

PD-ABA-058

UNCLASSIFIED

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

ECUADOR

PROJECT PAPER

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES
(SUBIR)

AID/LAC/P-656

PROJECT NUMBER: 518-0069

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT DATA SHEET

1. TRANSACTION CODE
 A = Add
 C = Change
 D = Delete

Amendment Number _____

DOCUMENT CODE
 3

2. COUNTRY/ENTITY
 Ecuador

3. PROJECT NUMBER
 318-0069

4. BUREAU/OFFICE
 LAC

5. PROJECT TITLE (maximum 40 characters)
 Sustainable Uses for Biological Resources

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)
 MM DD YY
 09 15 97

7. ESTIMATED DATE OF OBLIGATION
 (Under 'B.' below, enter 1, 2, 3, or 4)
 A. Initial FY 97 B. Quarter 1 C. Final FY 97

8. COS'S / \$000 OR EQUIVALENT \$1 =

A. FUNDING SOURCE	FIRST FY 97			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	2,984	---	2,984	5,700	9,300	15,000
(Grant)	(2,984)	(---	(2,984)	(5,700)	(9,300)	(15,000)
(Loan)	(---	(---	(---	(---	(---	(---
Other 1.	---	---	---	---	---	---
U.S. 2.	---	---	---	---	---	---
Host Country	---	---	---	---	---	---
Other Donor(s)	---	---	---	2,463	2,537	5,000
TOTALS	2,984	---	3,186	8,163	11,837	20,000

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
ARDN	200B	190		---	---	9,000	---	15,000	---
2.									
3.									
4.									
TOTALS									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)
 030 090 160

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BR	R/AG	ENV	PVOU	TECH	TNG	PART
B. Amount							

13. PROJECT PURPOSE (maximum 480 characters)

To identify, test and develop ecologically and socially sustainable resource management models in selected conservation units and their buffer zones to preserve biodiversity and improve the economic well-being of local communities through their participation in the management of natural resources.

14. SCHEDULED EVALUATIONS

Interim	MM YY	MM YY	Final	MM YY
	09 94			09 01

15. SOURCE/ORIGIN OF GOODS AND SERVICES
 000 941 Local Other (Specify) Ecuador

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

concern in the proposed methods of implementation and financing of this project.

ACTION:
 DIR _____
 D/D _____
 PPD _____
 EXO _____
 CONT _____
 RCO _____
 RLA _____
 TTIO _____
 ANRO _____
 FIO _____
 GPO _____
 RIRFO _____
 RF _____
 C/R _____
 EMP _____
 WASH _____

Richard Goughnour
 USAID/Quito, Ecuador Controller

17. APPROVED BY
 Signature: _____
 Title: Charles E. Costello
 Director, USAID/Ecuador
 Date Signed: MM DD YY
 09 15 97

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
 MM DD YY

PROJECT AUTHORIZATION

Name of Country: Ecuador
Name of Project: Sustainable Uses for Biological Resources
(SUBIR)
Number of Project: 518-0069

1. Pursuant to Sections 103 and 106 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Sustainable Uses for Biological Resources Project ("the Project") for Ecuador ("the Cooperating Country"), involving planned obligations not to exceed nine million United States dollars (US\$9,000,000) in grant funds over a six (6) year period from the date of authorization, subject to the availability of funds in accordance with the AID OYB/allotment process, to help finance foreign exchange and local currency costs for the project. The planned life of the project is six years from the date of initial obligation.
2. The goal of the Project is the conservation and management of Ecuador's renewable natural resources for sustained economic development. Its purpose is to identify, test, and develop economically, ecologically, and socially sustainable resource management models in selected conservation units and their buffer zones in order to preserve biodiversity and improve the economic well-being of local communities through their participation in the management of renewable natural resources.
3. The project agreements which may be negotiated and executed by the officer to whom such authority is delegated in accordance with AID regulations and Delegations of Authority, shall be subject to the following essential terms, covenants, and major conditions together with such other terms and conditions as AID may deem appropriate.

a) Source and Origin of Commodities, Nationality of Services:

Except as AID may otherwise agree in writing, commodities financed by AID under the project shall have their source and origin in the United States or Ecuador (as set forth in the following paragraphs). Except as AID may otherwise agree in writing, the suppliers of commodities or services (other than ocean shipping) shall have the United States or Ecuador (also as set forth below) as their place of nationality. Ocean shipping under the

project shall be, except as AID may otherwise agree in writing, financed only on flag vessels of the United States.

