% of yield: year 9	100%	100%	100%	0%	100%	0%	43%	0%
% of yield: year 10	100%	100%	100%	0%	100%	0%	43%	0%
% of cost: year 1	100%	100%	100%	100%	0%	100%	0%	96%
% of cost: year 2	100%	100%	100%	0%	35%	0%	100%	100%
% of cost: year 3	100%	100%	100%	0%	46%	0%	40%	40%
% of cost: year 4	100%	100%	100%	0%	57%	0%	40%	0%
% of cost: year 5	100%	100%	100%	0%	73%	0%	40%	0%
% of cost: year 6	100%	100%	100%	0%	77%	100%	0%	0%
% of cost: year 7	100%	100%	100%	0%	85%	0%	100%	0%
% of cost: year 8	100%	100%	100%	0%	91%	0%	40%	0%
% of cost: year 9	100%	100%	100%	0%	96%	0%	40%	0%
% of cost: year 10	100%	100%	100%	0%	100%	0%	40%	0%

TABLE O.18 AGRO-BENEFIT:QUINDIO LEFT BANK:ECONOMIC

	-: sorghum*	-: soy bean*	-: coffee*
price_factor	1.20	0.97	1.85
labor_factor	0.5	0.5	0.5
fertilizer_factor	1.65	1.65	1.65
unit price: col\$/ton	46200	94000	300000
unit yield: ton/ha	3	2	1.2
-:labour: col\$/ha	-24500	-16400	-136000
-:fertilizer: col\$/ha	-9800	-9800	-68000
-:material: col\$/ha	-11700	-18800	-136000
area: ha	310	310	290
% of yield: year 1	-100%	-100%	-100%
% of yield: year 2	-100%	-100%	-100%
% of yield: year 3	-100%	-100%	-100%
% of yield: year 4	-100%	-100%	-100%
% of yield: year 5	-100%	-100%	-100%
% of yield: year 6	-100%	-100%	-100%
% of yield: year 7	-100%	-100%	-100%
% of yield: year 8	-100%	-100%	-100%
% of yield: year 9	-100%	-100%	-100%
% of yield: year 10	-100%	-100%	-100%
% of cost: year 1	-100%	-100%	-100%
% of cost: year 2	-100%	-100%	-100%
% of cost: year 3	-100%	-100%	-100%
% of cost: year 4	-100%	-100%	-100%
% of cost: year 5	-100%	-100%	-100%
% of cost: year 6	-100%	-100%	-100%
% of cost: year 7	-100%	-100%	-100%
% of cost: year 8	-100%	-100%	-100%
% of cost: year 9	-100%	-100%	-100%
% of cost: year 10	-100%	-100%	-100%

