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SARAGURO – YACUAMBI – LOJA RURAL DEVELOPMENT PROJECT ECUADOR

PROJECT BRIEF

MINISTERIO DE BIENESTAR SOCIAL (MBS)
SUBSECRETARIA DE DESARROLLO RURAL (SSDR)
FONDO INTERNACIONAL DE DESARROLLO AGRICOLA (FIDA)
INSTITUTO INTERAMERICANO DE COOPERACION PARA LA AGRICULTURA (IICA)



IICA-CIDIA

REPUBLIC OF ECUADOR



**SARAGURO - YACUAMBI - LOJA
RURAL DEVELOPMENT PROJECT**

PROJECT BRIEF

**BASED ON THE REPORT ELABORATED BY THE
MBS-SSDR/IFAD/IICA PREPARATION MISSION
FIELDED IN SEPTEMBER-NOVEMBER 1991**

**SOCIAL WELFARE MINISTRY (MBS)
RURAL DEVELOPMENT UNDERSECRETARIAT (SSDR)
INTERNATION FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)
INTERAMERICAN INSTITUTE FOR COOPERATION IN AGRICULTURE (IICA)**

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INTRODUCTION

The Saraguro-Yacuambi-Loja Rural Development Project is a response to the concerns of the Government of Ecuador and to the aspirations of the people living in the Project area to bring about rural development in the region of influence of the Saraguro Indigenous Communities.

The Project came into being as a result of studies conducted by an IFAD Special Planning Mission in 1987, and the Identification Mission carried out in March 1991, and of research performed in 1988 and 1990 by the Undersecretariat for Rural Development of the Ministry of Social Welfare, with support from IICA.

On the basis of these studies and research, IFAD, in conjunction with the Undersecretariat for Rural Development, asked IICA to prepare a rural development project for the region where the Saraguro Indigenous Communities are settled.

IICA entrusted the Center for Programs and Investment Projects (CEPPI), in conjunction with the Rural Development Program (PROADER) and the IICA Office in Ecuador, with planning and executing the feasibility studies.

Work began to draw up the Project in Quito on September 9, 1991; it continued with one month of field work in Saraguro, Yacuambi and Loja, and concluded in Quito, where the preliminary version of the project document was drafted. The final version of the document was prepared by CEPPI at IICA Headquarters in Costa Rica.

Throughout this period, the proposals made by the Preparation Mission were analyzed with the Undersecretary for Rural Development, Diego Bonifaz Andrade, whose recommendations were incorporated into the Project. During the field work phase, in addition to the numerous meetings held with representatives of the small-farm communities, five leaders of Saraguro indigenous organizations worked with the technical team put together by the Project Preparation Mission.

Roberto Casás, of CEPPI, served as General Coordinator during the preparation of the study; Sergio Sepúlveda, of PROADER, served as Technical Coordinator, and Alberto Hintermeister served as Head of the Project Preparation Mission. They received support from Fabio Bermúdez, a rural development specialist with the IICA Office in Ecuador. The interdisciplinary team who helped prepare the Project consisted primarily of national consultants; however, international consultants and IICA specialists also collaborated.

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We wish to recognize the support received from the CEPPI specialists in the revision and editing of the main text and the appendices of the Report of the Project Preparation Mission.

BASIC EQUIVALENCIES AND ABBREVIATIONS

MONETARY EQUIVALENTS (FOR THE PROJECT)

Currency= Sucre (S/.)

US\$1 = S/.1150

S/.1 = US\$0.00087

WEIGHTS AND MEASURES

1 kilogram (Kg) = 2.2 pounds

1,000 Kg = 1 metric ton (MT)

1 hectare (Ha) = 10,000 m²

1 quintal (q) = 45.46 kilograms

1 pound = 450 grams

1 cubic meter = 1000 liters

ABBREVIATIONS AND ACRONYMS

AID	United States Agency for International Development
ASAS	Agricultural Services Agencies
AISAY	Asociación de Indígenas Saraguros Asentados en Yacuambi (Association of Indigenous Peoples of Saraguro Settled in Yacuambi)
BCE	Central Bank of Ecuador
BEV	National Housing Bank
BNF	National Development Bank
CAAP	Centro Andino de Acción Popular (Andean Center for Popular Action)
CACPE	Cooperativa de Ahorro y Crédito de la Pequeña Empresa, de Zamora (Small Business Savings and Loan Cooperative of Zamora)
CARE	Cooperative for American Relief Everywhere
CATER	Centro Andino de Tecnología Rural de la Universidad de Loja (Andean Center for Rural Technology-University of Loja)

CEDEGE	Comisión de Estudios para el Desarrollo de la Cuenca (Centre of Studies for the Development of the Guayas River Basin)
CEPPI	Center for Programs and Investment Projects
CESA	Central Ecuatoriana de Servicios Agrícolas (Ecuadorian Center of Agricultural Services)
CIAP	Centro Integral de Asistencia Pecuaria (Integrated Livestock Assistance Center)
CIOIS	Confederación Interprovincial de Organizaciones Indígenas Saraguros (Interprovincial Confederation of Indigenous Organizations of Saraguro)
CREA	Centro de Reconversión Económica de Austro (Economic Rehabilitation of Centre for the Azmay, Cañar and Morona, Santiago)
CRM	Centro de Reconversión Económica de Manabí (Center for the Economic Rehabilitation of Manabí)
COFAC	Confederación de Cooperativas de Alemania Federal (German Confederation of Cooperative Institutes)
CONADE	National Development Council
CONAUDE	Corporación Nacional de Apoyo a las Unidades Populares Económicas (National Corporation for Support to Popular Economic Units)
CONAIE	Confederación de Nacionalidades Indígenas del Ecuador (Ecuadoran Confederation of Indigenous Nationalities)
DEAT	Department of Extension and Agricultural Assistance
DRI	Integrated Rural Development
EAP	Economically Active Population
ECLOF	Ecumenical Loan Fund
EMDEFOR	Empresa Mixta de Desarrollo Forestal (Joint Enterprise for Forestry Development)
EMSEMILLAS	Empresa Mixta de Semillas (Joint Seed Enterprise)
ENPROVIT	Empresa Nacional de Productos Vitales (National Agency for Essential Products)
ENAC	Empresa Nacional de Almacenamiento y Comercialización (National Storage and Marketing Agency)
FBU	Fundación Brethren y Unida (Brethren and Unida Foundation)
FECOAC	Federación de Cooperativas de Ahorro y Crédito (Federation of Savings and Loans Cooperatives)
FEPP	Fondo Ecuatoriano Populorum Progressio (Ecuadorian "Populorum Progressio" Fund)

FIIS	Federación Interprovincial de Indígenas Saraguro (Interprovincial Federation of Indigenous Peoples of Saraguro)
FODERUMA	Fondo de Desarrollo Rural Marginal (Rural Development Fund for Marginal Areas)
FODECO	Communal Development Fund
FONADRI	Rural Development Fund
GDP	Gross Domestic Product
IERAC	Ecuadorian Agrarian Reform and Colonization Institute
IICA	Inter-American Institute for Cooperation on Agriculture
INEC	National Statistics and Census Institute
INERHI	Ecuadorian Water Resources Institute
INIAP	National Agricultural Research Institute
IRR	Internal Rate of Return
MAG	Ministry of Agriculture and Livestock
MBS	Ministry of Social Welfare
MEP	IFAD Special Planning Mission
MES	Monitoring Evaluation System
MFPC	Ministry of Finance and Public Credit
MEGA	Cooperativa de Ahorro y Crédito "Manuel Esteban Godoy", Loja ("Manuel Esteban Godoy A." Savings and Loan Cooperative
MOP	Ministry of Public Works and Communications
MU	Monitoring Unit
NGO	Non Government Organization
NPV	Net Present Value
PAC	Community Agricultural Agents
PCC	Small-farmer Marketing Agents
PIP	INIAP Research Program for Peseant Farmers
PREDESUR	Southern Development Programme
PRONADER-F1	National Rural Development Program, Phase One

PROTECA	Agricultural Technology Development Program
PIP	Research Program for Peasant Farmers
PND	National Development Plan
POA	Annual Operational Planning
PROMADER	Master's Degree Program in Rural Development - University of Loja
SPM	Special Programming Mission
SSDR	Rural Development Undersecretariat (Ministry of Social Welfare)
UCA	Area Coordination Units
UTR	Regional Technical Units
UEP	Project Execution Unit
UPA	Agricultural Production Unit
USE	Follow-up and Evaluation Unit

A. GENERAL BACKGROUND

a. Geography and Population of Ecuador

- i. The Republic of Ecuador is located on the Pacific coast of South America, between Colombia to the north, and Peru to the south and east. The country area has 270,000 km² and the population is estimated at 10.3 million people.**
- ii. The Andean mountains reach heights of over 6,000 mts and divide the Ecuadorean mainland into three sharply differentiated regions: the coastal plain, the highlands (Sierra) and the Amazon jungle.**
- iii. The highland region extends from north to south, between the two principal ranges of the Andes. It is composed of a series of intermontane plains and valleys with an average altitude of 3,000 mts. Quito, the capital city, is located in the northern highlands with a population of around 1,000,000 inhabitants, while in the southern highlands Cuenca, the third largest city in the country, has a population of some 300,000. The climate is temperate with average temperatures between 14 and 19 degrees C. and rainfall varying between 400 mm and 1200 mm. Agricultural production of milk and grains is oriented towards the internal market.**
- iv. The coastal region is an alluvial plain between the western range of the Andes and the Pacific Ocean. The climate is hot, varying from humid in the north to dry in the south. Temperatures are around 28 degrees C. while rainfall varies between 2,000 mm and 400 mm. The river Guayas in the south is the most important of the region, and the city and port of Guayaquil, with 1,200,000 inhabitants, is a center for most of the agricultural production, industry, commerce and services of the coast.**
- v. The Amazon region (Oriente) extends eastward from the Central range of the Andes. The rivers of the region are part of the Amazon system. This is the least densely populated region of the country and most basic infrastructure is lacking. Rainfall is over 4,000 mm per year and average temperatures are around 27 degrees C. The principal oil deposits of the country are located in this region.**
- vi. The per capita income in 1990 was US\$1,050 (at 1988 prices), which places Ecuador among the middle income group of countries in the World Bank's classification.**

b. Indian Peoples

A significant proportion of Ecuador's population is composed of native people, comprised of the highland Quichua speaking groups, to be found throughout the length of the Sierra, and the lowland groups, with great linguistic diversity, in the Amazon basin and in the northern coastal areas.

The Quichua indians of the Sierra represent the numerical majority of these groups; exact numbers are impossible to determine, as there is no clear demarcation in the Sierra between indian and mixed (mestizo) people. The difference is one of self identification, and whereas in the past many people were ashamed to describe themselves as indian, in recent years a new pride has been growing. On the other hand, urban influences are frequently erosive of local identity. Estimates thus vary between 2 and 4 million people.

The lowland groups in general maintain a clear identity, at least partly due to their relative isolation. In the highlands, some groups have managed to maintain a vigorous identity in the face of the challenges of modernization; the Otavalan and Salasaca groups sell their artisanal products (particularly textiles) throughout the world; the Chibuleos produce vegetables and market them personally throughout the country; the Saraguros have achieved a high profile in the nation's universities. The Shuar indians of the Amazon have been at the forefront of indian organization throughout the Amazon basin for over ten years. The achievements of these groups have had repercussions among the many other indian populations of the country.

I. National Economy

During the 20th century, four economic periods can be defined, each one associated with a specific export product. Until around 1920, cocoa was the principal export. Coffee, which came next, was less successful and a period of economic stagnation extended until the 1950's. In that decade, banana exports initiated a period of expansion, to which oil exports contributed from the early 70's and which lasted until the mid-1980's.

The GDP grew 2.3 times between 1971 and 1981; in the same decade, the per capita product grew 71.3%, which represents an annual per capita growth rate of 5.5% accumulated.

The structure of the GDP shows a growing importance of oil, which currently represents around 15%, while manufacturing is around 20% and the service sector, taken globally, represents 50%, of which the major part is constituted by commerce (see Table 1).

TABLE No.1
GROSS DOMESTIC PRODUCT (1)
(IN PERCENTAGES)

	1979	1982	1985	1986	1987	1988
CROPS AND FORESTRY	9.0	8.7	6.7	7.5	7.9	8.8
LIVESTOCK	5.2	5.4	5.5	5.4	5.5	5.5
FISHERY AND HUNTING	0.8	1.3	1.3	1.4	1.7	1.9
PETROLEUM AND MINING	12.2	10.4	13.5	14.3	14.9	14.9
MANUFACTURING	19.2	19.7	19.8	18.7	18.0	17.1
ELECTRICITY, GAS AND WATER	0.8	0.8	1.0	1.2	1.1	1.4
CONSTRUCTION	5.1	4.9	4.6	4.3	4.2	4.1
COMMERCE	17.0	17.1	15.3	15.3	15.2	15.0
TRANSPORT AND COMMUNICATIONS	6.9	7.1	7.1	7.1	7.2	7.6
FINANCIAL SERVICES	11.5	12.4	12.9	11.5	11.4	11.3
OTHERS (2)	12.3	12.2	12.3	13.3	12.9	12.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

(1) PRODUCER PRICES.

(2) INCLUDES DEDUCTION FOR IMPUTED BANK SERVICES.

SOURCE: BANCO CENTRAL DEL ECUADOR AND CUENTAS NACIONALES.

During the last decade many economic indicators have stagnated. The GDP itself grew 23% between 1981 and 1991 and even in the least satisfactory year (1987), it was 3.8% higher than in 1981. Due to population growth, however, the domestic product per capita decreased and in the last three year period it has been around 4% less than in 1981.

TABLE No. 2
GROSS DOMESTIC PRODUCT - GROWTH RATES

	TOTAL	PER CAPITA	PER CAPITA INDEX
1980	4.9	1.9	100.0
1981	3.9	1.0	101.0
1982	1.2	-1.7	99.3
1983	-2.8	-5.0	94.4
1984	4.2	1.9	96.1
1985	4.3	2.0	98.1
1986	3.1	0.8	98.8
1987	-6.0	-8.1	90.9
1988	11.2	8.7	98.8
1989	0.6	-1.6	97.2
1990	2.3	0.0	97.2
* 1991	2.2	-0.1	97.1

* ESTIMATED BY CONADE.

SOURCE: BANCO CENTRAL DEL ECUADOR AND INEC.

Although financial difficulties arising from the debt repayment burden have been the principal factor contributing to this stagnation, other problems have also played a part. Production losses were caused by coastal flooding due to the Niño ocean current in 1983 and by the interruption of oil exports after the 1987 earthquake. International price fluctuations have also created a climate of uncertainty

These situations have affected an economy which showed structural imbalances that were allowed to develop in the previous decade, when more favorable circumstances hid their dangers. Their effects on sectorial growth can be seen in Table 3.

TABLE No. 3
GROSS DOMESTIC PRODUCT - ANNUAL GROWTH RATES

	1982	1983	1984	1985	1986	1987	1988(P)	1989(P)	1991(E)
AGRICULTURE AND FISHERY	2.0	-13.9	10.6	9.9	10.2	4.2	9.1	-1.6	N/D
PETROLEUM AND MINING	-2.9	28.1	10.0	9.1	2.7	-54.3	138.2	-10.0	0.2
MANUFACTURING	1.5	-1.4	-1.9	0.2	-1.6	3.3	3.9	0.5	N/D
ELECTR., GAS AND WATER	11.1	14.9	28.8	-0.2	21.8	17.7	13.6	30.8	N/D
CONSTRUCTION	0.6	-7.6	-2.2	2.4	1.5	1.7	-8.5	1.4	N/D
COMMERCE	2.1	-11.8	4.1	3.4	2.2	2.0	3.1	S/D	N/D
TRANSPORT AND COMUN.	1.6	-1.6	3.8	5.4	9.3	2.6	2.0	S/D	N/D
FINANCIAL SERVICES	1.7	2.1	-6.8	2.7	2.3	-1.8	1.0	S/D	N/D
OTHERS (1)									
TOTAL	1.2	-2.8	4.2	4.3	3.1	-6.0	11.2	0.6	1.8

(P) PROVISIONAL; (E) ESTIMATED BY CONADE.