Local Cost Financing (LCF) is authorized as necessary to carry out Project objectives. Under the Administrator's Buy America Policy guidance cable, 90 State 410442, no special waivers are required to authorize local cost financing (LCF) under Handbook 13 instruments, including the Cooperative Agreement planned for implementation of the Project, as the Standard Provisions provide rules for LCF.

Local cost financing (LCF) is authorized for the Project, consistent with AID's Buy America Policy ("ABAP") set forth in cable 90, State 410442 and the revised HB1B, Chapter 18 as follows:

(1) For Cooperative Agreements with Ecuadorian NGOs, LCF is authorized consistent with HB13 Standard Provisions that govern.

(2) Per LCF guidance, professional service contracts up to US\$250,000 in value, such as for audit, evaluation, or technical assistance from Ecuadorian firms, are exempt from the ABAP up to this limit, and no further waiver is necessary.

(3) All local financed procurements must be covered by source/origin waivers as set forth in Chapter 5 of AID HB1B, with the following exceptions:

(a) Commodities of U.S. origin, which are otherwise eligible for financing, if the value of the transaction is estimated not to exceed \$100,000 (exclusive of transportation costs).

(b) Commodities of geographic code 899 origin if the value of the transaction does not exceed \$5,000.

(c) The following commodities and services which are available only locally:

- Utilities including fuel for heating and cooking, waste disposal and trash collection;

- Communications -- telephone, telex, fax, postal and courier services;

- Rental costs for housing and office space;

- Petroleum, oils and lubricants for operating vehicles and equipment;

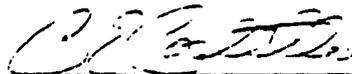
- Newspapers, periodicals and books published in the cooperating country;

- Other commodities and services (and related expenses) that, by their nature or as a practical matter, can only be acquired, performed, or incurred in the cooperating country, e.g. vehicle maintenance, hotel accommodations, etc.

If not covered by the above exemptions from ABAP, an individual waiver may be processed for procurement transactions necessary to Project Implementation under the criteria stated in HB1B.

b) Other:

Except as AID may otherwise agree in writing, the lead implementing organization shall agree that: 1) the Project shall be implemented in stages; 2) clear written statements of program and financial accountability for each implementing organization shall be executed; 3) performance against objectives or benchmarks will be reviewed before proceeding to each successive stage of the Project; 4) plans for any training of Ecuadorian armed forces personnel, to be financed by A.I.D.-appropriated funds, will be approved by the Mission Director in writing prior to being implemented; 5) amendments to the Environmental Assessment will be submitted to the Mission prior to undertaking project activities or sub-projects if these involve significant alterations of ecosystem components or will have potentially adverse environmental consequences, as described in the Project Paper; and 6) prior to construction of physical facilities, such as interpretative centers and park guard lodgings, information concerning site size, floor plan, construction material and labor to be used shall be set out for each construction in an annual workplan.



Charles E. Costello
Director

8-2-71
Date

Clearances:

PPD:PMaldonado 17
ANRO:RRuybal 2-1-91 - R. F. P. 8-8-91
ANRO:DAIverson 2/28 8/8/91
RCO:JDunlap 2/28
RLA:SAllen (in draft)
D/DIR:HRKramer AM
CONT:RGoughnour AM

Drafted by PPD:PLiefert:aga (07/19/91) (SUBIR.AM)