TABLE 0.19 AGRO BENEFIT: QUINDIO LEFT BANK: ECONOMIC

	maize*	sorghum*	soy bean*	citrus:1	citrus:2<=*	pineapple:1	pineapple:2
1	47661250	52492187.5	123309375	-32626004	0	-61642500	0
2	87561250	63579687.5	161686875	0	-12810275	0	150272500
3	107511250	63579687.5	161686875	0	16026614.5	0	66070210.2
4	107511250	63579687.5	161686875	0	28443453.7	0	66070210.2
5	107511250	63579687.5	161686875	0	55478898	0	66070210.2
6	107511250	63579687.5	161686875	0	95328059.7	-61642500	0
7	107511250	63579687.5	161686875	0	125365912	0	150272500
8	107511250	63579687.5	161686875	0	151699073	0	66070210.2
9	107511250	63579687.5	161686875	0	170422691	0	66070210.2
10	107511250	63579687.5	161686875	0	169021567	0	66070210.2
11	107511250	63579687.5	161686875	0	169021567	-72660000	0
12	107511250	63579687.5	161686875	0	169021567	0	129220000
13	107511250	63579687.5	161686875	0	169021567	0	57680000
14	107511250	63579687.5	161686875	0	169021567	0	57680000
15	107511250	63579687.5	161686875	0	169021567	0	57680000
16	107511250	63579687.5	161686875	0	169021567	-72660000	0
17	107511250	63579687.5	161686875	0	169021567	0	129220000
18	107511250	63579687.5	161686875	0	169021567	0	57680000
19	107511250	63579687.5	161686875	0	169021567	0	57680000
20	107511250	63579687.5	161686875	0	169021567	0	57680000
21	107511250	63579687.5	161686875	0	169021567	-72660000	0
22	107511250	63579687.5	161686875	0	169021567	0	129220000
23	107511250	63579687.5	161686875	0	169021567	0	57680000
24	107511250	63579687.5	161686875	0	169021567	0	57680000
25	107511250	63579687.5	161686875	0	169021567	0	57680000
26	107511250	63579687.5	161686875	0	169021567	-72660000	0
27	107511250	63579687.5	161686875	0	169021567	0	129220000
28	107511250	63579687.5	161686875	0	169021567	0	57680000
29	107511250	63579687.5	161686875	0	169021567	0	57680000
30	107511250	63579687.5	161686875	0	169021567	0	57680000
31	107511250	63579687.5	161686875	0	169021567	-72660000	0
32	107511250	63579687.5	161686875	0	169021567	0	129220000
33	107511250	63579687.5	161686875	0	169021567	0	57680000
34	107511250	63579687.5	161686875	0	169021567	0	57680000
35	107511250	63579687.5	161686875	0	169021567	0	57680000

TABLE 0.19 AGRO BENEFIT: QUINDIO LEFT BANK:ECONOMIC

	pinepl:+citrus*	-: sorghum*	-: soy bean*	-: coffee*	left: 10 ⁻⁶
1	-54033812	-39127813	-43277938	-101320821	-109
2	153211117	-39127813	-43277938	-101320821	420
3	68010137.1	-39127813	-43277938	-101320821	299
4	0	-39127813	-43277938	-101320821	244
5	0	-39127813	-43277938	-101320821	271
6	0	-39127813	-43277938	-101320821	183
7	0	-39127813	-43277938	-101320821	425
8	0	-39127813	-43277938	-101320821	367
9	0	-39127813	-43277938	-101320821	386
10	0	-39127813	-43277938	-101320821	384
11	0	-39127813	-43277938	-101320821	245
12	0	-39127813	-43277938	-101320821	447
13	0	-39127813	-43277938	-101320821	376
14	0	-39127813	-43277938	-101320821	376
15	0	-39127813	-43277938	-101320821	376
16	0	-39127813	-43277938	-101320821	245
17	0	-39127813	-43277938	-101320821	447
18	0	-39127813	-43277938	-101320821	376
19	0	-39127813	-43277938	-101320821	376
20	0	-39127813	-43277938	-101320821	376
21	0	-39127813	-43277938	-101320821	245
22	0	-39127813	-43277938	-101320821	447
23	0	-39127813	-43277938	-101320821	376
24	0	-39127813	-43277938	-101320821	376
25	0	-39127813	-43277938	-101320821	376
26	0	-39127813	-43277938	-101320821	245
27	0	-39127813	-43277938	-101320821	447
28	0	-39127813	-43277938	-101320821	376
29	0	-39127813	-43277938	-101320821	376
30	0	-39127813	-43277938	-101320821	376
31	0	-39127813	-43277938	-101320821	245
32	0	-39127813	-43277938	-101320821	447
33	0	-39127813	-43277938	-101320821	376
34	0	-39127813	-43277938	-101320821	376
35	0	-39127813	-43277938	-101320821	376

col \$million

TABLE 0.20 DISBURSEMENT SCHEDULE (ECONOMIC)