(1) INCLUDES DEDUCTION FOR IMPUTED BANK SERVICES.

SOURCE: BANCO CENTRAL DEL ECUADOR AND CUENTAS NACIONALES.

The balance of payments for goods and services showed a significant positive result for all years during the 80's except for 1987. Once the accumulation of interest on the national debt is taken into account, however, the resulting current account balance is negative throughout the decade, with the exception of 1985 (see Table 4).

TABLE No.4
BALANCE OF PAYMENTS - (IN MILLIONS OF DOLLARS)

YEAR	EXPORTS (1)	IMPORTS (1)	COMMERCIAL BALANCE	INTERESTS ON DEBT	TRANSFERS	BALANCE OF CURRENT ACCOUNT
1984	2972	2285	687	970	20	-263
1985	3327	2445	882	848	80	114
1986	2654	2470	184	782	45	-553
1987	2465	2937	-472	791	132	-1131
1988	2657	2381	276	878	97	-505
1989	2895	2494	401	970	97	-472
1990	3256	2542	714	950	100	-136
1991 *	3232	2803	429	876	100	-347

(1) GOODS AND SERVICES

* ESTIMATED BY CONADE.

SOURCE: BANCO CENTRAL DEL ECUADOR.

Primary products make up over 85% of exports; oil, banana, coffee and shrimp are the most important of these and together represent around 80% of total exports. This structure leaves the country vulnerable in many ways. It relies on export products that are highly sensitive to losses due to natural causes and international price fluctuations and in which capital and production are concentrated among a few groups. However, the richness and variety of Ecuador's natural resources have allowed it to overcome those problems which have arisen during recent decades as a result of this structure.

The relative importance of different exports has changed during the last five years (Table 5). Petroleum has fallen from 60% to 40% of the export structure, and has been compensated by banana and shrimp, which have both shown a growth rate of around 16% per year.

TABLE No.5
STRUCTURE OF EXPORTS
(IN MILLIONS OF DOLLARS - FOB)

ITEM	1985	1986	1987	1988	1989	1990
PRIMARY	2566.2	1877.9	1729.9	1861.5	2029.1	2346.7
PETROLEUM	1824.7	912.4	739.4	875.2	1032.7	1258.4
BANANA	220.0	263.4	266.9	297.8	369.5	467.9
COFFEE	190.8	298.9	192.3	152.4	142.0	104.2
SHRIMP	156.5	287.9	383.1	387.0	328.2	340.3
COCOA	138.4	71.1	82.8	77.6	55.5	74.6
OTHER SEAFOODS	12.0	27.2	38.0	36.3	50.5	53.2
OTHERS	23.8	17.0	27.4	35.2	50.7	48.1
INDUSTRIAL	338.7	307.9	291.4	331.4	324.8	367.7
PETROLEUM DERIV.	101.9	70.1	78.2	101.0	114.7	150.3
COFFEE PRODUCTS	18.1	28.8	18.8	17.5	19.9	25.7
COCOA PRODUCTS	78.8	77.2	57.1	47.7	52.8	56.3
FISH MEAL	59.0	49.3	27.5	59.5	31.6	8.8
OTHER FISH PRODUCTS	38.2	23.2	31.1	27.1	25.1	31.0
OTHERS	42.7	59.3	78.7	78.6	80.7	95.6
TOTAL	2904.9	2185.8	2021.3	2192.9	2353.9	2714.4

SOURCE: BANCO CENTRAL DEL ECUADOR.

The loss of oil income during the eighties caused critical problems in Ecuador's ability to meet its foreign debt obligations.

ii. The 80's - Crisis and Foreign Debt

Although Ecuador's economic crisis cannot be blamed exclusively on the foreign debt problem, the growth of the debt and its repayments represent an enormous load on the economy. Between 1977 and 1982, the foreign debt grew 8.5 times, at an annual accumulated rate of 53.3%. As a proportion of the GDP, it grew from 19.1% in 1977 to 53.4% in 1982, and debt repayments, which represented 9.6% of the value of exports in 1977, grew to 72.7% of that value by the end of the five years. Had it not been for a renegotiation of the financing, this last proportion would have been 97.1%

During the rest of the decade, successive refinancing meant that the debt continued to grow, although at the reduced rate of 10.6% per year. In 1987, the country began to fall behind in its obligations and by 1989 the overdue repayments represented 15% of the total debt (Table 6).

TABLE No.6
FOREIGN DEBT - (IN THOUSANDS OF DOLLARS)

	1984	1988	1989
I. FOREIGN LOANS	6932.1	8915.0	9544.0
I.1 MULTILATERAL BODIES	804.8	1786.0	1915.0
WORLD BANK	247.3	628.0	672.0
IDB	504.0	1010.0	1098.0
CAF	18.0	114.0	111.0
OTHERS	35.5	34.0	34.0
I.2 GOVERNMENTS	740.5	1561.0	1878.0
I.3 BANKS	4887.3	5196.0	5314.0
I.4 SUPPLIERS	499.5	372.0	437.0
II. BALANCE OF PAYMENTS (IMF)	663.9	798.0	541.0
III. DELAYS	----	1154.0	1777.0
TOTAL	7596.0	10867.0	11862.0

SOURCE: BANCO CENTRAL DEL ECUADOR.

iii. Economic Policies of the Current Government

Exchange rate and foreign currency policies have sought to reestablish government control over the exchange rate and to maintain liquidity in the Central Bank. A dual exchange rate structure was re-established, with an official rate and a free market; coherence between the two was sought with a series of weekly mini-devaluations. Foreign currency from international trade was required to be deposited in the Central Bank and strict import controls were established. Some import controls have since been lifted, and export procedure is in the process of being simplified.

A process of tax reform has begun which will make import and export tariffs more consistent and which will bring Ecuador in line with the proposals of the Andean Pact. It is to be expected that the process of integrating the Andean market, due to begin in 1992, will have a profound effect on the Ecuadorean economy.

Financial and monetary policies have sought to control inflation and promote savings by reducing the fiscal debt, impeding it from being financed by the Central Bank, setting interest rates at positive levels in real terms and reducing the subsidies on credit for agriculture and housing.

Public spending has been subjected to austerity programmes and public service rates have been raised to meet costs, while income and value added taxes have been reformed and tax collection has been streamlined.

iv. Results Obtained

The results of the above strategy are consistent with the instruments used for its implementation: macroeconomic variables have improved, while the production sector has shown signs of stagnation.

International monetary reserves have recovered, showing a positive balance of US\$810 millions in 1990. Trading balances in goods have grown positively, reaching US\$610 millions in 1989 and US\$1,003 millions in 1990. Exports have increased and the total balance of payments deficit has been reduced in the last two years to reach a level of US\$136 millions in 1990.

The public sector reduced its deficit from 2.3% of GDP in 1986 and 1987 to 0.04% in 1988, while in 1989 it showed a surplus of 1.8%. The inflation rate has dropped from 86% in 1988 to around 50% in 1990.

While banana and shrimp production has increased, growth in oil production has slowed, and if the present tendency prevails, it will reach zero growth rate in 1991. Growth in production for the internal market has been less than 2% in 1990 and 1991, due to persistent inflation and to reductions in public spending.

The social cost of these policies has been high; unemployment is around 14% with underemployment very much higher, and by 1990 the minimum wage was worth less than 40% of its value in 1980.

v. Short-term Perspectives

Monetary controls will continue to be the basic policy instrument of this government. There will, however, be problems in achieving the economic objectives for 1991: it is probable that the public sector will register deficits once again, inflation will be higher than the target of 30% and growth of the GDP will fall short of the projected 3.5%.

Future development strategy is based on an export model grounded in the most competitive sectors of the economy. This strategy, while it may succeed, will have a high social cost as growth will not be fast enough to keep pace with deteriorating social indicators. Increases in production for the domestic market and in rural employment and income will help make the strategy socially viable.

B. AGRICULTURE AND RURAL POVERTY

a. Agrarian Structure

Until the mid-1960's, the agrarian structure of the Ecuadorean highlands was semi-feudal; peasants in the haciendas produced food for themselves on small plots of land assigned for that purpose, while working the hacienda lands in return. In the coastal region, however, plantations were worked by landless labourers for a wage. Changes in the domestic market paved the way for processes of land redistribution which were accelerated with the Agrarian Reform Law of 1964.

Since then, land redistribution, the abolition of feudal obligations, colonization of Amazonian and coastal lands and rural migration towards the cities all contributed to creating the structure which is reflected in the data from the 1974 agricultural census, given in Table 7. During the last 15 years,

population growth and continued land redistribution have contributed to a greater fragmentation of plots and land tenancy.

TABLE No.7
AGRARIAN STRUCTURE - (IN THOUSANDS)

FARM SIZE	SIERRA		COSTA		ORIENTE		TOTAL	
	No.	AREA	No.	AREA	No.	AREA	No.	AREA
LESS THAN 0.5								
0.5 HA	57.9	15.0	9.5	2.6	0.3	0.1	67.7	17.7
0.5-1 HA	51.2	34.4	15.3	10.8	0.3	0.2	66.8	45.4
1-2 HA	60.4	80.6	21.9	30.0	0.8	1.1	83.1	111.7
2-3 HA	40.6	95.5	18.8	45.5	0.8	1.8	60.2	142.8
3-4 HA	21.4	71.4	9.6	33.4	0.6	2.0	31.6	106.8
4-5 HA	15.8	68.2	9.6	43.4	0.5	2.2	25.9	113.8
5-10 HA	28.4	190.4	24.3	170.6	2.0	12.9	54.7	373.9
10-20 HA	18.2	241.2	20.3	279.1	2.8	36.7	41.3	557.0
20-50 HA	13.9	421.2	21.8	665.6	6.9	222.2	42.6	1309.0
50-100 HA	6.0	366.0	8.2	527.4	7.9	449.0	22.1	1342.4
100-200 HA	1.8	231.9	3.3	433.4	1.4	161.4	6.5	826.7
OVER 200 HA	1.6	1261.9	2.4	1515.3	0.5	212.2	4.5	2989.4
TOTAL	317.2	3077.7	164.9	3757.1	24.9	1101.8	507.0	7936.6

SOURCE: CENSO AGROPECUARIO, 1974.

Around 77% of land holdings are less than 10 has, with a total of 11.3% of the available land, while 37.7% of the land is held by 0.9% of the farms. Of the land holdings less than 3 has (over half of the total), 75.6% are in the highland region.

b. Evolution of the Agricultural Sector

Around 13 to 14% of the GDP is contributed by agriculture; it occupies 32% of the labour force and in the last five years it has contributed 30% of exports.

During the last ten years, growth has been slower than in previous decades. Rates, on the other hand, are steady and the growth of 33% has been higher than in the rest of the economy. If we compare the five-year period 1980-1985, with the period 1965-1969, however, the rate is not constant for all crops. The traditional highland crops of cereals and potatoes have stagnated, while coastal crops such as rice, feed corn, oil palm and soy bean have grown significantly.

Development perspectives for agriculture are generally related to international prices for export crops. Progress in GATT negotiations would increase the security needed for technological investment in these crops. The development of the temperate crops of the highlands, on the other hand, depends on the internal market and the outlook for improved technology for small farmers. Many market garden crops of the highlands have an export potential in the off-season international markets.

c. Rural Poverty in Ecuador

In 1987 the Special Programming Mission (SPM) of FIDA calculated that 75% of the rural population (3,700,000 people) live below the level of absolute poverty. At that time, absolute poverty was measured at an annual income level of US\$ 1,300 per family.

More than 70% of the rural poor are to be found in the highland region, with 28% on the coast. Coastal rural poverty is associated with landless seasonal workers. In the highlands, it is associated with small land holdings without irrigation or basic services. Contributing factors are soil erosion and the need to work land which is too steep to be appropriate for farming.

On the other hand, the oil boom helped improve rural infrastructure; roads have been built, between 1974 and 1982 rural illiteracy dropped from 33% to 19%, and infant mortality was reduced from 108 to 72 per thousand.

d. Rural Development Policies and Strategy

The agrarian reform policies of the 60's and 70's gave way in the 80's to the strategy of Integrated Rural Development. A special Secretariat, dedicated exclusively to rural development, was formed in 1980 and in 1985 it was incorporated into the Social Welfare Ministry as the Rural Development Undersecretariat (the SDR).

In general, the rural development policy is conceived as a part of the redistribution of income and wealth. Nonetheless, productivity improvement and farmers' self sufficiency are focal objectives; thus, the SDR promotes policies of investment in basic and social infrastructure, and in improving agricultural production through irrigation, technical assistance, credit and marketing support. These programmes have been increased by the present government, under the coordination of the SDR, and currently there are 24 programmes and projects, of which most have external financing. The government has recently negotiated World Bank financing for 12 projects, related in one umbrella programme, which will also be managed by the SDR. As well as establishing a system of coordination and evaluation, the SDR administers the government's Rural Development Fund (FONADRI), which channels most of the financing for these projects.

Thus the project Saraguro-Yacuambi-Loja is part of a wide effort on the part of this government to give priority to rural development.

e. Institutional Background

i. State Institutions

The institutions which are directly related to agricultural development are the relevant Ministries (the Ministry of Agriculture and the Rural Development Sub-secretariat of the Social Welfare Ministry), the specialized autonomous state institutions and the regional development institutions.

These institutions work within the framework of the National Development Plan, which is adjusted annually and controlled by the National Development Council (CONADE), under the direction of the vice-president of the republic. Externally financed development projects must be evaluated by CONADE.

1. The Rural Development Undersecretariat of the Social Welfare Ministry

The SDR coordinates all those national development policies which are directed towards the peasant population. It works together with 3 national directorates, also within the Social Welfare Ministry, which are responsible for cooperatives, small industry and community development, and indian populations. The SDR has around 220 employees, of whom 43 are permanent, and an annual budget which oscillates between US\$ 18 and 24 million.

2. The Ministry of Agriculture and Livestock

The Ministry of Agriculture is responsible for agricultural policies and forestry. It consists of five undersecretariats, of which two are specialized (administration and marketing) and three are regional. Its organization is complex; as well as sectorial divisions, it has

specialized departments and programmes, such as agricultural extension (PROTECA), and a rural development division which coordinates with the SDDR.

In recent years MAG has directed its main efforts to commercial farming, but many peasant farmers have benefitted from the activities of the autonomous institutions which coordinate with the Ministry.

The specialized autonomous institutions are described below.

- a) The Agrarian Reform and Colonization Institute (IERAC) was created in 1964. After an initial period of intensive activity, within the framework of the agrarian reform laws promulgated between 1964 and 1973, IERAC's importance has diminished in the last decade and it now concentrates on the legal aspects of land titles. During the reform period, over 3 million has were distributed to 130,000 families.
- b) The Water Resources Institute (INERHI) was created in 1966 and it is the effective administrator of the nations freshwater resources. Nearly 90% of its budget is for the construction of irrigation systems, but it is also responsible for drainage and flood control activities, for the allocation of water resources for other uses and for training farmers in the use of irrigation technology. In this last function, its effectiveness is low. Elementary secondary canal maintenance and the levying of tariffs are the responsibility of local water boards which are elected by the users of each secondary canal and which operate under the auspices of INERHI.
- c) The National Agricultural Research Institute (INIAP) began its work in 1959 and currently has six experimental stations, three research centres and five farms for testing technology. Its research themes cover a wide spectrum, including the basic crops and livestock as well as the work of the departments which work within specific disciplines, such as soil conservation, pest control, nutrition, and mechanization. It has a small programme of on-farm research directed towards peasant farmers (PIP).
- d) The National Development Bank (BNF) is the principal channel for loans available to farmers. In 1990, of US\$135 millions lent by the bank, nearly 70% was for agriculture. An analysis of the bank's financial indicators shows that the relationship between overdue loans and patrimony is very high (over 80%), that there are imbalances in the financial structure (loans make-up too high a proportion of liabilities, patrimony is only 7% of total balance and the relationship between loans and deposits is growing continually), and that with 76 branches and over 4,000 employees, the bank's administrative costs are too high. Interest rates have until recently been consistently below inflation rates, reducing in real terms the resources available for loans, which have dropped 20% in two years. Overdue loans represent around 13% of the total loan portfolio.
- e) The Agricultural Storage and Marketing Agency (ENAC) is a publicly owned enterprise whose objective is to regulate the prices and supply of agricultural produce. It has concentrated on the coastal crops of rice, maize, sugar and cotton. The National Agency for Essential Products (ENPROVIT) is also a public enterprise whose mandate is to regulate the supply and distribution of the basic staples of the lower income sectors. It has approximately 260 branches in the country. Currently it faces severe financial problems.