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ACRONYMS

AID, United States Agency for International Development

ANEPIM, Asociación Nacional de Empresarios de la Pequeña Industria Maderera

ANRO, Agriculture, Natural Resources and Rural Development Office

CAAP, Centro Andino de Acción Popular

CARE/PROMUSTA, Proyecto Manejo de Uso Sostenible de las Tierras Andinas

CDC, Conservation Data Center

CECIA, Corporación Ornitológica del Ecuador

CEDECO, Centro Ecuatoriano para el Desarrollo de la Comunidad

CEDES, Centro de Documentación e Investigación de los Movimientos Sociales en Ecuador

CEISE, Corporación Ecuatoriana de Investigación y Servicios Comunitarios

CENAPIA, Centro de la Pequeña Industria Artesanal

CEPP, Centro de Educación y Promoción Popular

CESA, Central Ecuatoriana de Servicios Agrícolas

CETUR, Corporación Ecuatoriana de Turismo

CIAT, International Tropical Agriculture Center

CIDESIA, Centro de Investigación de Desarrollo Socio Ambiental

CLIRSEN, Centro de Levantamientos Integrados de Recursos por Sensores Remotos

CONICE, Consejo de Nacionalidades Indígenas de la Costa Ecuatoriana

COMUNIDEC, Sistemas de Investigación y Desarrollo Comunitario

CONACYT, Consejo Nacional de Ciencia y Tecnología

CONADE, Consejo Nacional de Desarrollo

CONAIE, Confederación de Nacionalidades Indígenas del Ecuador

CONFENIAE, Confederación de Nacionalidades Indígenas de la Amazonia Ecuatoriana

CONOCO, Continental Oil Company/DuPont

CRS, Catholic Relief Services
 DESFEL, Development Strategies for Fragile Lands Project
 DIGEMA, Dirección General de Medio Ambiente
 DINAC, Dirección Nacional de Avilios y Catastros
 DINAF, Dirección Nacional Forestal
 DRI-MBS, Desarrollo Rural Integral-Ministerio de Bienestar Social
 EEOCIENCIA, Fundación Ecuatoriana de Estudios Ecológicos
 EMAP-Q, Empresa Municipal de Agua Potable, Quito
 EPN, Escuela Politécnica Nacional
 FAO, Food and Agricultural Organizations of the United Nations
 FOUNAE, Federación de Comunidades Union de Nativos de la Amazonia Ecuatoriana
 FEPP, Fondo Ecuatoriano Populorum Progressium
 FEPROTUR, Federación Ecuatoriana de Promoción Turística
 FLACSO, Facultad Latinoamericana de Ciencias Sociales
 FN, Fundación Natura
 FORESTA, Costa Rica Forest Resources Conservation Project
 FSS, Fund for Special Services
 FUNAY, Fundación Antisana
 FUNDAGRO, Fundación para la Investigación Agropecuaria
 FUNDEAL, Fundación para el Desarrollo Alternativo
 FUNDEC, Fundación para el Desarrollo Ecológico
 FUNDERHU, Fundación para el Desarrollo de Recursos Humanos
 FX, foreign exchange
 GOE, Government of Ecuador
 GTZ-PROFCRS, Proyecto Forestal de Sucumbios
 IDEA, Instituto de Estrategias Agropecuarias
 IERAC, Instituto Ecuatoriano de Reforma Agraria y Colonización

INECEL, Instituto Ecuatoriano de Electrificación
 INERHI, Instituto Ecuatoriano de Recursos Hidráulicos
 INIAP, Instituto Nacional de Investigaciones Agropecuarias
 IPM, Integrated Pest Management
 KfW, Kreditanstalt für Wiederaufbau
 LASPAU, Latin America Scholars Partnership with American Universities
 LC, local currency
 LIGHTHAWK, The Wings of Conservation
 LIO, Lead Implementing Organization
 LOP, life-of-project
 LUPE, Honduras Land Use Productivity and Enhancement
 MAYAREMA, Maya Biosphere Reserve Management Project
 MEC, Ministerio de Educación y Cultura, Dirección Nacional de Educación Bilingüe
 MEM, Ministerio de Energía y Minas
 MICIP, Ministerio de Industrias, Comercio, Integración y Pesca
 MIS, Management Information System
 MOP, Ministerio de Obras Públicas
 NGO, Non-governmental organization
 NICC, National Interorganizational Coordinating Committee
 OIL, Organización Indígena de Limoncocha
 ONHAE, Organización de la Nacionalidad Huaorani de la Amazonia Ecuatoriana
 OTS, Organization for Tropical Studies
 PACA, Proyecto Ambiental de Centro América
 PACD, Project Assistance Completion Date
 PAFE, (TFAP) Plan de Acción Forestal del Ecuador
 PETROECUADOR, Petróleos del Ecuador
 PL 480, Food Aid under the US Public Law 480