	(unit: 1987 price, million col\$)						total	O/M expense
	1991	1992	1993	1994	1995	0.01556662		
Circasia	148.20	366.45	541.92	0.00	0.00	1,056.57	16.45	
coop:circasia	1.90	0.00	4.51	7.63	0.00	14.04	0.22	
piglet product	3.80	0.00	11.25	12.74	0.00	27.79	0.43	
feed mixing	7.60	0.00	0.00	41.18	13.24	62.02	0.97	
pork process	7.60	0.00	0.00	41.18	13.24	62.02	0.97	
tech.entr:circa	25.65	79.23	78.11	0.00	0.00	182.98	2.85	
right banks:1	152.00	375.76	555.69	0.00	0.00	1,083.45	16.87	
right banks:2	17.10	42.50	62.93	0.00	0.00	122.53	1.91	
coop:tebaide	1.90	0.00	4.51	7.63	0.00	14.04	0.22	
tech.entr:teba	25.65	79.23	78.11	0.00	0.00	182.98	2.85	
water quality	222.30	135.77	401.49	453.71	579.60	1,792.87	27.91	
left banks	85.50	211.16	312.27	0.00	0.00	608.92	9.48	
agro-process	45.60	0.00	0.00	247.66	79.13	372.39	5.80	
road improve	499.70	622.06	920.02	1,383.20	440.13	3,865.10	60.17	
hill road	9.50	0.00	0.00	0.00	83.12	92.62	1.44	
mini-hydro	153.90	0.00	473.12	533.38	0.00	1,160.40	18.06	
fl.control:Pjao	172.90	427.12	631.64	0.00	0.00	1,231.66	19.17	
fl.control:Gnye	243.20	599.54	886.58	0.00	0.00	1,729.32	26.92	
total	1,824.00	2,938.81	4,962.15	2,728.30	1,208.45	13,661.71	212.67	

TABLE 0.21 CASH FLOW (ECONOMIC)

	f.infra:circasi	coop:circasia	tec.cntr:circa	agro-benefit:n	piglet product	feed mixing
1991	-148.20	-1.90	-25.65		-3.80	-7.60
1992	-366.45	0.00	-79.23		0.00	0.00
1993	-541.90	-4.51	-78.11		-11.50	0.00
1994	-16.45	-7.63	-2.85	146.87	-12.74	-41.18
1995	-16.45	-0.22	-2.85	220.01	-0.43	-13.24
1996	-16.45	-0.22	-2.85	364.88	-0.43	-0.97
1997	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
1998	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
1999	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2000	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2001	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2002	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2003	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2004	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2005	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2006	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2007	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2008	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2009	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2010	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2011	-16.45	-0.22	-2.85	431.60	-29.42	-62.99
2012	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2013	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2014	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2015	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2016	-80.64	-0.22	-2.85	459.18	-0.43	-0.97
2017	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2018	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2019	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2020	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2021	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2022	-16.45	-0.22	-2.85	505.49	-0.43	-0.97
2023	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2024	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2025	-52.73	-0.22	-2.85	418.80	-0.43	-0.97
2026	-16.45	-0.22	-2.85	505.49	-29.42	-62.99
2027	-16.45	-0.22	-2.85	431.60	-0.43	-0.97
2028	-16.45	-0.22	-2.85	459.18	-0.43	-0.97
2029	-16.45	-0.22	-2.85	418.80	-0.43	-0.97
2030	29.83	-0.22	-2.85	505.49	18.10	40.38

TABLE O.21 CASH FLOW (ECONOMIC)

	pig production	pork process	process.sale	f.infra:r.bank1	f.infra:r.bank2	coop.tebaida
1991		-7.60		-152.00	-17.10	-1.90
1992		0.00		-375.76	-42.50	0.00
1993		0.00		-555.69	-62.93	-4.51
1994		-41.18		-16.87	-1.91	-7.63
1995		-13.24		-16.87	-1.91	-0.22
1996	62.71	-0.97	50.24	-16.87	-1.91	-0.22
1997	62.71	-0.97	50.24	-16.87	-1.91	-0.22
1998	62.71	-0.97	50.24	-16.87	-1.91	-0.22
1999	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2000	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2001	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2002	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2003	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2004	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2005	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2006	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2007	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2008	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2009	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2010	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2011	62.71	-62.99	50.24	-16.87	-1.91	-0.22
2012	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2013	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2014	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2015	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2016	62.71	-0.97	50.24	-145.23	-1.91	-0.22
2017	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2018	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2019	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2020	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2021	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2022	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2023	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2024	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2025	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2026	62.71	-62.99	50.24	-89.42	-1.91	-0.22
2027	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2028	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2029	62.71	-0.97	50.24	-16.87	-1.91	-0.22
2030	62.71	40.38	50.24	75.68	-1.91	-0.22