The regional development institutions in which the Ministry of Agriculture participates are:

- The Southern Development Programme, PREDESUR, centred in the province of Loja but with activities in the provinces of El Oro and Zamora Chinchipe,
- The Economic Reconversion Centre of Azuay, Cañar and Morona-Santiago (CREA),
- The Centre for the Rehabilitation of Manabí (CRM), and
- The Centre of Studies for the Development of the Guayas River Basin (CEDEGE).

All of these institutions have multisectorial responsibilities with an emphasis on agricultural development. Their specific activities focus on rural infrastructure, with differing levels of coherence.

ii. Private and Social Institutions

1. The Federation of Savings and Loans Cooperatives (FECOAC).

The Savings and Loans Cooperatives have become one of the principal financial mechanisms of the middle to lower income urban groups and, in some areas, of the rural population also. FECOAC is their umbrella organization with responsibilities for establishing general policy guidelines, negotiating and extending credit and for training. The financial aspects of its mandate are well administered, but its policy and training functions, while grounded in a firm cooperative ethic, sometimes fall short of its members' most urgent needs.

2. Non-Governmental Organizations (NGO's)

The number of NGO's has grown in recent years, mostly in the highlands. Many recent organizations have very specific mandates, while some of the older institutions have achieved a wider relevance. Among these it is worth mentioning the following:

- The Ecuadorean Centre of Agricultural Services (CESA), which has project areas throughout the country, working on agricultural, resource and social development;
- The Ecuadorean Fund "Populorum Progressio" (FEPP), which works through local parish groups in activities which include credit and social development;
- The Andean Centre for Popular Action (CAAP), which implements development projects in the northern and central highlands and also functions as a study and research centre; and
- The Ecumenical Loan Fund (ECLOF), which gives loans for agricultural and marketing projects presented by peasant organizations. It manages its funds well, with extremely low administrative costs.

C. IFAD ACTIVITIES IN ECUADOR

a. Objectives and Strategies Proposed by the SPM

IFAD's Special Programming Mission to Ecuador in 1987 concluded that because rural poverty in Ecuador has different causes in different areas, intervention policies must also be differentiated.

An integrated rural development strategy based on improving agricultural infrastructure and services would be applicable to those situations, such as that of the highland indian communities, characterized by small land holdings with insufficient water, meagre marketing opportunities, and poor access to technology.

Development projects directed to the family as a social unit, a reconsideration of agrarian reform and resettlement policies, employment creation and non-agricultural activities with linkage effects, would be strategic elements appropriate for other situations such as that of the landless peasants in the coastal plains.

Prior to the SPM, IFAD had approved loans for two projects in Ecuador. In 1979, a loan was approved (006-EC) for a fisheries project, but institutional difficulties caused the project to be canceled. The second loan (135-EC) was approved to co-finance the integrated rural development project in the south of Loja. Again there were institutional difficulties, due to the dispersion which existed prior to the creation of the SSSDR, and many project components started tardily. Under the auspices of the SSSDR, however, this project has been given an extension until the end of November 1991.

b. Project Background

Together with IFAD's Special Programming Mission, a Project Recognition Mission was carried out in 1987. A project for the south-central highland province of Cañar and a project for the province of Azuay (Nabon and Giron counties) were among the investment proposals which came out of this mission. The Cañar project was approved at the end of 1990.

An outline of the Nabon and Giron project, prepared by the SSSDR with the help of IICA, included the Saraguro area immediately to the south in the province of Loja. On the basis of this outline, the Ecuadorean Government asked IFAD to send an Identification Mission, which visited the country between 4th and 25th March of 1991 and whose report gave rise to a series of suggestions shared by the SSSDR.

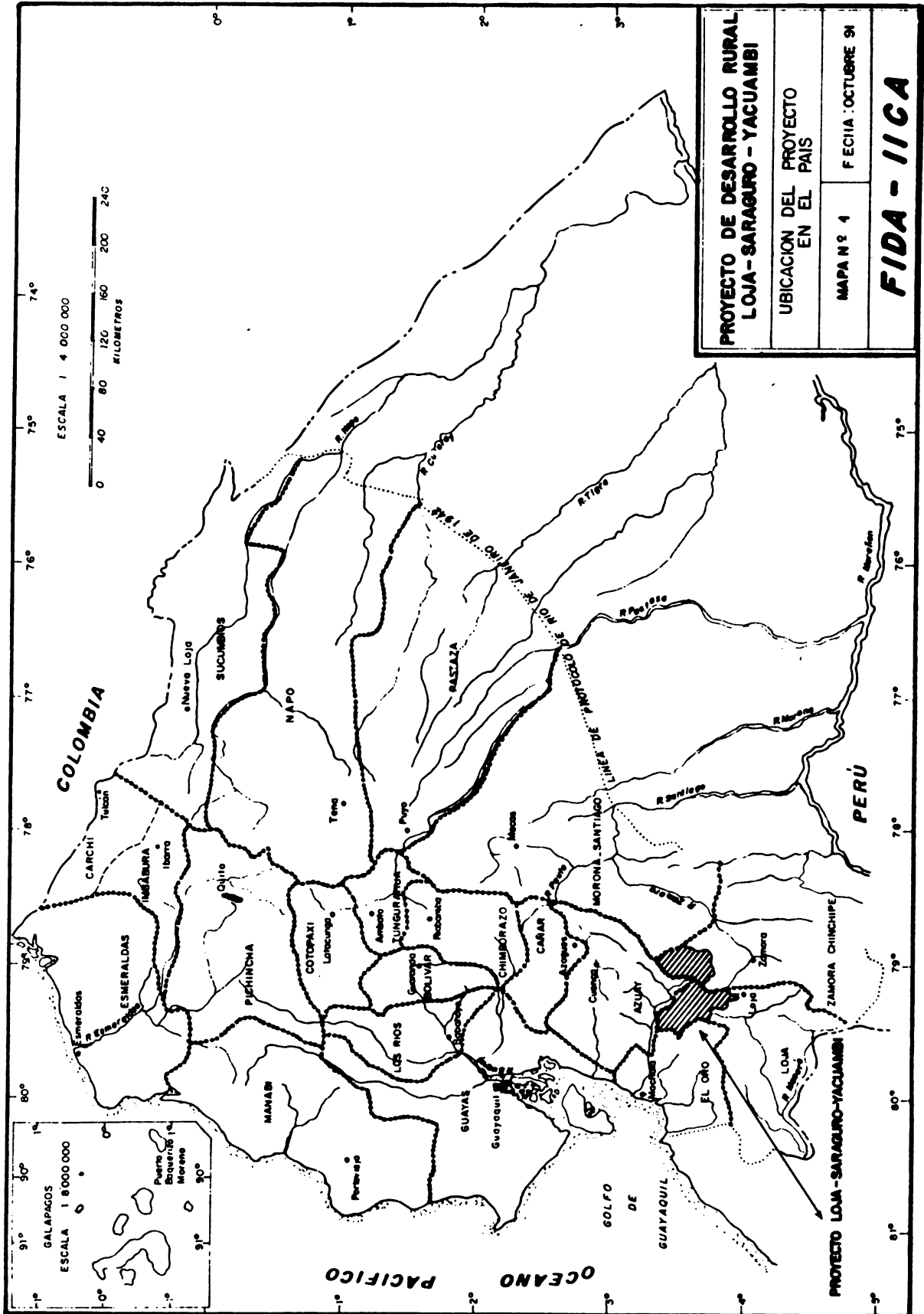
The most important modification suggested was that the project should concentrate on the area populated by the Saraguro indian communities; thus Nabon and Giron were excluded from the area, which was defined as the county of Saraguro, in the extreme north of the province of Loja, the parish of San Lucas in the central county of Loja, and the county of Yacuambi in the eastern province of Zamora Chinchipe.

At the request of IFAD and the SSSDR, the Project Preparation Mission was organized by IICA, through its Investment Project and Programming Centre (CEPPI), in coordination with its Rural Development Programme and its office in Ecuador.

The Saraguro community, in a seminar organized by the SSSDR in February of this year, had developed a list of priority needs which were discussed in an initial workshop with the present Mission. Numerous meetings and workshops during the fieldwork of the mission were complemented by the presence of five Indian leaders who were appointed by their communities to participate in the work of the Mission in Loja.

D. PROJECT AREA

The project area is defined as those administrative jurisdictions of the provinces of Loja and Zamora-Chinchipe, in the extreme south and south east of Ecuador, in which the population is predominantly made up of Saraguro indians. It is thus a social rather than a physical definition.



a. Geography

The defined area is spatially continuous between parallels 3° 20' and 3° 50' south and between meridians 78° 50' and 79° 30' west. It combines the county of Saraguro and the parish of San Lucas in the highland province of Loja with the county of Yacuambi on the edge of the Amazon basin. The area is 2,432 km².

The presence of the central range of the Andes running through the middle of the area gives rise to large variations in ecological and agricultural conditions, and three broad zones can be defined. These are the dry northwest, consisting of 695 km², the temperate central zone, 506 km², and the humid eastern zone of 1,231 km².

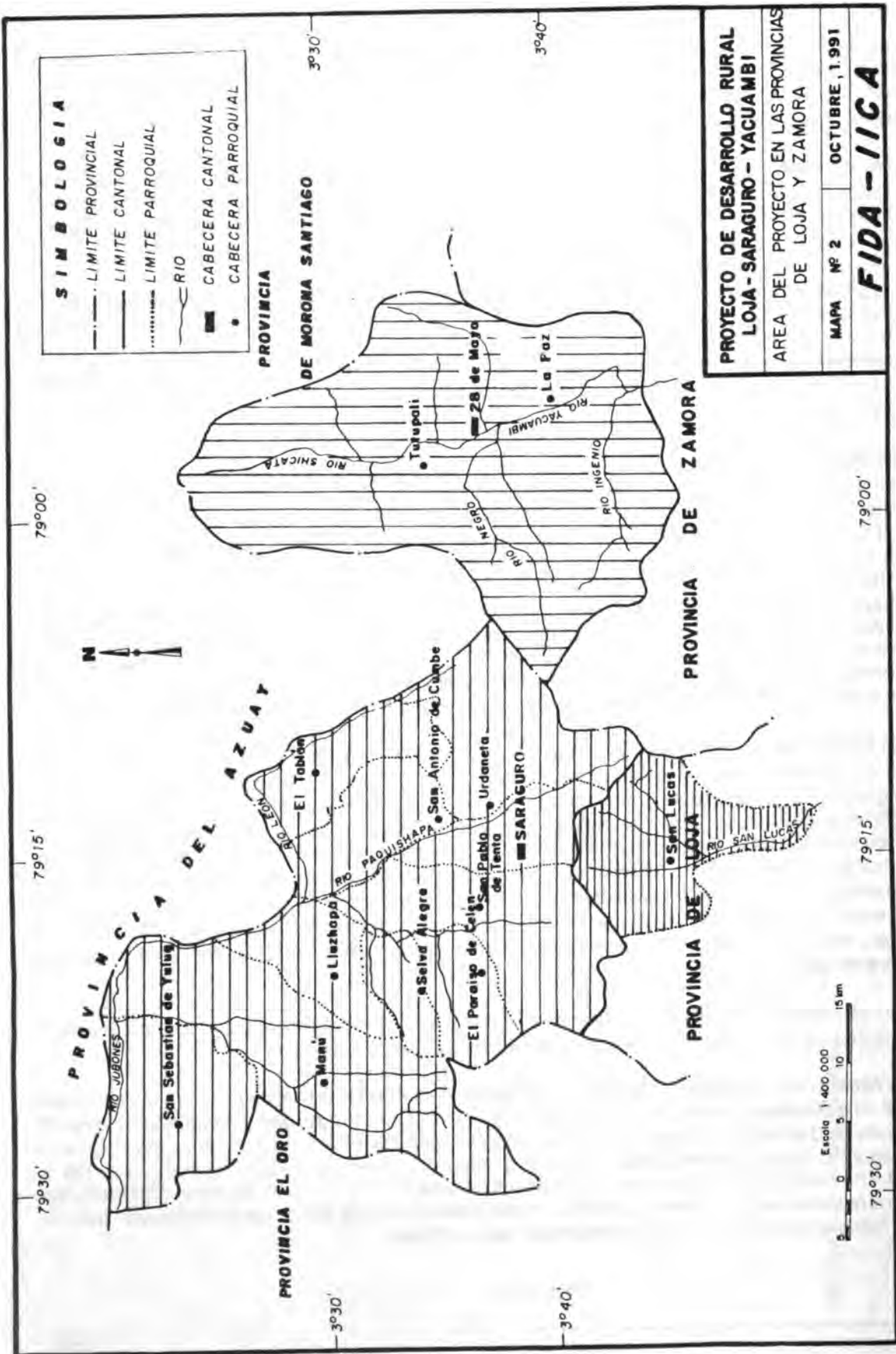
The **geomorphology** and **physical geography** of the area are a result of earth movements and the breakdown of the volcanic and metamorphic bedrock. In the northwestern and central zones, deep canyons run through mesetas which are separated hills and ridges. In parts of the northwest, sedimentary and loose deposits have contributed to the formation of natural terraces, while sand and clay deposits can be found in the narrow valley bed of the river Yacuambi in the eastern Amazonian zone.

The **Northwestern Zone** is strongly influenced by the middle Jubones river system which descends to the coastal plain producing deep valleys that fall from 2,500 mts to 1,200 mts above sea level. Below a height of 1,600 mts, the climate is **dry tropical**, with 200 mm to 400 mm of rainfall per year and temperatures ranging from 18° to 22° C. The water deficit is critical and 10 months of the year are counted as dry in strict ecological terms. The immature soils of these areas are classified as **orthents**. They are superficial and eroded. Between 1,600 mts and 2,500, where most of the population and agriculture of the zone are to be found, the climate is **sub-humid temperate**, with rainfall below 750 mm per year and average temperatures between 12 and 15° C. Five months of the year are dry and there is a net water deficit. Soils are clayey, ranging from very eroded stony yellow brown **ustropepts** of low nutrient content and kaolin type clay in the north and extreme south of the zone to reddish **eutropepts** eroded by run-off water, throughout the central part of this zone.

The **Central Zone** is influenced by the upper Jubones River system. The majority of the population live on the plains and slopes between 2,400 and 2,800 metres above sea level where the climate ranges from sub-humid temperate to humid temperate. Humidity increases with altitude, and above 2,600 mts average temperatures are in the range of 10° to 12° C. The high wet moorlands (páramo) which form the watershed between the Pacific and the Amazonian river systems also constitute part of this zone. In the centre and north of the zone the soils are stony brown clay **eutropepts**, with a somewhat loamy texture, a base saturation of over 50% and a pH of 6.0 - 6.5. In the south and west the soils are reddish **dystropepts**, while in the eastern high moorlands the soils are dark, of volcanic origin, with good water retention capacity and vegetation; they are classified as **dystropepts-distrandepts**.

Throughout the northwestern and the central zones soil erosion is advanced; agriculture is practiced on slopes of up to 50°, while even steeper slopes are used for pasture.