PUCE, Pontificia Universidad Católica del Ecuador
PVO, Private Voluntary Organization
RECAJ, Reserva Ecológica Cayambe-Coca
RECC, Reserva Ecológica Cotacachi-Cayapas
RENARME, USAID Regional Natural Resources and Environmental Management Project
RICC, Regional Interorganizational Coordinating Committee
ROCAP, Regional Office for Central America and Panama
SECAP, Servicio Ecuatoriano de Capacitación Profesional
STRI, Smithsonian Tropical Research Institute
SUFOREN, Subsecretaría Forestal y de Recursos Naturales Renovables
TNC, The Nature Conservancy
UCAO, Unión de Campesinos Agricultores de Orellana
USAID, United States Agency for International Development
USDA, United States Department of Agriculture
UTE, Universidad Tecnológica Equinoccial
UTEPA, Unidad Técnica del Plan Awa, Federación Awa
WCI, Wildlife Conservation International
WRI, World Resources Institute
WWF, World Wildlife Foundation
YNP, Yasuni National Park

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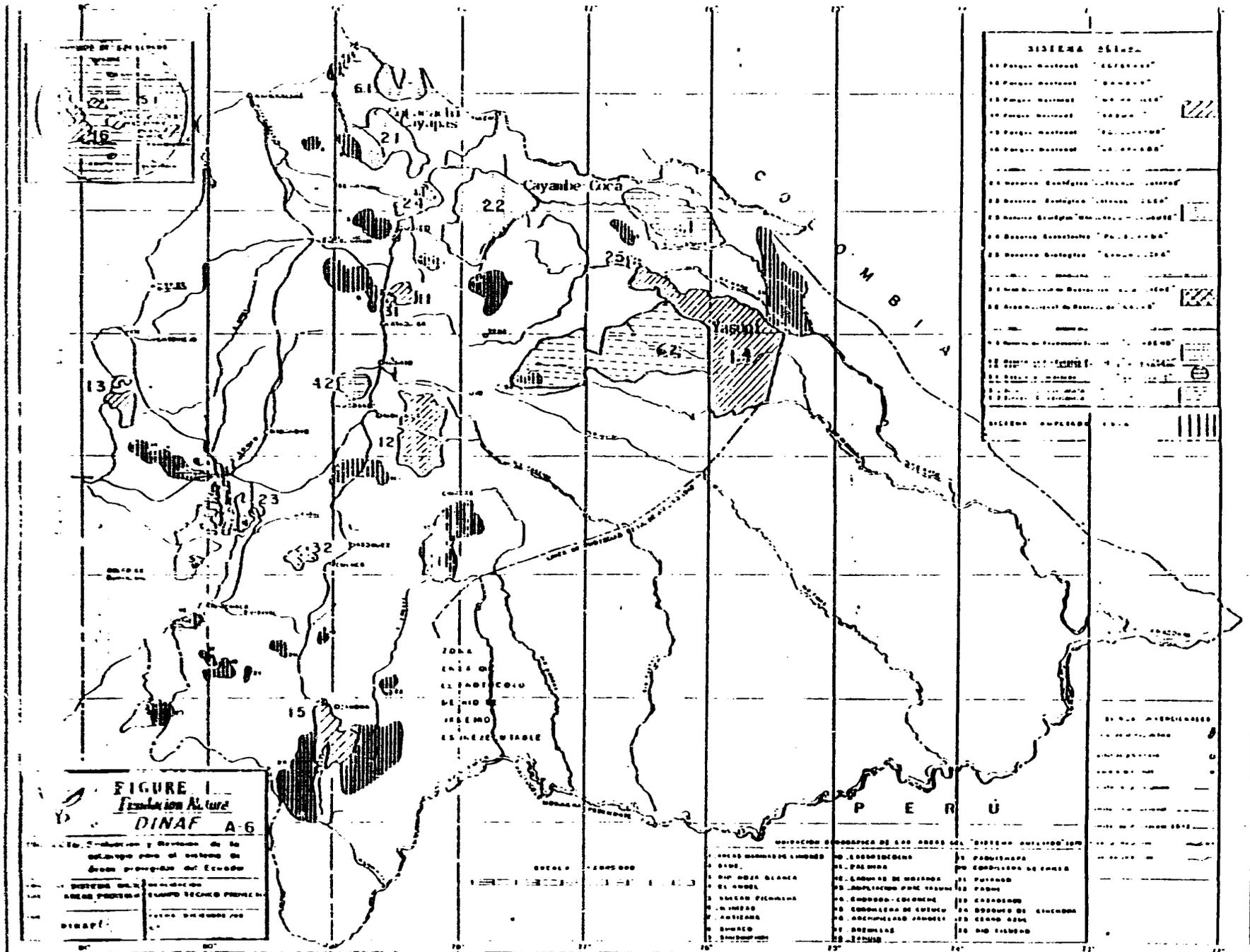