TABLE 0.21 CASH FLOW (ECONOMIC)

	tec.cntr:tebaid	water quality	agro.benefit:r	irrigation	f.infra:l.bank	agro.benefit:l
1991	-25.65	-222.30			-85.50	
1992	-79.23	-135.77			-211.16	
1993	-78.11	-401.49			-312.27	
1994	-2.85	-453.71	147.64	23.29	-9.48	-108.57
1995	-2.85	-579.60	741.45	23.29	-9.48	419.77
1996	-2.85	-27.91	919.44	23.29	-9.48	299.16
1997	-2.85	-27.91	933.24	23.29	-9.48	243.56
1998	-2.85	-27.91	963.28	23.29	-9.48	270.60
1999	-2.85	-27.91	967.18	23.29	-9.48	182.74
2000	-2.85	-27.91	1,000.56	23.29	-9.48	424.69
2001	-2.85	-27.91	1,029.82	23.29	-9.48	366.82
2002	-2.85	-27.91	1,050.62	23.29	-9.48	385.54
2003	-2.85	-27.91	1,049.06	23.29	-9.48	384.14
2004	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2005	-2.85	-27.91	1,049.06	23.29	-9.48	447.29
2006	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2007	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2008	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2009	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2010	-2.85	-27.91	1,049.06	23.29	-9.48	447.29
2011	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2012	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2013	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2014	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2015	-2.85	-27.91	1,049.06	23.29	-9.48	447.29
2016	-2.85	-27.91	1,049.06	23.29	-46.93	375.75
2017	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2018	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2019	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2020	-2.85	-27.91	1,049.06	23.29	-9.48	447.29
2021	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2022	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2023	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2024	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2025	-2.85	-27.91	1,049.06	23.29	-9.48	447.29
2026	-2.85	-27.91	1,049.06	23.29	-30.65	375.75
2027	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2028	-2.85	-27.91	1,049.06	23.29	-9.48	375.75
2029	-2.85	-27.91	1,049.06	23.29	-9.48	245.41
2030	-2.85	-27.91	1,049.06	23.29	17.52	447.29

TABLE 0.21 CASH FLOW (ECONOMIC)

	agro-process	agro-process	road improve.	road improve.	hill roads	hill roads
1991	-45.60		-499.70		-9.50	
1992	0.00		-622.06	427.50	0.00	
1993	0.00		-920.02	900.20	0.00	
1994	-47.66		-1,383.20	928.62	0.00	
1995	-79.13		-440.13	85.27	-83.12	
1996	-5.80	85.34	-60.17	94.74	-1.44	4.95
1997	-5.80	85.34	-60.17	96.64	-1.44	5.05
1998	-5.80	85.34	-60.17	98.57	-1.44	5.15
1999	-5.80	85.34	-60.17	100.54	-1.44	5.26
2000	-5.80	85.34	-60.17	102.55	-1.44	5.36
2001	-5.80	85.34	-60.17	104.60	-1.44	5.47
2002	-5.80	85.34	-60.17	106.69	-1.44	5.58
2003	-5.80	85.34	-60.17	108.83	-1.44	5.69
2004	-5.80	85.34	-60.17	111.00	-1.44	5.80
2005	-5.80	85.34	-60.17	113.22	-1.44	5.92
2006	-5.80	85.34	-60.17	115.49	-1.44	6.04
2007	-5.80	85.34	-60.17	117.80	-1.44	6.16
2008	-5.80	85.34	-60.17	120.16	-1.44	6.28
2009	-5.80	85.34	-60.17	122.56	-1.44	6.41
2010	-5.80	85.34	-60.17	125.01	-1.44	6.53
2011	-378.19	85.34	-60.17	127.51	-1.44	6.66
2012	-5.80	85.34	-60.17	130.06	-1.44	6.80
2013	-5.80	85.34	-60.17	132.66	-1.44	6.93
2014	-5.80	85.34	-60.17	135.31	-1.44	7.07
2015	-5.80	85.34	-60.17	138.02	-1.44	7.21
2016	-5.80	85.34	-60.17	140.78	-1.44	7.36
2017	-5.80	85.34	-60.17	143.60	-1.44	7.51
2018	-5.80	85.34	-60.17	146.47	-1.44	7.66
2019	-5.80	85.34	-60.17	149.40	-1.44	7.81
2020	-5.80	85.34	-60.17	152.39	-1.44	7.96
2021	-5.80	85.34	-60.17	155.43	-1.44	8.12
2022	-5.80	85.34	-60.17	158.54	-1.44	8.29
2023	-5.80	85.34	-60.17	161.71	-1.44	8.45
2024	-5.80	85.34	-60.17	164.95	-1.44	8.62
2025	-5.80	85.34	-60.17	168.25	-1.44	8.79
2026	-378.19	85.34	-60.17	171.61	-1.44	8.97
2027	-5.80	85.34	-60.17	175.04	-1.44	9.15
2028	-5.80	85.34	-60.17	178.54	-1.44	9.33
2029	-5.80	85.34	-60.17	182.11	-1.44	9.52
2030	242.46	85.34	-60.17	185.76	-1.44	9.71