The **Amazonian or Eastern Zone** falls rapidly from over 2,800 mts to around 1,000 mts above sea level. The climate is humid sub-tropical, with rainfall over 2,000 mm per year. Temperatures vary with altitude; in the most populated part of the zone, between 1,800 mts and 1,200 mts, they vary from 16° to 22° C. Slopes vary from steep (over 50°), throughout most of the zone, to fairly steep (20° to 50°). The reddish clay soils are extremely acid **dystropepts** (pH 4.5 - 5.8); they are fragile although with a reasonable forest cover. In the floor of the Yacuambi valley, soil texture is somewhat loamier, but nutrient content is low and soil management is difficult.



b. Population

i. Demography

In 1990, the total population of the project area was estimated at 34,485. Data for that year show the following distribution (Table 8):

TABLE No.8
TOTAL POPULATION

PROJECT AREA	POPULATION	FAMILIES
SARAGURO COUNTY	26,944	5,180
SAN LUCAS PARISH	4,103	790
YACUAMBI	3,438	720
TOTAL	34,485	6,690

SOURCE: 1990 POPULATION CENSUS.

TABLE No.8.A
POPULATION OF SUBREGIONS BY ETHNIC GROUP - 1990

SUBREGION OR ZONE	SARAGUROS		BLANCOS-MESTIZOS		TOTAL	
	NUMBER	%	NUMBER	%	NUMBER	%
A. NORTHWEST	2.785	(18,8)	12.031	(81,2)	14.816	(43.0)
B. CENTRAL	11.086	(68,3)	5.145	(31,7)	16.231	(47.0)
C. EASTERN	2.056	(59,8)	1.382	(40,2)	3.438	(10.0)
TOTAL	15.927	(46,2)	18.558	58,3	34.485	(100.0)

SOURCE: 1990 POPULATION CENSUS AND SOCIO-ECONOMIC SURVEY

Average family size is 5.2 members in the highlands and 4.8 members in Yacuambi.

Population growth rates have been low since 1974 (previous data are confused by changes in the administrative areas), showing an annual rate of 0.71% between 1974 and 1982 (compared with the national average of 2.65%). From 1982 to 1990 the growth rate dropped slightly to 0.65%.

During the 1974 to 1982 period, parish centres grew much faster than the rural communities. Investment in services and infrastructure, proceeding from the oil boom, was concentrated in the parish centres and many families moved to live there and work their land from a distance.

The population of eastern zone of Yacuambi, however, grew at the faster rate of 3.7% as the agricultural frontier was extended and more families moved into this area.

The extremely low rates of population growth in the whole area during the last two decades are explained by migration out of the area for economic reasons. Small land holdings, with poor soils, no water and no technical or financial support have prevented these peasant economies from developing.

At the same time, migration is often temporary or partial, with the result that the men are frequently out of the area, while the women and children stay behind. This phenomenon is reflected in the census data and many economic activities of the area, including agriculture, are increasingly managed by the women of Saraguro.

ii. Ethnic Composition

In Saraguro, as in the rest of the Ecuadorean highlands, ethnicity is more a matter of **cultural identity** than of physical characteristics. The two main cultural groups of the project area are, on the one hand, those who identify themselves as Saraguro Indians and, on the other, those who identify themselves with Hispanic culture. The latter group describes itself as "blanco-mestizo." Levels of cultural interchange between the two groups are high and can be observed in formal education, music, farming practices and language, in which each group has adopted tastes, words and practices of the other. The differences in the sense of identity, however, are marked, and are expressed in dress and in closed family and community relations. Interethnic marriages exist, but are not common. In general, the social relations between the two groups are good and less overtly racist than is the case in many parts of the Sierra. The economic differences are also less marked, and while much of the commerce of Saraguro is in the hands of "blanco-mestizos," the peasants of both ethnic groups share the same poverty.

The ethnic composition is different in the three zones of the area; the northwest zone is predominantly "blanco-mestizo," with some Indian communities; the central zone is predominantly Indian and the majority of the blanco-mestizos live in the town and parish centres. In the eastern zone, the Saraguro Indians are also predominant in the rural areas, but there are blanco-mestizo settlers both in the rural areas and in the county centre; there are also six local centres of Shuar Indians, one of the most important Amazon tribes in Ecuador.

c. History and Social Organization

The Saraguro Indians are a **Quichua** group who probably came to the area during the INCA empire as "mitimaes" or forced settlers. It is possible that they originally came from the Otavalo area in the north of the country.

They are one of the very few Ecuadorean groups who maintained their own lands throughout the colonial period and, like the Otavalan, the Salasaca and the Chibuleo groups (who also held some degree of independence within the hacienda system), the Saraguros have conserved a vigorous identity.

There is little documentation concerning Saraguro development during the late colonial and republican periods, but it is thought that political and social leadership was organized on the basis of small groups of families, a pattern similar to that of other highland Indian societies. Group leaders (known as "mayorales") assured the exchange of services within the group and negotiated with other family groups and with the "blanco-mestizo" society.

Such groups might consist of 10 to 15 families and their organization was social rather than formal. The formal organization of the Saraguros is based on the community (comuna), which in many cases consists of several such family groups. In other cases, the internal division is less marked. The "comunas" of Saraguro date back to colonial times and in 1541, by provision of the Spanish crown, the hills, pasture lands and water used by the Indians were decreed to be communal property.

Since the 1937 "Ley de Comunas" (community laws), the annually elected "cabildos" have been the official (and real) representatives of each community. The cabildos exercise their authority on the basis of decisions taken in community meetings, which deal almost entirely with civic matters such as collective work (mingas) on communal infrastructure, looking for external funding, resolving conflicts between families and organizing religious celebrations. Economic activities are almost entirely managed at a family level, though some communities organize collective activities as well. Most of the communal lands have been divided between the member families, and over such collective pasture or woodlands as exist, little authority is currently exercised.

In the northwestern zone, the blanco-mestizo population has a relatively low grade of organization. There are two agricultural cooperatives which work well, however, producing grains and vegetables, and the largest community of the area, with 8,000 has of communal land, is also in this zone.

In the central zone, community organization is strongest, though only about 40% of communities are legalized.

Primary organization in the eastern zone is somewhat different and is modelled more along traditional Amazonian lines. Both Quichua and Shuar indians are organized in "centres" which group together around a dozen families. This form of organization is appropriate to the physical dispersion of the families.

There are two second-grade organizations operating within the area: the FIIS (Federación Interprovincial de Indígenas de Saraguro), first formed in the 70's, and the CIOIS (Confederación Interprovincial de Organizaciones Indígenas de Saraguro), which was formed later by a split in the first. The FIIS tends to be more interested in economic development and many of its young cadres are university educated professionals, while the CIOIS prefers a greater cultural separatism and has tended to participate more in such programmes as bilingual education and literacy programmes, while seeing classic development programmes as foreign. The ideological differences, however, are not altogether clear and economic needs have contributed to a proposal for unification which is currently under discussion.

There are also local groups of communities, organized both at a parish level such as that of San Pablo de Tenta, to the west of Saraguro, and at a county level in the case of Yacuambi. The interests of these organizations tend to focus around local economic problems.

Of particular interest in the history of the Saraguros is the development of their cattle farming and the settlement of the eastern zone. Thanks in part to low demographic pressure and the availability of pasture land, the Saraguro economy was based on cattle farming by the beginning of this century. It is normal among Ecuadorean indian groups that livestock be a complementary activity to crop farming and that the sale of animals only occur when there exists a particularly urgent need. The animals constitute a sort of domestic bank, cared for by the children. Among the Saraguros, however, the cattle are the main source of income and are managed commercially.

During the first half of this century, cattle grazed on the high moorlands to the east of Saraguro were taken further eastward, and grazing areas were established in the upper intermontane valleys of the eastern slopes of the Andes. Gradually these areas were extended lower, towards the warmer Amazonian areas, though until the 70's the grazers' home base continued to be in Saraguro. As pasture lands were opened further into the Amazon region, the distance and the constant labour requirements of pasture management caused many families to establish their homes permanently in the eastern zone; by the 80's, the settled lands were being managed independently. Strong family relations continue to exist; many young Saraguros move temporarily between their highland homes and family lands in Yacuambi, and cattle are taken from Saraguro to the east to be fattened, before being sent back to market.

Cattle raising is thus based in part on the use of complementary ecological zones, but the strategy of expanding the frontier for grazing has reached ecological and social limits. Further deforestation of the occupied areas would cause grave problems and there are now no new, unoccupied areas.

d. Economy and Infrastructure

The economy of the project area is almost entirely agricultural. Apart from a very small artisan production of clothes for personal use, and some wage earnings in the nearby gold mines in Zamora-Chinchi, the production and nearly all services are related to farming.

Public services are few: occasional infrastructural projects such as road improvement, maintenance of electric power installations and some work on irrigation channels.

The primary road network consists of the panamerican highway, of which some sections have been paved, and the unpaved road from Saraguro to Manú. In Yacuambi, there is just one road, unpaved, which runs from the Zamora-Gualaquiza highway to the county town of 28 de Mayo. The secondary network reaches most but not all of the parish centres of the area. Two complementary roads are especially needed: **Ushapa-Yulug-EI Empalme** which would connect the area directly with the coast and Guayaquil, and a road from Saraguro to Yacuambi, which is the strongest felt need of the Saraguro indians.

The social infrastructure of the area is acceptable. There is a hospital in Saraguro and the school system is fairly well organized and attended. However, in meetings with community representatives, the need was expressed for improvement in technical training, especially in areas other than agriculture.

e. Agriculture

i. Land Use

Current land use in the area is described in the Table 9:

TABLE No.9
LAND USE IN THE PROJECT AREA

LAND USE	HAS	%
DEMUDED SOILS	28,800	11.7
MOORLAND	41,300	17.0
ANDEAN NATIVE WOODLAND	4,700	2.0
SHRUBLAND	13,800	5.7
GRAZING LANDS	63,400	26.0
HIGHLAND FARM PLOTS	17,750	7.4
RAIN FOREST	60,200	24.7
AMAZON PASTURE AND FARM	11,500	4.7

Within the highland farm plot area, 6,150 has are dedicated to crops, 9,260 to pastures and slightly over 2,000 are shrublands or are eroded.

In the moorland, woodland and shrubland areas, attempts are needed to rationalize the management of the local native species as these are the principal source of energy for the population.

The agricultural and grazing lands are limited by the poverty of their soils and the steepness of many of the slopes; they could be improved by a better integration of crop, pasture and forestry activities.

In the eastern zone, the fragility of the ecosystem requires a more rational management of pasture and forestry.

ii. Crops

Crop production in the area is low. Two thirds of the cropland is dedicated to maize and beans, while 18% is under potatoes and 15% is given over to other cereals and pulses. Productivity levels are indicated for the main crops in Table 10:

TABLE No.10
PRODUCTIVITY OF 5 MAIN CROPS IN SARAGURO
(IN MET. TON. PER HA.)

CROP	SARAGURO	NAT.AVERAGE
MAIZE	0.20	0.55
BEANS	0.16	0.55
WHEAT	0.50	0.80
POTATO	2.50	7.20
PEA	0.25	0.95

The extremely low productivity levels are the result of poor soil management and low input levels.

iii. Livestock

Cattle are the principal livestock production in the area; there are approximately 44,000 head, of which 8,000 are milk cows. Average daily production is 2.6 litres per cow, versus the national average of 3.8 litres. 77% of the milk production is processed as fresh cheese for sale in Loja, while 21% is for home consumption.

The cattle are tethered for grazing and are cared for by the women and children. The tethering system allows each animal to graze an area of about 30 square metres with a production equivalent of 40 kgs of fresh forage. Grass is not stored in any way and in general there is a pasture deficit during the dry months.

The cattle are of criollo origin (the local, genetically varied breed, derived from early colonial imports); Only 40% have any mixture of improved breeds, mostly Holstein with some Brown Swiss. Sanitary conditions are minimal, parasites are endemic and there are serious animal health problems on nearly half of the smallholdings.

The growth of cattle raising in the area has thus been based in the past on expanding the area of pastureland rather than on improved management techniques.

iv. Marketing

The whole south of Ecuador is a net importer of basic foods; there are thus ample opportunities in the regional market, as well as in external markets. Many potentially productive areas, however, are isolated by the lack of roads and producer prices are low.

This is particularly true in the northwestern zone of the area, where there is a high potential for fruit and vegetable production which would require a direct outlet to markets such as Guayaquil.

In the central zone, the market of Saraguro is an important conduit for cattle, transported via Loja to Guayaquil, and for vegetables for the regional markets in Loja and Cuenca.

Marketing in the eastern zone is even more difficult and is limited to cattle and cheese. The soft cheese must travel south to Zamora before being transported to Loja and quality is lost on the road. Cattle must either follow the same route by lorry before being transported to Guayaquil, or be taken back on foot to Saraguro. In either case, they suffer weight loss.

An improved road system, improvements in cheese preparation and better storage systems would help overcome some of these problems.

v. Irrigation

The water deficit in the highland areas of the project means that irrigation is indispensable for agricultural production. There exist four main irrigation channels, designed to reach 2,600 has and 1,500 families. However, technical deficiencies and a lack of promotion and training mean that only about 860 has are currently served by these systems. In addition to the main channels, there are water concessions for about 1,600 has served by small local systems.

Irrigation is done by gravity, causing erosion and reducing water efficiency both in channeling the water within farmer plots and in correct application. Technical assistance and training are required to improve this situation.

f. Support Institutions and Services

i. Overview

Agricultural investigation and technical assistance are practically non-existent throughout the project area. In Saraguro there is just one small rural workshop with some technology validation plots run by CATER, a rural technology institute which is part of the University of Loja, while the Ministry of Agriculture or the relevant departments of PREDESUR offer virtually no services at all. Two international ONG's (CARE and Plan Internacional) offer specific services in forestry and soil conservation and in local infrastructure respectively. In Yacuambi no support institutions whatsoever appear to be working.

Agricultural supplies and marketing are somewhat better served by private traders, given the limited demand for the former and the small volumes for the latter. There is no state regulation, but markets are frequent, and the main obstacles to improving these services have been mentioned above.

Agricultural loans are also limited, in spite of the presence of an agency of the BNF in Saraguro. The bank's rule that borrowers must have legalized land titles and the complexity of its procedure are two of the principal reasons that loans are requested by only a small percentage of peasant farmers in the area.

Agricultural services thus fall short of the social services and of the production needs of the area. In consequence, production conditions are backward, productivity has not improved and the younger members of the population are deserting the farms.

ii. Principal Institutions

1. The Southern Development Programme (PREDESUR)

PREDESUR was created 1982 in order to carry out an international agreement between Peru and Ecuador, to develop the river systems shared by both countries. The institution has nearly 1,200 employees and a wide spectrum of activities that range from building sports centres to conserving renewable natural resources. But the Saraguro area is low priority for PREDESUR which has, moreover, suffered budget restrictions in recent years. Still, some of its services would be used by the project, such as its limestone mines and its cattle breeding centre.

2. The Ecuadorean Water Resources Institute (INERHI)

INERHI has a decentralized administration, and Saraguro comes within the Loja Water District. This district coordinates with the regional waterboard which, as well as legal and

administrative services, has technical divisions for planning, surveys, civil engineering and water management. Apart from the irrigation systems already mentioned, INERHI has no plans for new works in the project area. It would nevertheless, participate in the project both as technical advisor for the development of each system and to carry out the required surveys and studies.

3. The National Development Bank (BNF)

The BNF attends the highland zones of the project area from its agency in Saraguro, while the Yacuambi zone is attended, more in theory than in practice, from the BNF's branch in Zamora. In all, less than 5% of the area's farmers currently have loans from the bank. In Yacuambi, only 12 clients have been attended in the last two years, with a total loan portfolio of US\$ 14,000, all of it to buy more cattle. In Saraguro, US\$ 114,000 were lent during 1990, of which 53% was for livestock, 29% for crops and vegetables and 16% was for local commerce, industry and tourism. The agency's deposits were US\$ 163,000, mostly from public bodies which are required to use the BNF.

At a national level, the BNF will participate in the project as a financial channel and fiscal control, but its participation in direct relation with the beneficiary smallholders is unadvisable given its operation costs, the complexity of its procedures, its demand for legal land titles and the fact that it cannot develop as a mechanism owned and run by the Saraguro indians.

4. The Municipality of Saraguro

The municipalities are the county (canton) seats and are correspondingly the elementary units of Ecuador's political and administrative structure. The president and councillors are elected directly. In spite of its lack of resources, Saraguro Municipality has achieved notable relevance by focussing many of the external health and education services, as well as collaborating with the ONG's that have worked in the area. It has a small, but well-kept pool of roadbuilding machinery, with which it maintains existing secondary roads and slowly opens new roads.