TABLE 0.21 CASH FLOW (ECONOMIC)

	mini-hydros	mini-hydros	fl.cntnl:pjao	fl.cntnl:pjao	fl.cntnl:genova	fl.cntnl:genova
1991	-153.90		-172.90		-243.20	
1992	0.00		-427.12		-599.54	
1993	-473.12		-631.64		-886.58	
1994	-533.38		-19.17	28.38	-26.92	35.10
1995	-18.06	111.30	-19.17	28.38	-26.92	35.10
1996	-18.06	111.30	-19.17	28.38	-26.92	35.10
1997	-18.06	111.30	-19.17	28.38	-26.92	35.10
1998	-18.06	111.30	-19.17	28.38	-26.92	35.10
1999	-18.06	111.30	-19.17	28.38	-26.92	35.10
2000	-18.06	111.30	-19.17	28.38	-26.92	35.10
2001	-18.06	111.30	-19.17	28.38	-26.92	35.10
2002	-18.06	111.30	-19.17	28.38	-26.92	35.10
2003	-18.06	111.30	-19.17	28.38	-26.92	35.10
2004	-18.06	111.30	-19.17	28.38	-26.92	35.10
2005	-18.06	111.30	-19.17	28.38	-26.92	35.10
2006	-18.06	111.30	-19.17	28.38	-26.92	35.10
2007	-18.06	111.30	-19.17	28.38	-26.92	35.10
2008	-18.06	111.30	-19.17	28.38	-26.92	35.10
2009	-18.06	111.30	-19.17	28.38	-26.92	35.10
2010	-18.06	111.30	-19.17	28.38	-26.92	35.10
2011	-18.06	111.30	-19.17	28.38	-26.92	35.10
2012	-18.06	111.30	-19.17	28.38	-26.92	35.10
2013	-18.06	111.30	-19.17	28.38	-26.92	35.10
2014	-18.06	111.30	-19.17	28.38	-26.92	35.10
2015	-18.06	111.30	-19.17	28.38	-26.92	35.10
2016	-18.06	111.30	-19.17	28.38	-26.92	35.10
2017	-18.06	111.30	-19.17	28.38	-26.92	35.10
2018	-18.06	111.30	-19.17	28.38	-26.92	35.10
2019	-18.06	111.30	-19.17	28.38	-26.92	35.10
2020	-18.06	111.30	-19.17	28.38	-26.92	35.10
2021	-18.06	111.30	-19.17	28.38	-26.92	35.10
2022	-18.06	111.30	-19.17	28.38	-26.92	35.10
2023	-18.06	111.30	-19.17	28.38	-26.92	35.10
2024	-18.06	111.30	-19.17	28.38	-26.92	35.10
2025	-18.06	111.30	-19.17	28.38	-26.92	35.10
2026	-18.06	111.30	-19.17	28.38	-26.92	35.10
2027	-18.06	111.30	-19.17	28.38	-26.92	35.10
2028	-18.06	111.30	-19.17	28.38	-26.92	35.10
2029	-18.06	111.30	-19.17	28.38	-26.92	35.10
2030	-18.06	111.30	-19.17	28.38	-26.92	35.10

TABLE O.22 CASH FLOW AND EIRR

	f.infra.circac	ie pig sale	process.pork	f.infra:r.banks	f.infra:l.banks	agro-process.
1991	-175.75	-11.40	-7.60	-418.95	-85.50	-45.60
1992	-445.68	0.00	0.00	-633.26	-211.16	0.00
1993	-624.52	-11.50	0.00	-1,102.73	-312.27	0.00
1994	119.94	-53.92	-41.18	-312.04	-118.05	-47.66
1995	200.49	-13.67	-13.24	163.29	410.29	-79.13
1996	345.36	61.31	49.27	892.97	289.68	79.54
1997	399.28	61.31	49.27	906.77	234.08	79.54
1998	485.97	61.31	49.27	936.81	261.12	79.54
1999	412.08	61.31	49.27	940.71	173.26	79.54
2000	439.66	61.31	49.27	974.09	415.21	79.54
2001	399.28	61.31	49.27	1,003.35	357.34	79.54
2002	485.97	61.31	49.27	1,024.15	376.06	79.54
2003	412.08	61.31	49.27	1,022.59	374.66	79.54
2004	439.66	61.31	49.27	1,022.59	235.93	79.54
2005	399.28	61.31	49.27	1,022.59	437.81	79.54
2006	485.97	61.31	49.27	1,022.59	366.27	79.54
2007	412.08	61.31	49.27	1,022.59	366.27	79.54
2008	439.66	61.31	49.27	1,022.59	366.27	79.54
2009	399.28	61.31	49.27	1,022.59	235.93	79.54
2010	485.97	61.31	49.27	1,022.59	437.81	79.54
2011	412.08	-29.70	-12.75	1,022.59	366.27	-292.85
2012	439.66	61.31	49.27	1,022.59	366.27	79.54
2013	399.28	61.31	49.27	1,022.59	366.27	79.54
2014	485.97	61.31	49.27	1,022.59	235.93	79.54
2015	412.08	61.31	49.27	1,022.59	437.81	79.54
2016	375.47	61.31	49.27	894.23	328.82	79.54
2017	399.28	61.31	49.27	1,022.59	366.27	79.54
2018	485.97	61.31	49.27	1,022.59	366.27	79.54
2019	412.08	61.31	49.27	1,022.59	235.93	79.54
2020	439.66	61.31	49.27	1,022.59	437.81	79.54
2021	399.28	61.31	49.27	1,022.59	366.27	79.54
2022	485.97	61.31	49.27	1,022.59	366.27	79.54
2023	412.08	61.31	49.27	1,022.59	366.27	79.54
2024	439.66	61.31	49.27	1,022.59	235.93	79.54
2025	363.00	61.31	49.27	1,022.59	437.81	79.54
2026	485.97	-29.70	-12.75	950.04	345.10	-292.85
2027	412.08	61.31	49.27	1,022.59	366.27	79.54
2028	439.66	61.31	49.27	1,022.59	366.27	79.54
2029	399.28	61.31	49.27	1,022.59	235.93	79.54
2030	532.25	121.19	90.62	1,115.14	464.82	327.80
EIRR	22.84%	39.56%	45.75%	23.47%	29.89%	29.07%