The municipality is well organized, its personnel are adequately trained, and there is a good level of public participation in its activities. It thus compares well with other public institutions that visibly fail to offer the support they should.

5. The Andean Centre for Rural Technology (CATER)

CATER is a semi-autonomous institution of the University of Loja, with 10 years' experience in testing appropriate technologies. In its programme in central Loja, which has been running for seven years, it has developed a wide range of activities from irrigation techniques to artisan fruit processing; its Saraguro programme began only two years ago.

CATER's team is professional and it has good central installations; in Saraguro it has established a workshop for carpentry and metalwork.

6. Savings and Loans Cooperatives

The "Manuel Esteban Godoy" Savings and Loan Cooperative (MEGO)

This cooperative was formed in Loja in 1984. In common with all savings and loans cooperatives, it came under the partial control of the Superintendency of Banks in 1986.

In 1987 it opened an Agency in Saraguro, where currently it has 470 of its 3,050 members. As well as its normal savings and loan operations, it has managed a credit programme for CARE in Saraguro and it is working with the National Housing Bank (BEV) in Loja. The CARE programme in Saraguro is financed in 1/3 part by CARE and 2/3 by MEGO.

In the past there have been problems of overdue loans, which constitute 21% of the portfolio; the proportion in Saraguro is lower (12%). Costs are low and profits are reasonable at around 16% of patrimony, compared with 20% among commercial banks. The institution's resources have grown at a steady rate over the last three years, more than keeping pace with inflation.

The cooperative's employees are qualified professionals who have received further training from FECOAC and the German Confederation of Cooperative Institutes (CONCAF).

7. The Small Business's Savings and Loans Cooperative (CACPE) in Zamora

A network of CACPE's has been formed throughout Ecuador, and the Zamora cooperative was founded legally in 1987 and began operations in 1989. Starting with just 14 members, it now has 200 and has recently opened a mobile office in Yacuambi. New members must deposit 10,000 sucres as capital and may receive up to 800,000 sucres in loans, depending on the level of their savings. Interest rates are 4% monthly, and overdue loans run at 3% of total portfolio.

Non-Governmental Organizations

Very few NGO's work in the area. CARE (Cooperative for American Relief Everywhere) has a dynamic forestry and soil conservation programme and works closely with the Saraguro Municipality and with the MEGO savings and loans cooperative. Its results have earned it a high degree of respect locally and the project should reach an agreement with it for the execution of some of the proposed activities.

Plan Internacional, the new name for Plan Padrinos, also works in the area; its activities appear to be more directed towards local works such as small drinking water systems.

g. Identification of Target Group

Over 90% of the rural population of the project area are small landholders with less than 10 has (20 has in the case of Yacuambi). Income levels for these ranges are below US\$ 1,550 per year, which is equivalent in current terms to the income level of US\$ 1,300 per year (defined by the SPM of IFAD in 1987 as upper income limit of IFAD's target population in Ecuador).

This proportion thus constitutes the target group of the project, and is equivalent to 5,715 families. The project has been designed to benefit the whole target group, in one way or another, although not all of the beneficiaries will participate in the full range of the project's components. The distribution of the population and the target group by parish is given in Table 11.

TABLE No.11
TARGET POPULATION AND BENEFICIARIES OF THE PROJECT, BY PARISH

ZONES AND PARISHES	TOTAL * (1)	TARGET * (2)	% (2/1)
NORTHWESTERN ZONE (A)			
PARAISO DE CELEN	404	393	97.3
MAMU	594	544	91.6
LLUSHAPA	307	254	82.7
SAN ANTONIO DE TENTA	790	740	93.7
SELVA ALEGRE	294	262	89.1
SAN SEBASTIAN DE YULUG	178	147	82.6
TOTAL	2,567	2,340 **	91.2
CENTRAL ZONE (B)			
SARAGURO	1,102	1,049	95.2
EL TABLON	188	178	94.7
SAN ANTONIO DE CUMBE	288	281	97.6
URDANETA	672	651	96.9
SAN LUCAS	813	728	89.5
TOTAL	3,063	2,887	94.3
ORIENTAL ZONE (C)			
28 DE MAYO	319	251	78.7
TUTUPALI	118	99	83.9
LA PAZ	186	138	74.2
TOTAL	623	488 ***	78.3
GENERAL TOTAL	6,253	5,715	91.4

* REFERS TO UNIT OF PRODUCTION

** FARMS UP TO 10 HAS. *** FARMS UP TO 20 HAS.

From data taken in the project area, the income and social welfare indicators of the target population tell a consistent story. In these data, infant mortality is around 46 per thousand; the main health problems are parasites, respiratory problems, gastrointestinal infections and nutritional deficiencies (symptoms of which are shown by 47% of children in the area). Around 30% of the population has had no formal education whatever (the proportion is higher for women than for men), only 10% of the population has access to clean drinking water, and the majority of homes have earth floors.

The principal economic activity of the target population is agriculture, though wage income is important in the smaller landholdings. A third of the population has some artisan activity and another third has some commercial activity. Such complementary interests make use of available labour time without interrupting the agricultural cycle. Within this, livestock are particularly important in the target group, with an average of 11.3 animals per family, of which 60% are cattle.

In the northwestern zone, the target population is largely "blanco-mestizo;" with irrigation, the zone will be able to develop a significant agricultural production of crops and vegetables.

The high level of community organization of the Saraguro Indians in the middle zone make it the centrepiece of the project, with cattle raising complemented by crops and resource conservation being the thrust of the production effort.

In the eastern zone, the target population is mostly the Saraguro Indians, who came in search of pasture for their cattle and settled; it represents less than 10% of the target group and the fragility of the still abundant ecosystem mean that improved silvo-pastoral management will constitute the project's main effort.

E. PROJECT PROPOSAL

a. National Policies for Action Against Rural Poverty

The SDDR's policy papers underline the importance of two considerations in the formulation of strategies for action with regard to rural poverty. The first is that priority should be given to the poorest areas in the country and the second is that special attention should be paid to the development of Ecuador's Indian population. Taking these considerations into account, the Government of Ecuador has defined the southern and eastern regions of the country as priority areas for action. The lack of infrastructure or of support services for agriculture are seen as the basic problems which should be overcome.

Both the definition of the project area and its basic concepts would thus be entirely consistent with national policy.

b. Project Justification and Conception

The definition of the project area is based not only the ethnic composition of the Saraguro region, but also on a common set of basic problems: isolation, rural poverty and lack of institutional support.

Within the area, and notwithstanding subregional differences and particularities in ecology and social history, the justification for the project is based on eight points:

- i. 90% of the rural population lives below the poverty line.
- ii. The Quichua ethnic group of the area has been semi-ignored in the past, but has the organizational capacity to participate actively in the execution of the project.
- iii. Present production systems in the area can no longer offer a reasonable livelihood to the population, previous strategies can no longer be extended, and the resource base is in ever-greater danger
- iv. There exists a real potential for sustainable development in both livestock and crop production. In the case of livestock management, proven techniques can be introduced by overcoming obstacles in the availability of inputs and finance, in marketing and in the development of technological validation and transfer mechanisms. The growing of intensive crops and vegetables with high production and economic potential can be expanded by improving irrigation, the availability of finance, and by better marketing.
- v. The deterioration of the natural resources of the area must be halted. Erosion and deforestation are advanced and the fragile Amazonian ecosystem requires a rapid intervention. Investments in these areas will bring evident long-term fruits.
- vi. The efficiency of investments already made in the area would be improved with technical support and credit. This is particularly true of the existing irrigation infrastructure.
- vii. The project can increase the use of local human resources, at present underemployed, such as the many young saraguro indians with technical and professional training.
- viii. The area has received little other institutional support, except for investments by INERHI and some road building. No other investments or development programmes of a significant scale are planned.

This scenario offers both the justification of the project and the guidelines of its main ideas; it must break the isolation of the area, correct the lack of institutional support for production, modify the way natural resources are used and reduce the out-migration of the population. It should take into account the growth in demand for foodstuff in the regional markets of the coast, the importance of women in the production process and the organizational capacity of the Saraguro Indians. Given these situations a strategy of dynamic intervention is proposed which is articulated specifically to the needs and potential capacities of the area.

c. Project Objectives

The project aims to achieve simultaneously two general objectives:

- i. To improve the real income levels and conditions of poor rural population of the Saraguro - Yacuambi - San Lucas area.
- ii. To sustain the natural resources and ecological balance of the area.

Over most of the project area, these objectives are not contradictory. On the contrary, production can only increase if soil and water management is improved. In other areas, this improvement is necessary to sustain production over the long term.

These general objectives define the following set of specific objectives:

- i. To increase income from livestock by improving milk and beef production.
- ii. To increase income from crop production, diversifying and intensifying crops through soil management, irrigation and improved technology.
- iii. To improve family income by promoting non-agricultural productive activities with technical training, access to loans and communal development funds (FODECO's) to be used by producer and women's associations.
- iv. To improve the use of water resources by repairing existing infrastructure and promoting better watering techniques.
- v. To break the isolation of large parts of the area, building and repairing local roads, which will also improve marketing.
- vi. To protect the environment, by increasing forestry, improving pasture management and introducing techniques of soil conservation and water management.
- vii. To remove the financial obstacles to technological innovation by establishing an appropriate credit system which also attracts savings, based on the local savings and loans cooperatives.
- ix. To support the cultural identity of the Saraguro Indians through their active participation in the control of this project, which will affect their territory.
- x. To establish and strengthen support institutions and services to agriculture in the project area.

d. Project Strategies

i. Implementation Strategies

Given a strategy based fundamentally on agricultural production, but with a strong emphasis on the participation of the largely Indian population, and on the sustainability and conservation of the natural resource base, implementation of the project is based on the following strategic elements:

1. A central Advisory Committee which should approve the Annual Working Plan, in which both of the umbrella Indian federations should participate (FIIS and CIOIS), together with representatives of the blanco-mestizo groups.
2. The greatest possible decentralization, creating action support committees at a community level that would work in coordination with the cabildos.
3. The strengthening and promotion of peasant associations or cooperatives to manage investment and production plans (creating small rural businesses) e.g., a milk producers' association to run small cheese plants or a market gardeners' cooperative organized around the irrigation canals.
4. An information system about the project's spending and activities which should reach all of the participating communities.
5. The active participation of the women of the area, in production and community activities.

ii. Strategies for Sustainability

The question of sustainability is the theme which has determined the design of each of the projects components. It is directed towards the following three elements:

1. Sustainability of the natural resource base has determined both specific environmental activities and the design of the production plans.
2. Sustainability of the human resource base determines both the economic impact sought in the project and the training and capacitation functions which are present in each component and which guarantee a continuity of activities once the project has ended.
3. Institutional sustainability has determined that each project component emphasize the strengthening of social institutions (communities and infra-or inter-community organizations) as well as the local formal institutions which are committed to a long-term presence in the area.

iii. Production Strategies

Three specific strategic elements have been taken into account:

1. Existing production systems; development is based on the traditions of the area and on farmers' knowledge.
2. Natural resource and market potentials, taking into account growth and changes in consumer demands

3. The availability of technologies appropriate to the set of resources managed by the communities of the area.

The two basic production strategies, based on these elements, are:

1. Milk and beef production improved by better pastures and herd management
2. Intensive crop production based on better soil management and a wider and better use of available water resources

These strategies are complemented by an effort to improve the production of traditional crops for home consumption. Credit and investment in roads, irrigation systems and small processing plants will support the strategies.

e. Brief Description of the Project

The project will benefit directly 5,400 families through credit, technical assistance, training and marketing support; 4,175 of these are small producers who will participate in the agricultural and livestock development programmes. They will be members of the savings and loans cooperatives which have simple procedures that will be based on community and technical recommendations. Loans will be for investment in tools, animals, soil improvement and irrigation equipment, and for covering the cost of inputs. Savings and loan accounts will be family based, with the participation of both husband and wife.

The other 1,230 families will be those of the women who participate in projects financed by the community development funds (FODECO's). These funds will be administered by each community, destined for small projects for families whose landholding or marketing possibilities are insufficient to take advantage of the previously mentioned production and credit programmes.

- indirectly, virtually the entire population of the area will benefit from the roads, improved agricultural services, forestry and soil conservation programmes, improvements in the irrigation infrastructure, and from better marketing practices which will be promoted by the project.

f. Project Components

i. Rural Roads

This component aims to improve the existing network of roads, to connect the area to coastal markets and to integrate the zone of Yacuami into the Saraguro area.

The survey and construction of 38 kms of new road is planned:

1. Sacama to Cerro Condorcillo, 16.5 kms, would continue an existing section of road toward, the east. The proposed section would be of direct support to cattle grazers on the moorlands and the government has committed itself to a further extension of this section, to reach the Amazon town of 28 de Mayo. The project would support an initial survey of the extension.
2. Lushapa to las Conchas, 14 kms, would connect the existing road system of the area to the system that descends to Guayaquil and the coast via Elpalme
3. Oñacapa to Gurudel, 2.5 kms, and Canal T. de Oña to San José, 5 kms, would connect isolated parishes within the area to the existing road system.

Road improvement and repair would be carried out over 75 kms and would lower transport costs and improve access, especially during the rainy periods, to much of the area.

Road maintenance is planned for 360 kms per year, both for new and existing roads.

32 mts of bridges would be built within this plan.

The total cost of the component is US\$ 3.6 million, of which 80% is investment and 20% is annual cost, including maintenance.

ii. Production Support Services

ii.a. Irrigation

This component aims to reach 890 has and 1050 beneficiaries, improving water supply and reducing erosion problems.

It aims to rehabilitate 45 kms of canals, develop 40 demonstration plots that use aspersion equipment and offer technical assistance to another 200. Additionally, 10 irrigation modules of those operated currently by INERHI would be incorporated into the project.

A survey of INERHI's systems should be carried out. Field work for this mission allowed a reasonable estimate to be made, and a complete survey will be available to the Evaluation Mission in January 1992.

ii.b. Use and Conservation of Natural Resources

This important component is based on three lines of action: i) agroforestry and silvopastoral management, ii) forestry for timber production, and iii) management of native woodlands.

The first line of action consists of planting shrubby species and building field drainage ditches. The shrubs would help protect the ditches, and would be a source of firewood and forage. The project would donate the necessary plants while labour would be compensated with rations donated by the World Food Programme. During the project 4,175 families will be attended with 250 plants per ha and 176,725 rations.

Pine forest for timber (3,000 has) will be planted within the second proposed line of action on both communal and private plots of land. Soils that are not appropriate for farming but are adequate for forestry will be used, especially on the steepest slopes.

The management of native woodlands is particularly directed towards conserving the subtropical rain forest. Timber extraction rates of 1m³ ha/year will be achieved by felling only trees with a diameter of over 40 cm. Tree borders will be planted round existing pastures, in a proportion of 0.1 has of trees per ha of pasture, to reach a total in five years/ha of new plantations per farm and the incorporation of 360 farms.

The project's environmental impact will be achieved by complementing the previously mentioned forestry and soil management actions with the following activities designed to evaluate impact and control major water caused damage:

1. An inventory of current natural resources, using satellite information, aerial photographs and field work. Follow-up studies will allow an appreciation of resource dynamics and will permit project activities to be adjusted if necessary.
2. Representative farms will be selected to establish demonstration and monitoring units. As well as incorporating the proposed techniques, these units will serve as research bases and for involving farmers in the design of the component.
3. The river courses of Uchuncay, West and East Naranjo and Guanacay need protection of their surrounding areas, particularly where they run through settlements. A variety of simple techniques, including stone wall and live terracing, would be used to protect about 20 kms.
4. Gullies in formation also require control by protecting or altering water courses. The techniques are simple and would be applied principally in the central zone, covering about 80 has.
5. Training for the above activities will be incorporated into the wider activities of agricultural extension. Two levels are envisaged: the training of technicians who in turn would train field workers, and the training of farmers in the techniques to be used.

The cost of the agroforestry and silvopastoral actions is US\$ 1.26 million, while the cost of the complementary activities is around US\$ 200,000.

ii.c. Agricultural Technical Assistance and Extension.

Integrated technical assistance will be provided to 4175 small farmers of both sexes, and to 1230 women, for the execution of small-scale production projects throughout the Project area. To accomplish this, the small farmers and women will be organized into groups, using methodologies of individual, collective and mass communication.

In order to ensure the adoption of the technologies proposed (agricultural, irrigation, resource conservation, credit, etc.), this component will work in close collaboration with the training and rural credit components. Furthermore, 208 integrated agricultural demonstration farms (FIDAs) will be established on small-farmer plots.

This component will work out of the Department of Production Support Services of the UEP, through three offices in Saraguro, Manú and Yacuambi, to serve the three zones of the Project. Activities will be carried out by 5 professionals and 23 small-farm agricultural extension agents (PAC), who will have the training and the resources required to carry out their duties efficiently.

The cost of this component totals US\$1.03 million and includes office equipment, equipment for communications and demonstrations, vehicles, operating costs and salaries. Once Project activities are completed, it is expected that costs will be covered by small farmer organizations (operating costs) and the government (replenishment of investments).

ii.d. Validation of Technology

This component will introduce a service into the area designed to test new and traditional seed varieties, experiment new crops and vegetables, define correct levels of fertilization

and liming, test grass species and management techniques for pastures, and adapt recommended livestock management practices to the area.

Special emphasis will be placed on irrigation and soil and vegetable resource conservation techniques.

On-farm methods will be used with full farmer participation. The component will be carried out by CATER, who have many years of experience both in-field scientific measurement and in systematizing farmers' knowledge, experience and evaluation of technology. CATER will continue to operate in the area after the end of the project, hence this component will help establish a permanent service.

The total cost of the component is around US\$ 0.6 million.

ii.e. Marketing and Local Agroindustry

This component has three aims:

1. To foster a greater transparency in the local markets, particularly in the trading of cattle, milk products, vegetables and potatoes;
2. To improve the negotiating position of local producers; and
3. To achieve a greater aggregated value for producers in the area through processing and improving presentation of produce.

Three rural cheese plants will be installed, using as raw material on-farm processed curds (fresh cheese); three simple warehouses for vegetables will be built and three centres for the distribution of agricultural inputs which will coordinate their activities with the savings and loans cooperatives managing the credit component.

In the Saraguro cattle market, scales will be installed and a small information office will be maintained to advise farmers on current prices.

The cost of the component is US\$ 0.211 million, excluding the credit requirements which are accounted for in the appropriate place.

iii. Training and Organization

Within development projects, general training programmes have often functioned separately from the technical training carried out by extension workers. One problem caused by this has been that social organization and technical improvement have been isolated from each other. In order to achieve one of the fundamental objectives of the project, which is that farmers' organizations direct the development of the production processes in the area, the training and organization component proposes two specific objectives:

1. To assure that the technical assistants and directors of the project understand its philosophy and criteria; that they have knowledge of the peasant economies and people with whom they are working; and that they share a common methodology with regard to the organizational aspects of their work.
2. To improve the peasant organizations' management capacity and assure that each component establish working models of its proposals managed by the communities' action support committees.

The component requires a training centre to be installed and proposes a total of 49 formal courses, 135 workshop courses and 35 study and visiting grants for the beneficiaries, as well as 43 workshop courses and 41 study and visiting grants for technical assistants.

The component will have a coordinator, two educators (one specialized in environmental problems), three promoters from the population and a specialist in audiovisual techniques. It will finance 2 vehicles and the necessary equipment.

The cost of the component is US\$ 0.76 million.

iv. Women's Development

Women play an increasingly important part in production, but are often at an economic disadvantage. As well as fomenting their active participation in the production components of the project, this component aims to improve the income which they control by organizing women's groups to support non-traditional production activities.

Eighty groups will be formed in the first four years of the project, with a projected 1,230 members. The suggested activities for the groups' members are: textile workshops (6), community shops (20), fruit and native tree plantations (12), guinea pig production (118 units-guinea pig is a highland and local delicacy appreciated by the rural population as a protein supplement), small pig production units (96), chicken raising units (50), sheep raising modules (69), and a local garlic processing plant.

Both individual and collective management forms are envisaged. Ninety per cent of the financing for the activities would come from loans from community development funds (FODECO's), to be made available and to be run either by the formal community organization or by the women themselves; 212 FODECO's will be created, and technical assistance will be the responsibility of peasant promoters (PAC's), many of whom will be women.

To support the proposed activities, a small unit will be created within the social promotion department of the project executive unit (UEP), and some actions will be helped by outside advisors or by CATER.

The total cost of the component is US\$ 1.2 million, of which 59% is investment and 41% is in annual maintenance costs.

v. Credit

The aim of this component is to satisfy the needs of the 4,175 producers who will participate in the actions contemplated by the agricultural and livestock development components. At the same time, it is designed to promote local savings so that other types of loans may be made available.

The local savings and loans cooperatives have been chosen to execute the component because a sufficient degree of administrative efficiency can be assured and because the cooperatives will become the property of the project's beneficiaries (together with their existing members), who will participate in the control of the cooperatives' activities in the future.

The cooperatives will receive the support of the Ecuadorean office of CONCAF, the German Confederation of Cooperative Institutes, and the BNF will act as a second level and control bank. A loan guarantee fund is proposed, which would help give security to this innovative system.

The component envisages different lines of short- and medium-term credit. These have been projected on the basis of the proposals for technical innovations contained within the project and the approval of loans would depend on requests being in line with the project's philosophy. The lines thus include finance for investments in agricultural equipment, irrigation, soil improvement and improved livestock, as well as for inputs for vegetable production, some traditional crops and pasture and livestock management. They also include the finance necessary for marketing. Other activities such as small local industry could be financed, subject to project approval.

Beneficiaries would be accepted subject to a recommendation from their communities. The proposed procedures and specific conditions and arrangements would be incorporated into guidelines which would form a part of the agreement to be signed by the cooperatives, the BNF and IFAD.

The total cost of the component is 3.72 million dollars, of which 2.99 million is to finance the proposed agricultural activities, 0.1 million is for marketing, 0.3 million is for the guarantee fund and 0.39 million is to finance training, operating and equipment costs.

vi. The Project Management Unit (UEP)

The management unit will have its centre in Saraguro. A small but highly professional team is envisaged, as most activities will be carried out by establishing agreements and contracts with specialized institutions. The unit will consist of a project director appointed by the SDR with IFAD's approval, and four departments:

1. Support Services for crops, livestock, marketing, forestry and resource conservation
2. Credit and financial analysis
3. Social matters (Social promotion, training, women, and cottage industry)
4. Technical and engineering

A local director will also be appointed for the Yacuambi zone.

An office with some 400 m² of construction will be built and equipped. The total cost is US\$ 1.1 million, of which 86% are operating costs.

vii. Monitoring and Evaluation System

The aims of the MES would be to keep the project management informed as to progress, to systematize the experiences and lessons of the project, to analyze its effects and impact, and to help improve the national Agricultural Project Monitoring and Evaluation System.

The monitoring system would use as its basis the project's annual working plan, and would measure the degree to which specific targets are reached, detect public opinion concerning the project's progress, note the project's achievements, and give warning of errors committed in the execution of activities.

The evaluation system would measure the degree to which the effects of the project coincide with its most general objectives. The principal source of information would be fieldwork and the opinions of the target population, for which surveys and interviews would be carried out.

A special Monitoring and Evaluation Unit will be established and would function independently of the Executive Unit, as a direct dependency of the SDDR.

The total cost of the component is US\$ 0.42 million.

g. Project Costs

The total cost of the project is estimated at US\$ 16.1 million, including physical contingencies. Of these, that corresponding to imported goods and services is US\$ 2.1 million, or 14% of the total cost. The base costs for the project were estimated at March 1991 prices; contingency allowances are 6.7% of the cost, varying between components.

The detail of the cost structure is give in Tables 12 to 14.

TABLE No.12
PROJECT COSTS BY COMPONENT AND COSTING CATEGORY - DOLLARS

COMPONENTS	C O S T I N G C A T E G O R Y							TOTAL	%
	I	II	III	IV	V	VI	VII		
1. CREDIT									
1.1 PRODUCCION CREDIT		2,990,389						2,990,389	
1.2 MARKETING CREDIT		37,485						37,485	
1.3 GUARANTEE FUND		302,788						302,788	
1.4 RUNNING COSTS			55,837		38,800	299,142		393,779	
SUBTOTAL		3,330,662	55,837		38,800	299,142		3,724,441	24.8
2. PROD. SUPPORT SERVICES									
2.1 IRRIGATION PROGRAMME	919,614		50,141	32,000		282,985		1,284,740	
2.2 TECH ASSIST. AND EXT.	10,000		137,243	173,500		706,747		1,027,490	
2.3 NAT.RESOURCES AND FORESTRY			86,225	54,000		947,000	173,783	1,261,008	
2.4 TECH.TRANSFER AND VALID.	35,450		58,800	32,500		468,391		527,191	
2.5 MARKETING PROGRAMME			30,289			111,956		210,195	
SUBTOTAL	965,064		362,698	292,000		2,517,079	173,783	4,310,624	28.7
3. PEASANT ORGAN. AND WOMEN'S PROGRAMME									
3.1 WOMEN'S ACTIVITIES AND EXT.									
3.2 CAPACITACION PROGRAMME	12,000		162,143	64,000	529,522	317,203		1,072,869	
SUBTOTAL	12,000		196,629	96,000	926,696	597,956		1,829,280	12.2
4. ROADS									
4.1 ROAD BUILDING	2,225,037		654,936			727,663		3,607,636	
SUBTOTAL	2,225,037		654,936			727,663		3,607,636	24.0
5. PROJECT DIRECTORATE									
	40,000		113,700	78,000		892,868		1,124,568	7.5
6. MONITORING AND EVALUATION									
			27,885			224,610	165,587	418,082	2.8
BASE COST	3,242,102	3,330,662	1,411,685	466,000	965,496	5,259,317	339,370	15,014,631	100.0
CONTINGENCIES	324,210		141,169		57,930	525,932	33,937	1,083,178	
TOTAL	3,566,312	3,330,662	1,552,854	466,000	1,023,426	5,785,248	373,307	16,097,808	
PERCENTAGES OF TOTAL COST	22.15	20.69	9.65	2.89	6.36	35.94	2.32	100.00	

TABLE No. 13
PROJECT COSTS BY COMPONENTS - YEARLY REQUIREMENTS - DOLLARS

COMPONENTS	C O S T O S P O R A R O S						TOTAL	%
	1	2	3	4	5	6		
1. CREDIT								
1.1 PRODUCTION CREDIT	192,512	360,585	678,160	975,483	753,853	29,796	2,990,389	
1.2 MARKETING CREDIT	36,259	72,153	(24,985)	(11,662)	(15,652)	(18,628)	37,485	
1.3 GUARANTEE FUND	22,877	43,274	65,318	96,382	75,820	1,117	302,788	
1.4 RUNNING COSTS	152,412	54,468	51,668	45,904	45,904	43,423	393,779	
SUBTOTAL	404,060	530,480	770,161	1,106,107	857,925	55,708	3,724,441	24.81
2. PROD. SUPPORT SERVICES								
2.1 IRRIGATION PROGRAMME	170,351	279,045	361,901	264,208	188,351	20,883	1,284,740	
2.2 TECH ASSIST. AND EXT.	288,890	162,173	157,349	139,718	143,269	136,091	1,027,490	
2.3 NAT. RESOURCES AND FORESTRY	234,021	240,469	261,898	268,064	191,209	65,347	1,261,008	
2.4 TECH. TRANSFER AND VALID.	126,785	84,065	85,745	85,745	76,865	67,985	527,191	
2.5 MARKETING PROGRAMME	66,741	63,278	20,163	20,163	20,163	19,688	210,195	
SUBTOTAL	886,789	829,030	887,056	777,898	619,857	309,995	4,310,624	28.71
3. PEASANT ORGAN. AND WOMEN'S PROGRAMME								
3.1 WOMEN'S ACTIVITIES AND EXT.	171,187	229,096	232,700	196,090	152,463	91,333	1,072,869	
3.2 CAPACITATION PROGRAMME	182,537	147,113	139,214	121,263	87,852	78,431	756,411	
SUBTOTAL	353,724	376,209	371,914	317,353	240,316	169,764	1,829,280	12.18
4. ROADS								
4.1 ROAD BUILDING	882,463	1,070,042	776,711	607,692	142,730	127,998	3,607,636	
SUBTOTAL	882,463	1,070,042	776,711	607,692	142,730	127,998	3,607,636	24.03
5. PROJECT DIRECTORATE	341,511	187,811	148,811	148,811	148,811	148,811	1,124,568	7.49
6. MONITORING AND EVALUATION	113,560	53,687	53,687	64,774	53,687	78,687	418,082	2.78
BASE COST	2,982,107	3,047,259	3,008,340	3,022,636	2,063,325	890,963	15,014,631	100.00
CONTINGENCIES	246,287	235,771	212,127	187,427	117,557	84,007	1,083,177	
TOTAL	3,228,394	3,283,030	3,220,467	3,210,063	2,180,882	974,970	16,097,808	
PERCENTAGES OF TOTAL COST	20.05	20.39	20.01	19.94	13.55	6.06	100.00	
COST WITH 3% ANNUAL SCALING	3,276,820	3,382,260	3,367,573	3,407,044	2,349,430	1,066,075	16,849,202	

TABLE No.14
IMPORTS WITHIN THE PROJECT COSTS - DOLLARS

COMPONENTS	BY YEARS						TOTAL US\$
	1	2	3	4	5	6	
CREDIT	54,850	51,203	108,506	174,611	174,140	9,088	54,850
WORKING COSTS	17,711	37,000	29,000	5,000	5,000		535,259
LOANS FOR INPUTS	153,700						229,700
TECH. ASSISTANCE AND EXT.	55,800						55,800
VALIDATION OF TECHNOLOGY	23,160	3,750					26,910
MARKETING	92,300	8,000	8,000				108,300
FORESTRY AND NAT. RECOUR.	63,540						63,540
CAPACITATION	62,900		16,000		16,000		94,900
WOMEN'S DEVELOPMENT	64,739	4,200	20,900	4,900	2,450		97,189
IRRIGATION INFRASTRUCTURE	653,249						653,249
ROADS	24,400						24,400
MONITORING AND EVALUATION	112,700	24,000					136,700
PROJECT DIRECTORATE							
TOTAL IMPORTS (1)	1,379,049	128,153	182,406	184,511	197,590	9,088	2,080,797
TOTAL BASE COST (2)	2,982,107	3,047,259	3,008,340	3,022,636	2,063,325	890,963	15,014,630
PERCENTAGE (1/2)	46.2	4.2	6.1	6.1	9.6	1.0	13.9

h. Project Financing

i. Project Costs

The project will be co-financed by the Government of Ecuador, IFAD and the WFP. Table 15 shows the financing plan, in which the proposed IFAD loan would be US\$ 12 million, covering 74.5% of the costs, the WFP would donate US\$ 0.7 million, or 4.4% of the cost, and 21.1% would be covered by the Ecuadorean Government.

TABLE No. 15
PROJECT FINANCING - DOLLARS

COMPONENTS	FIDA	GOVERNMENT	PMA	TOTAL
TECH. ASSIST. AND EXT.	536.743	490.748		1.027.491
TECH. TRANSFER AND VALID CAPACITACION	195.600	331.591		527.191
WOMEN'S ACT. AND EXT.	515.373	124.751	116.286	756.410
MARKETING PROGRAMME	897.265	175.604		1.072.869
NAT.RESOURCES AND FORESTRY	145.639	64.555		210.194
OPERATION COST OF CREDIT	458.008	214.281	588.719	1.261.008
FINANCING CREDIT	263.537	130.243		393.780
IRRIGATION PROGRAMME	3.330.662			3.330.662
ROAD BUILDING	1.149.855	134.884		1.284.739
MONITORING AND EVALUATION	3.059.072	548.563		3.607.635
PROJECT DIRECTORATE	418.083			418.083
CONTINGENCIES	692.500	432.066		1.124.566
	337.663	745.514		1.083.177
TOTAL	12.000.000	3.392.800	705.005	16.097.805

FIDA INCLUDES: INVESTMENTS, CONSULTANTS AND WAGES COSTS OF UEP.

ii. Recurrent Costs

After the project execution ends, recurrent costs for long term components would amount to US\$ 0.28 million. The detail is given in Table 16.