TABLE 0.22 CASH FLOW AND EIRR

	road improve.	hill road impr.	mini-hydro	fl.control:p+g	Total
1991	-499.70	-9.50	-153.90	-416.10	-1,824.00
1992	-194.56	0.00	0.00	-1,026.66	-2,511.32
1993	-19.82	0.00	-473.12	-1,518.22	-4,062.18
1994	-454.58	0.00	-533.38	17.39	-1,423.47
1995	-354.86	-83.12	93.24	17.39	340.68
1996	34.57	3.51	93.24	17.39	1,866.84
1997	36.47	3.61	93.24	17.39	1,880.96
1998	38.40	3.71	93.24	17.39	2,026.76
1999	40.37	3.82	93.24	17.39	1,870.98
2000	42.38	3.92	93.24	17.39	2,176.01
2001	44.43	4.03	93.24	17.39	2,109.18
2002	46.52	4.14	93.24	17.39	2,237.59
2003	48.66	4.25	93.24	17.39	2,162.99
2004	50.83	4.36	93.24	17.39	2,054.14
2005	53.05	4.48	93.24	17.39	2,217.97
2006	55.32	4.60	93.24	17.39	2,235.50
2007	57.63	4.72	93.24	17.39	2,164.04
2008	59.99	4.84	93.24	17.39	2,194.11
2009	62.39	4.97	93.24	17.39	2,025.91
2010	64.84	5.09	93.24	17.39	2,317.06
2011	67.34	5.22	93.24	17.39	1,648.84
2012	69.89	5.36	93.24	17.39	2,204.53
2013	72.49	5.49	93.24	17.39	2,166.88
2014	75.14	5.63	93.24	17.39	2,126.02
2015	77.85	5.77	93.24	17.39	2,256.86
2016	80.61	5.92	93.24	17.39	1,985.81
2017	83.43	6.07	93.24	17.39	2,178.39
2018	86.30	6.22	93.24	17.39	2,268.10
2019	89.23	6.37	93.24	17.39	2,066.95
2020	92.22	6.52	93.24	17.39	2,299.56
2021	95.26	6.68	93.24	17.39	2,190.84
2022	98.37	6.85	93.24	17.39	2,280.80
2023	101.54	7.01	93.24	17.39	2,210.25
2024	104.78	7.18	93.24	17.39	2,110.90
2025	108.08	7.35	93.24	17.39	2,239.59
2026	111.44	7.53	93.24	17.39	1,675.42
2027	114.87	7.71	93.24	17.39	2,224.28
2028	118.37	7.89	93.24	17.39	2,255.55
2029	121.94	8.08	93.24	17.39	2,088.58
2030	125.59	8.27	93.24	17.39	2,896.29
EIRR	2.46%	4.06%	6.91%	*DIY/O!	14.90%

TABLE O.23 SENSITIVITY ANALYSIS

	cost	benefit	benefit*0.9	cost*1.1	a year delay
1991	-1,824.00		-1,824.00	-2,006.40	-1,661.71
1992	-2,938.81	427.49	-2,554.07	-2,805.20	-2,070.00
1993	-4,962.15	899.97	-4,152.18	-4,558.40	-1,950.00
1994	-2,728.30	1,304.83	-1,553.95	-1,696.30	-1,650.00
1995	-1,208.45	1,549.13	185.76	219.83	-1,300.00
1996	-212.67	2,079.51	1,658.89	1,845.57	-848.58
1997	-212.67	2,093.63	1,671.59	1,859.69	1,866.84
1998	-212.67	2,239.43	1,802.81	2,005.49	1,880.96
1999	-212.67	2,083.65	1,662.62	1,849.71	2,026.76
2000	-212.67	2,388.68	1,937.15	2,154.75	1,870.98
2001	-212.67	2,321.85	1,876.99	2,087.91	2,176.01
2002	-212.67	2,450.26	1,992.57	2,216.33	2,109.18
2003	-212.67	2,375.66	1,925.42	2,141.72	2,237.59
2004	-212.67	2,266.81	1,827.46	2,032.87	2,162.99
2005	-212.67	2,430.64	1,974.90	2,196.70	2,054.14
2006	-212.67	2,448.17	1,990.68	2,214.23	2,217.97
2007	-212.67	2,376.71	1,926.37	2,142.77	2,235.50
2008	-212.67	2,406.78	1,953.43	2,172.84	2,164.04
2009	-212.67	2,238.58	1,802.05	2,004.64	2,194.11
2010	-212.67	2,529.73	2,064.09	2,295.79	2,025.91
2011	-212.67	1,861.51	1,462.69	1,627.57	2,317.06
2012	-212.67	2,417.20	1,962.81	2,183.26	1,648.84
2013	-212.67	2,379.55	1,928.93	2,145.61	2,204.53
2014	-212.67	2,338.69	1,892.15	2,104.75	2,166.88
2015	-212.67	2,469.53	2,009.91	2,235.59	2,126.02
2016	-212.67	2,198.48	1,765.96	1,964.54	2,256.86
2017	-212.67	2,391.06	1,939.28	2,157.12	1,985.81
2018	-212.67	2,480.77	2,020.02	2,246.83	2,178.39
2019	-212.67	2,279.62	1,838.99	2,045.68	2,268.10
2020	-212.67	2,512.23	2,048.34	2,278.30	2,066.95
2021	-212.67	2,403.51	1,950.49	2,169.58	2,299.56
2022	-212.67	2,493.47	2,031.46	2,259.54	2,190.84
2023	-212.67	2,422.92	1,967.96	2,188.98	2,280.80
2024	-212.67	2,323.57	1,878.54	2,089.63	2,210.25
2025	-212.67	2,452.26	1,994.36	2,218.32	2,110.90
2026	-212.67	1,888.09	1,486.61	1,654.15	2,239.59
2027	-212.67	2,436.95	1,980.58	2,203.01	1,675.42
2028	-212.67	2,468.22	2,008.73	2,234.28	2,224.28
2029	-212.67	2,301.25	1,858.45	2,067.31	2,255.55
2030	-212.67	3,108.96	2,585.40	2,875.03	2,088.58
EIRR			13.27%	13.42%	14.31%