TABLE No. 16
RECURRING COSTS BY YEAR AND COMPONENT - DOLLARS

COMPONENTS	ANNUAL COSTS (AVG. FOR YEAR 7 TO 20)
CREDIT	41 423
EXTENSION AND TECH.ASSISTANCE	52 437
TECHNOLOGY VALIDATION	11 892
IRRIGATION	17 530
ROADS	139 998
WOMEN'S PROGRAMME	20 404
TOTAL	283 684

Financing for recurrent costs would come from the following sources: credit costs would be covered by the savings and loans cooperatives; MAG and the peasant organizations would finance the costs of agricultural extension; CATER would be responsible for continuing the activities of validation of technology; wages and mobilization costs for personnel continuing work with the women's groups would come from the SSDR and the groups themselves; the municipality of Saraguro and the local population would be responsible for the costs of future road upkeep; and recurrent costs in irrigation would be paid by the local users' water boards.

Those recurrent costs to be covered by State bodies thus amount to US\$ 178,300. The Ecuadorean Government will be asked to guarantee financing for this amount.

i. Project Organization and Administration

i. Institutional Framework

The institutional framework that would be adopted by the project is that which is currently in place in Ecuador, whereby the SDR is responsible for the execution, supervision, monitoring and evaluation of all rural development projects and programmes. The Undersecretariat is thus the executive institution of the project, responsible for its implementation and for coordinating the work of the state, social and private bodies that will participate in it.

The participating institutions will be:

1. The Andean Centre of Rural Technology, CATER, in validation of technology, training of extension workers and advising women's non traditional production projects.
2. The National Development Bank, BNF, as control institution of the credit component.
3. The Ecuadorean water Resource Institute, INERHI, co-participating in irrigation system improvement and in on-farm investigation and technical assistance.
4. The Southern Development Programme (PREDESUR) in validation and transfer of technology for cattle management.
5. The Saraguro Municipal Council in road building and resource conservation
6. The Department of Extension and Agricultural Assistance (DEAT) of the Ministry of Agriculture in all aspects of technology transfer.
7. The Saraguro Indian Organizations (FIIS, CIOIS) in social and artisan promotion, and the communities in the management of the FODECO's.
8. The Savings and Loans cooperatives (MEGO of Loja and CACPE of Zamora), responsible for all credit operations with farmers.
9. The Ecuadorean office of the German Confederation of Cooperative Institutions (CONCAF), in all aspects of training in the credit component.
10. The NGO's CARE in forestry and resource conservation and Plan Internacional in roads and Irrigation infrastructure.
11. The local Technical High School ("Celina Vivart") in forestry.

ii. Project Management

The SDR, as executive institution, will create a local Project Management Unit which will be supported by a Project Advisory Committee, in representation of the beneficiaries.

The organizational structure of the project thus relies on the SDR, whose national directorates would be responsible for defining overall policy, coordinating at a national level with other institutions, approving the annual working plans, monitoring and evaluating the project, and for financial control and transfers.

The Project Management Unit would be located in the town of Saraguro. It would be responsible for all aspects of management,

1. preparing annual working plans and supervising their implementation;
2. negotiating and preparing the agreements to be signed with local and regional participating institutions;
3. giving conceptual and methodological direction to each component;
4. receiving and studying initiatives which arise during the course of the project; and
5. administering the project's resources.

The SDR would appoint the project Director to IFAD's satisfaction. Each of the PMU's departments will have a coordinator and the necessary personnel for coordinating or implementing the component activities within its responsibility. The departments will also have a special responsibility for studying new initiatives and for proposing the consequent adjustments in the annual working plan. The task of the department of credit and financial analysis will be oriented particularly towards giving its technical support to the development of such initiatives.

The PMU will also have an administrative unit, responsible for managing the project's funds and equipment. The SDR's monitoring and evaluation service will maintain an officer in the area.

iii. The Advisory Committee

This committee would be chaired by the project director and would be constituted by:

1. representatives of the population (FIIS, CIOIS, the Indian population of Yacuambi and the blanco-mestizo population of the northwestern zone;
2. representatives of the participating institutions;
3. representatives of the Saraguro and Yacuambi municipal councils;
4. the project's accountant and evaluation officer.

The functions of the advisory committee would be to:

1. monitor and evaluate the project's activities and propose corrections when necessary;
2. monitor the use of funds;
3. assign priorities to different activities, and propose those which should be included in the annual working plans;
4. discuss and approve the annual working plans.

The committee would meet every three months and convocation would be formal

iv. Support Committees

A structure of local and specific committees will be established to support some of the project's principal activities. These committees are:

The **sub-committee for credit**, which would be constituted by the project director, the PMU's credit coordinator, representatives of the BNF and of the savings and loans cooperatives and two members delegated by the beneficiaries. This sub-committee would oversee the activities of the cooperatives and would review loan requests

The **technical sub-committee** would include the coordinators of the PMU's Engineering and Support Services Departments, representatives of the participating institutions and three members delegated by the beneficiaries. Its main function is to adjust technical proposals to the needs and conditions of the region. It would also coordinate with the sub-committee for credit.

Local committees, consisting of groups of communities will be supported where they exist and organized where not. The women's groups will be encouraged to participate in these committees, as should at least one of the local promoters. The responsibilities of the local committees with regard to the project will be:

1. To participate in the elaboration of the annual working plans.
2. To supervise the administration of the FODECO's in their areas of influence.
3. To monitor the progress of each component in their areas and suggest corrections in the case of delays.
4. To involve the population in the project's activities, receive and transmit local opinion and coordinate local action.

The PMU would be responsible for making all the relevant information available to the local committees and the evaluation officer should maintain an archive of their acts, observations and proposals.

v. Regional Assemblies

Each local committee will delegate members to attend three monthly regional assemblies to be held in each of the three zones. The function of these assemblies is to act as a support mechanism for the local committees.

j. Execution of Project Components¹

The execution of the project will depend on four organizational elements: the PMU, which will coordinate all activities; the communities, which will organize and coordinate work within their jurisdictions; professionals working in technical support, who will in most cases be constituted by the participating institutions; and the local peasant promoters, who will be paid by the project to work alongside the participating families.

Each component has its own organizational structure, though in some cases the structures are closely connected, in order to achieve the necessary degree of coordination between related

¹ The description of the activities of the component "The Project Management Unit" appears in the item E.i.

activities. A brief description is given below of how each component's activities are to be implemented.

I. Credit

The credit programme would be managed by the two local savings and loan cooperatives, Manuel E. Godoy in Loja and CACPE in Zamora. As well as administering this credit programme, the cooperatives would require that beneficiaries establish a minimum level of savings (around 15 to 20 US\$) in order to generate their own funds for consumer loans. Loan requests would be based on investment plans, approved by the technical extension service, and on personal recommendations given by community representatives. Mortgage guarantees would not be asked for, though personal guarantors would be, and in most cases the equipment, cattle or crops for which the loans are asked would also be offered as collateral. Local interest rates would be those set by the National Monetary Board (Junta Monetaria); these rates currently are approximately in line with inflation and devaluation rates; real interest rates are thus zero.

Loan requests would be presented after discussion with the technical services. Training at a community level in the organization of savings and loan cooperatives and in the management of financial plans and loans will be given directly by CONCAF, which will also train technical officers and promoters to continue local training in small project financial evaluation. Local credit committees would be formed in the more active communities.

The cooperatives would be required to establish special credit committees, with the participation of representatives of the PMU, in order to review loan requests. Loans of over US\$ 1,000 would have to be reviewed and approved by the credit department of the PMU, which would set up its own committee for this purpose; this committee would include delegates from the Project Advisory Committee, the BNF and the cooperatives. The number of families who request loans of over US\$ 1,000 is not expected to exceed 18% of the total number of beneficiaries.

Funds would be advanced to the cooperatives via the BNF, which would act as a secondary control. The cooperatives would open accounts in the BNF and new funds would be deposited after justifying the use of those already received on the basis of projected requirements. Approval of the previous use of funds and of the anticipated requirements would have to be given by the credit department of the PMU. A special guarantee account would also be established in the BNF; the cooperatives would be required to deposit in this account sums equivalent to 10% of the loans extended.

Interest and capital repayments would be used by the cooperatives to refinance a revolving fund for the project; in calculating the cooperatives' anticipated requirements, the BNF would take into account the moneys that each cooperative should have recovered in repayments.

After the sixth year, no new funds would be required of the project and during the following seven years repayments should be surplus to the future requirements of project generated activities. This surplus would be returned to the BNF, which would have access rights to the special guarantee accounts, in the case of defaults. Once the repayments of the initial loans have terminated and the revolving funds have stabilized, the moneys remaining in the special guarantee accounts would be returned to the cooperatives.

ii. Production Support Services

ii.a. Irrigation

The engineering department of the PMU would assume general responsibility for this component and would support beneficiaries directly with technical studies and the implementation of demonstration modules. INERHI would be responsible for overseeing the necessary engineering works; it would coordinate with the PMU and works would be carried out by local contractors. The aspersion systems would be installed by the beneficiaries themselves, with the supervision and training of the PMU.

ii.b. Use and Conservation of Natural Resources

Central responsibility for the logistics and training required in this activity will remain with the support services of the PMU, which will have a component coordinator and 3 extension workers. The production of pine tree plants will be contracted with the Ministry of Agriculture's nursery, and native shrub plants will be bought from the Saraguro Technical School's nursery; the students will help give in-field support to farmers. Community nurseries will be encouraged, in agreement with CARE.

Labour for the forestry, gully and river bed protection activities will be contracted with the communities, with payment in the form of WFP rations.

ii.c Agricultural Technical Assistance and Extension

This component would be coordinated by the support services department of the PMU. Agricultural extension would be carried out by the Directorate of Technical Assistance and Extension (DEAT) of the Ministry of Agriculture, and by 23 local peasant promoters (PAC's). The DEAT is a specially created directorate, designed to improve the Ministry's service to rural development projects; it would give intensive training, monitoring and support to the local promoters.

The extension service would work closely with the credit programme in order to analyze projects in both technical and economic terms, and insofar as possible both would work with groups of farmers rather than at an individual level. At least a third of the local promoters would be Quichua-speaking women and the extension technique would be based on demonstration plots in each community.

ii.d. Validation of Technology.

The validation process includes scientific measurement and farmer participation. Thus, the demonstration plots previously mentioned would simultaneously be used for validation, while centralized plots would be used for controls, initial experiments and the reproduction of sufficient seed for trials in the communities.

The component would be carried out by CATER, in coordination with the support services of the PMU, and trial results would be shared with the extension services. CATER would be responsible for presenting an annual research programme, and for controlling, evaluating and presenting the results of the planned experiments. The research programme would be based on the technology proposed in the extension component (resumed in the next chapter), and would include new initiatives that arise during the execution of the project.

Technology for local industry, contemplated in the women's programme, would be examined by evaluating relevant experiences, either in the project area or in similar situations.

ii.e. Marketing and Agroindustry

Responsibility for this component will rest directly on the department of support services of the PMU, which will designate a technical officer for marketing and will contract specialists when necessary. The National Marketing Board (ENAC) would act in an advisory capacity.

Young farmers would be trained in improved milk and cheese processing techniques, in better management of vegetables for marketing and, with CATER's support, in post-harvest grain and tuber storage.

iii. Training and Organization

Training is an integral part of all of the project's activities. The function of this component is thus one of methodological and logistical coordination and of giving special training to the officers and promoters who will be working directly with the population. This training will include study of the project's philosophy and objectives, as well as instruction in appropriate teaching methods. A Training and Communication Unit will be established within the Social Promotion Department, which will be responsible for contracting specialists, for coordination and for some degree of direct support.

The programme will be organized in modules; CATER will be responsible for those modules within its technical area of competence; CONCAF will be responsible for the credit modules, and other institutions and specialists will be contracted for specific themes such as marketing, water management, and others.

iv. Women's Development Programme

Responsibility for this programme will lie with a small specialized unit within the PMU's Social Promotion Department. The unit will consist of one officer and three zonal assistants and it will work through five local women promoters (PAC's). Local consultancies will be established to support specific investment proposals, while an international consultancy will be contracted to help organize the unit.

The FODECO's will be administered by the communities. Depending on organizational levels, either the Cabildos or the Women's Groups will be the responsible bodies. The local committees, consisting of groups of communities, would oversee this administration, while the credit department of the PMU would review the major proposed projects.

v. Roads

Under agreement with the UEP, the Municipal Council of Saraguro will be the responsible body for the activities within this component. The project will finance the acquisition of further equipment for the municipality's machinery pool and will help strengthen its Roads Department.

The SDDR will contract local firms for the building of new roads and the PMU will be responsible for overseeing these contracts.

vi. Monitoring and Evaluation

The SDR has established a two-tier system of monitoring and evaluation. A regional monitoring unit (MU) reports both to the project director and to the SDR's Monitoring and Evaluation Directorate. The objective of this system is to provide the project director with management information, while maintaining the independence required for evaluation.

The SDR's directorate would be responsible for providing the MU with IFAD's guidelines for information and indicator systems; it would also be responsible for the execution of a baseline study, special studies, and the mid-term and ex-post evaluations which would be carried out by an independent body, possibly by the Rural Development Master's Programme of Loja University.

k. Beneficiary Participation

The Saraguro Indians are highly organized, and the project has been designed to ensure that their organizations participate in every level of planning, control and execution. Specific attention has been paid to ensuring that each organizational level has a defined role to play in the project. Infra-communal women's groups and farmers' associations are responsible for defining their own activities, to be supported by the project; community leadership is responsible for coordinating these efforts, for organizing communal work and for defining and monitoring the project's activities within the community. Local committees are responsible for incorporating community interests into the Project's annual work plan for their area of influence, and for evaluating the project's activities and demanding corrective action when necessary. The regional federations (FIIS and CIOIS) are responsible for general direction and planning of the project's activities, via their participation in the advisory committee.

Three fundamental principles would guide the project's practice in relation to this participation:

- i. Non-interference in the nature of the local organizations, or in defining their "representativeness." These matters should be determined by the population.
- ii. Respect for different organizations and ethnic groups, and support of the principles of dialogue and co-existence.
- iii. Particular care in maintaining contact with base organizations (the communities and their cabildos).

F. PRODUCTION MARKETING AND PRICES

a. Agricultural Development

Within the different ecological conditions of the project area, agrarian structure, particularly in regard to land tenancy, gives rise to a set of different producer situations. The project strategies are formulated in order to respond specifically to each type of situation.

Four general situations have been detected. These are:

- i. The small livestock producer of the central Saraguro zone. Producers move some of their cattle to Yacuambi during the dry part of the year. The cattle are kept in pastures at a distance from the home village; cows are milked in the morning and the milk is curdled in the field while daily chores are carried out after which the curds are taken back down to the village. The peasants also have home plots for crop production. Within this situation, the presence of local irrigation systems in some parts of the zone marks an internal variation.

- ii. The small-crop farmers with poor soils and little or no access to irrigation water. This situation is to be found in parts of both the central and the northwestern zone. Grazing is scarce and livestock production is limited to sheep. Farmers in this situation will never be able to achieve economic self-sufficiency on the exclusive basis of agriculture, and will have to complement their income with other earnings. There is, however, room for improvement.
- iii. In the valleys of the same zones, some farmers have, or will have, access to irrigation water, characterizes a third situation. Plots are mostly small, but there is considerable potential for intensive cultivation, particularly of vegetables. An internal variation is marked between those farmers who currently have access to water and those farms on which irrigation is yet to be installed.
- iv. A fourth, completely different, situation is that of the Saraguro cattle raisers who have settled in Yacuambi. The natural resource base, apparently abundant, is very fragile and agricultural sustainability depends on taking measures to protect it.