TABLE O. 24 DEBT SERVICE SCHEDULE

(col \$million: 1987 price)

	disbursement	interest:10%	principal	debt service	balance
1991	1277	127.70	0.00	127.70	1,277.00
1992	2356	363.30	0.00	363.30	3,633.00
1993	4064	769.70	0.00	769.70	7,697.00
1994	2189	988.60	0.00	988.60	9,886.00
1995	872	1,075.80	0.00	1,075.80	10,758.00
1996	0	1,075.80	0.00	1,075.80	10,758.00
1997	0	1,075.80	0.00	1,075.80	10,758.00
1998	0	1,075.80	0.00	1,075.80	10,758.00
1999	0	1,075.80	0.00	1,075.80	10,758.00
2000	0	1,075.80	0.00	1,075.80	10,758.00
2001	0	1,070.69	51.08	1,121.77	10,706.92
2002	0	1,056.16	145.32	1,201.48	10,561.60
2003	0	1,025.37	307.88	1,333.25	10,253.72
2004	0	985.83	395.44	1,381.27	9,858.28
2005	0	942.80	430.32	1,373.12	9,427.96
2006	0	899.76	430.32	1,330.08	8,997.64
2007	0	856.73	430.32	1,287.05	8,567.32
2008	0	813.70	430.32	1,244.02	8,137.00
2009	0	770.67	430.32	1,200.99	7,706.68
2010	0	727.64	430.32	1,157.96	7,276.36
2011	0	684.60	430.32	1,114.92	6,846.04
2012	0	641.57	430.32	1,071.89	6,415.72
2013	0	598.54	430.32	1,028.86	5,985.40
2014	0	555.51	430.32	985.83	5,555.08
2015	0	512.48	430.32	942.80	5,124.76
2016	0	469.44	430.32	899.76	4,694.44
2017	0	426.41	430.32	856.73	4,264.12
2018	0	383.38	430.32	813.70	3,833.80
2019	0	340.35	430.32	770.67	3,403.48
2020	0	297.32	430.32	727.64	2,973.16
2021	0	254.28	430.32	684.60	2,542.84
2022	0	211.25	430.32	641.57	2,112.52
2023	0	168.22	430.32	598.54	1,682.20
2024	0	125.19	430.32	555.51	1,251.88
2025	0	82.16	430.32	512.48	821.56
2026	0	44.23	379.24	423.47	442.32
2027	0	15.73	285.00	300.73	157.32
2028	0	3.49	122.44	125.93	34.88
2029	0	0.00	34.88	34.88	0.00

interest: paid at the year end.

principal: paid in the beginng of the next year.



JICA