These four situations, together with the variants noted for the first and third, give rise to six types of potential farming systems in the area. These systems have been modelled and a specific set of technological improvements has been designed for each.

Overall, the technical changes to be introduced refer to the following aspects:

- i. Soil conservation techniques, including terracing and the introduction of deadwall or live erosion barriers, as well as drainage systems.
- ii. Improved irrigation efficiency, modifying ditch size for traditional methods and introducing aspersion systems in some cases.
- iii. Better soil preparation using an improved, reversible ox plough.
- iv. Improving selection methods for local seeds and complementing the genetic base with new varieties.
- v. Improving manual weed control methods and rationalizing the use of chemicals.
- vi. The introduction of new grasses with high nutritive and growth potential
- vii. Management techniques for permanent pastures, including harrowing, fertilizing and introducing legume forage species among the existing native grasses.
- viii. Improved herd management techniques, including parasite control, vaccinations and mineral supplements.

Correct use of the above techniques will improve production and contribute to environmental recovery.

The system models are the following:

Model i. This model represents 676 small livestock producers of the central zone who do not have access to irrigation water. Average farm size is 6 has and herd size is around 8 head; the initial land use pattern includes 0.9 has under traditional crops, maize and bean, potato and peas, with 5 has of natural pastures. Soil conservation, liming and improved production techniques would allow crop production to double, while better management of the permanent pastures and the gradual introduction of 1 ha of improved pasture would yield a 50% increase in forage. Herd size would

increase to 13, receiving better care. Farm income would increase from US\$ 677 per year to US\$ 2,028.

Model II. Corresponds to 544 mixed cattle and crop farms with some irrigation. Average farm size is 4 has, of which 1.4 are currently given to crops (maize and bean, potato, pea and broad bean) and 2.5 to pastures. As well as soil conservation and technical improvements in existing crops, 0.4 has of onions would be introduced. Reduction of pasture area would be compensated by introducing 1 ha of alfalfa, with irrigation support.

Model III. Describes 968 farms without irrigation and with poor pastures. Farm size is 3 has, with an average of 5 sheep per family. 1.9 has of land are dedicated to traditional crops - maize and beans, potato, pea and wheat, and 1 ha is permanent pasture. Development would be based on the same crop pattern; using better techniques (soil conservation, better ploughing, seed and plant care), crop production would increase. Pasture management techniques including dung spreading, harrowing and light fertilizing would duplicate forage production, allowing sheep numbers to grow to 13 per family and wool production to increase by 2.5 kg per animal.

Model IV. Represents 1,387 families with an average of 1.8 has, of which 0.8 could be irrigated. Crop and vegetable production dominate land use, and better irrigation would allow two crops per year to be grown on part of the land (with pea as the second crop). Vegetable production would be expanded to occupy 0.3 has; garlic a known crop in the area, has been suggested and could be processed locally.

Model V. Corresponds to 240 families with an average of 1.2 has. Aspersión infrastructure would be installed for 1 ha. Development would be along similar lines to the previous model, though better irrigation techniques would give a greater medium- to long-term return on investment.

Model VI. Refers to 360 cattle grazers in the Amazon region. Average private land holding is 15.3 has, of which 10 are under pasture. Around 1 ha is dedicated to banana, manioc and sugar cane for home consumption. Management of the remaining forested area, as well as care of the surrounding subtropical rain forest, would be supported by the project's resource conservation service. Economic development is based on improvement of the existing pastureland, with better management of existing grasses and the introduction of proven high-yielding species within the existing grazing area. Herd size could reach 25 head with this proposal. Better herd management would permit increased milk and cheese production and the sale of 6 head per year.

The basic characteristics of the models are resumed in Table 17.

TABLE No.17
DESCRIPTION OF SYSTEM MODELS

MODEL	ZONE	NO.BENEFIC.	HAS.RANGE	AVG.AREA	ACTIVITY
I	B	676	5 - 10	6	LIVESTOCK(W/OUT IRRIG.)
II	A-B	544	2 - 5	4	MIXED (IRRIG)
III	A-B	968	2 - 5	3	CROP-SHEEP (W/OUT IRR.)
IV	A-B	1.387	.1 - 3	1.8	CROP (IRRIG)
V	A-B	240	.1 - 3	1.2	CROP (IRR.BY ASPERSION)
VI	C	360	5 - 20	15.3	LIVESTOCK

Expected changes in cropped areas and production are resumed in Tables 18 and 19.

TABLE No. 18
CHANGES IN OVERALL LAND USE - MAS.

CROPS	WHITOUT PROJECT	WITH PROJECT
MAIZE/BEAN	3,858	3,024
PEA	1,108	1,712
POTATO	533	472
BROAD BEAN (FABA)	54	109
ONION		975
WHEAT	194	97
GARLIC		416
KITCHEN GARDEN		78
FEED CORN		36
NET CROP AREA	6,052	6,052
AREA (INC.DOUBLE CROPPING)	6,107	7,243
SOWN PASTURES		2,748
TOTAL AREA SOWN	6,107	9,991

TABLE No. 19
INCREASE IN PRODUCTION VOLUME

PRODUCE	UNITS	WITHOUT PROJECT	WITH PROJECT
CROPS			
SWEET CORN	COBS	14,059,600	22,863,400
MAIZE	M.TON	868	1,690
BEAN (GREEN)	M.TON	717	1,302
BEAN (DRY)	M.TON	281	696
PEA	M.TON	311	1,039
POTATO	M.TON	1,332	2,594
BROAD BEAN	M.TON	82	326
ONION	M.TON	0	5,095
WHEAT	M.TON	97	126
GARLIC	M.TON	0	1,456
TREE TOMATO	UNITS	0	3,900,000
BABACO	UNITS	0	312,000
VEGETABLES	M.TON	0	3,120
BANANA	M.TON	540	490
MANIOC	M.TON	144	288
SUGAR CANE	M.TON	1,044	1,350
FEED CORN	M.TON	0	20
LIVESTOCK			
MILK	LTS	3,207,960	13,616,640
BEEF	KG	409,972	976,484
MUTTON	KG	16,464	75,504
WOOL	KG	2,672	16,940

The Table 20 shows the internal rate of return in each model and the cost-benefit ratio. The data confirm the expected effect of the production improvements shown previously.

TABLE No. 20

MODELS	NET PRESENT VALUE			IRR	RATIO B/C
	PRODUCTION INCREASE	COSTS	NET BENEFITS		
MODEL 1	5,251	1,836	3,414	111.20	2.86
MODEL 2	7,262	3,206	4,056	109.00	2.27
MODEL 3	4,925	3,341	1,584	58.90	1.47
MODEL 4	13,415	7,316	6,099	255.50	1.83
MODEL 5	2,102	1,071	1,031	120.50	1.96
MODEL 6	5,989	1,100	4,889	248.80	5.44
TOTAL	38,944	17,871	21,074		2.18

b. Markets and Prices

The south of Ecuador is a net importer of foodstuff; at the same time, road improvements would permit produce to reach the important market of Guayaquil more easily. It is expected, moreover, that as tariffs are lifted between the countries of the Andean Pact, Ecuadorean produce will move in greater quantities towards Peru. It is thus foreseen that the regional, coastal and Andean markets would be able to absorb the expected increase in agricultural production with no difficulty.

Marketing infrastructure in the project area, however, is minimal and costs are high. On top of these costs, traders exploit the peasant producers, who frequently do not have access to accurate information about prices. These problems should be minimized, and product quality will be improved through the marketing activities of the project.

In general, the region has little influence over prices. Crop prices would not be influenced by the increase in supply. The increase in meat production, taken as a whole, would represent no more than 10% of the demand in Guayaquil. Cheese production would be directed towards Loja, which has a dynamic market for soft cheeses; were prices to fall for current cheese types, the processing plants could adapt their product and offer to new demands. During the last ten years, prices of the main livestock and vegetable products supported by the project have risen faster than average and this tendency is expected to continue.

G. BENEFITS AND JUSTIFICATION

The project would benefit 5,400 poor rural families, bringing credit for technology change, technical assistance, training and marketing support; 4,175 of these are the families of small farmers who would participate directly in the agricultural programmes, while 1,230 are the families of the women who would participate in the activities generated by the community development funds.

The project's emphasis on the adoption of a technological process oriented towards sustainable farming systems, on the conservation of natural resources, on a high level of participation of all the beneficiaries, particularly women, and on organizational and production systems which support the ethnic identity of the Saraguro Indians, should contribute substantially to defining a specific long-term process of development in the area. This "paradigmatic" contribution is not measurable, but it could have deeper significance than many of the more specific benefits that are hoped for. In the evaluation process, particular attention should be paid to the criteria by which the beneficiaries measure the effects of the project, in an attempt to observe the contribution made by the project's philosophy and concepts.

A return on the project's investment, however, would be evaluated within more clearly defined parameters.

Crop and livestock productivity is expected to increase substantially. The data previously given represent a growth of 426% in the gross value of agricultural production, with reasonable proportions between growth in traditional crops for home consumption, commercial crops and animal produce. These data are resumed in the Table 21:

TABLE No. 21
INDIVIDUAL YEARLY FARM INCOME - (IN DOLLARS)

MODELS	CURRENT SITUATION	WITH PROJECT		YEAR 20 / YEAR 0
		ANNUAL	INCREASE	
MODEL 1	708	1,999	1,291	2.82
MODEL 2	578	2,787	2,209	4.82
MODEL 3	318	906	588	2.85
MODEL 4	298	1,601	1,303	5.38
MODEL 5	204	1,631	1,428	8.00
MODEL 6	1,541	4,648	3,107	3.02
TOTAL	507	1,923	1,416	3.79

Local employment should also increase in each of the predominant systems. The data given in the Table 22 show an overall increase of 128% in on-farm agricultural employment.

TABLE No.22
ECONOMIC BENEFITS OF THE PROJECT

	THOUSAND US \$	%
BENEFITS TO FARMS	38,944	95.66
CHEESE PLANTS	348	0.85
FORESTRY	1,342	3.30
RESIDUAL VALUE OF FIXED ASSETS	16	0.04
RESIDUAL VALUE OF ROADS	61	0.15
TOTAL	40,711	100.00

Farm income is expected to rise on average by 379%. Proportional rises between different systems are closely related to irrigation. In the case of model 3, which has a much poorer resource base, income levels would still be below the poverty line; the proportional increase is nonetheless significant (285%) and compensatory migration would be greatly reduced. Women from these families could also participate in the FODECO-generated activities, which would provide additional income of between US\$550 and 950 per year.

Among the specific, non-quantifiable benefits to be expected, the following are salient:

- i. the reversing of current natural resource losses, in terms of soils and plants;
- ii. the social base would be improved, with greater women's participation and activity, and in the communities' capacity to support small production enterprises;
- iii. consolidation of the institutional base for future agricultural development, including savings and loans cooperatives controlled by the local farmers;

- iv. migration rates should be reduced, and migrants would be able to negotiate better wages as a result of better training;
- v. farmers would be able to negotiate better prices for their produce;
- vi. increases in family income should lead to improvements in health, education, nutrition and living conditions;
- vii. the direct and indirect improvements accruing from the rehabilitation and extension of the road system.

a. Economic Analysis

The economic analysis of the project's benefits is based on a 20-year projection; it has been calculated using the following values:

- i. On-farm production and cost increases; the incorporation of farms would be staggered through the six years of project execution according to the schedule given in Table 23. Economic projections are on that basis.

**TABLE 23
YEARLY INCORPORATION OF FARMS**

FARM TYPE	Y E A R						TOTAL
	1	2	3	4	5	6	
MODEL 1	101	135	169	203	68	0	676
MODEL 2	27	54	109	191	163	0	544
MODEL 3	145	194	243	290	97	0	969
MODEL 4	69	139	277	485	416	0	1,386
MODEL 5	0	5	36	60	72	67	240
MODEL 6	54	72	90	108	36	0	360
TOTAL	396	599	924	1,337	852	67	4,175

- ii. Profits from cheese processing plants.
- iii. Income from forestry, including the net present value of future benefits as of the 20th year.
- iv. The residual value of the fixed assets after 20 years is taken into account. The value of the assets in investments in roads is itemized separately.

The indicators used for the analysis are the Internal Rate of Return (IRR) on investment (both direct project investment and project generated farmer investment), the Net Present Value (NPV), and the Benefit to Cost ratio, which takes into account only the increments due to the project.

The assumptions used are the following:

- i. Prices correspond to local conditions during September 1991. It is assumed that inflation and devaluation rates will be approximately equal in the future (monetary and exchange rate risks are considered in the following section).
- ii. The opportunity cost of investment capital for Ecuador is assumed to be 12% in real terms.
- iii. A shadow price for labour has been used, given that regional underemployment leads to inconsistencies in the labour market. Current market labour prices have been reduced by 20%.

Project benefits after taking the capital opportunity cost into account are given in the Table 24:

Obviously, the benefits to farm production are preponderant and the project would show high profits if only this benefit were taken into account.

b. Profit and Sensitivity Analysis

From Table 22, the following indicators should be underlined:

IRR **27.28%**
 NPV **12,991 thousand dollars**
 B/C **1.47**

The critical values, at which profits would disappear given 12% capital cost, correspond to a 32% reduction in benefits or a 47% increase in project costs. In terms of production factors, agricultural inputs would have to increase 120% in order to eliminate the project's profitability, while labour costs would have to increase by 359%.

TABLE 24
 SENSITIVITY ANALYSIS OF PRINCIPAL ECONOMIC INDICATORS

	IRR	NPV (US\$ THOUSANDS)	B/C RATIO
1. FULL PROJECT	27.3	12,991	1.47
2. REDUCTION IN BENEFITS 10% 20%	22.8 18.1	8,920 4,849	1.32 1.17
3. INCREASE IN COSTS 10% 20%	23.2 19.7	10,219 7,447	1.34 1.22
4. DELAYS 1 YEAR 2 YEARS	23.0 17.2	10,098 5,137	1.40 1.24
5. COMBINED RISKS 1 YEAR DELAY BENEFITS -10% COSTS +10%	16.3	3,981	1.14
1 YEAR DELAY BENEFITS -20% COSTS +20%	9.7	(2,137)	0.93

c. Project Risks

i. Technical risks

The project's technical risks are considered to be low, given that:

1. the project proposals are designed to counteract the most serious production problems in the area; and
2. even if the proposed technological package is not adopted in its entirety, due to resistance to increased costs on the part of the beneficiaries, a certain degree of adoption is assured as the central elements of soil conservation and irrigation are heavily

subsidized. Future yield estimates are conservative and the sensitivity analysis shows that the project could support yields lower than those projected.

ii. Economic and Monetary risks

These are associated with the government's economic austerity policies, which could reduce the country's internal demand for foodstuffs and alter the terms of trade between agricultural produce and inputs. However, these policies have a real chance of succeeding, in which case the economic situation would stabilize considerably. At the same time, foodstuffs are expected to benefit from a more dynamic regional market after tariffs are lifted between the Andean Pact countries.

iii. Institutional Risks

These are considered low as institutional adjustments have been made on the basis of the SDR's experience. Wage levels supported by the project should assure the presence of competent professionals within the proposed institutional structure.

Two regional institutional structures are particularly important for implementing the project and for sustaining activities afterward. These are CATER and the Savings and Loans Cooperatives. Both have solid local experience and good reputations. CATER is adequately equipped in human and structural terms to meet the challenges of the project, while a plan of institutional strengthening and training has been designed for the cooperatives.

d. Impact on Rural Women

The project has been designed bearing in mind that the women of the area are important agricultural producers (as well as household managers). Their organizational structure, however, is relatively weak. On the principle of non-interference, it is clearly up to the women to decide the extent to which they desire to have their separate organizations. The project will promote their organization and support the organizations which they define as appropriate. They will be the principal beneficiaries of the community development funds, and their active presence will be looked for in the management of the project's technical and credit programmes.

e. Environmental Impact

This project is, essentially, designed to sustain and develop the natural resource base, as this is considered to be the central issue in developing agriculture in the region.

Soil erosion and deforestation in the highlands and the fragility of the sub-tropical rain forests are the specific environmental issues on which the project's activities focus, including grazing controls, soil and water management techniques, river and gully protection, and massive reforestation.

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