FIGURE 1.
Evolution Natural
DINAF A-6

El Evolución y Distribución de la
 Evolución para el sistema de
 Área Protegida del Ecuador

ESTADO: 1965

DINAF:

SISTEMA 26122

01	Parque Nacional "Cayambe"
02	Parque Nacional "El Cajas"
03	Parque Nacional "El Chimborazo"
04	Parque Nacional "El Cotacachi"
05	Parque Nacional "El Guano"
06	Parque Nacional "El Inca"
07	Parque Nacional "El Morona"
08	Parque Nacional "El Napo"
09	Parque Nacional "El Saraguro"
10	Parque Nacional "El Tumbaco"
11	Parque Nacional "El Yumbura"
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CONDICIONES GEOGRAFICAS DE LOS AREAS DEL SISTEMA 26122

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

I. EXECUTIVE SUMMARY

The SUBIR Project's primary goal is to increase the extent to which Ecuador's renewable natural resources are conserved (used wisely) in order to assure sustained economic development in the future. Its purpose is to identify, test, and develop economically, ecologically and socially sustainable resource management models in selected conservation units (and their buffer zones) to preserve biodiversity and improve the economic well-being of local communities through their participation in the management of natural resources.

Ecuador is among the most biologically rich countries in the world. Its variety of natural areas includes tropical rain forests, cloud forests, coastal dry and moist forests, Andean alpine paramos, mangrove swamps, coastal and marine systems, and the unique Galapagos Biome. The variety of endemic plant and animal species in these ecosystems makes them among the world's highest priority for preservation. These areas also supply environmental services that are essential to the future social stability and economic growth of Ecuador.

Deforestation for agriculture and cattle raising, accentuated by rapid population growth and lack of urban employment opportunities, is the principal cause of biodiversity loss in Ecuador. Expansion of the agricultural frontier coupled with the degradation of natural habitats from extraction of timber; mining and petroleum exploration, and the expansion of shrimp farming, could result in the complete deforestation of Ecuador by 2025. At the root of these problems are: (1) an inadequate policy and legal framework for rational natural resource and agricultural development; (2) the lack of efficient resource management institutions at the regional and local levels; (3) an increased demand for food and fiber met through conversion of forested land to agriculture rather than through yield-increasing technologies; (4) lack of access to sustainable income producing technologies for the rural population; (5) the scarcity of well-trained, Ecuadorian natural resource professionals and practitioners; (6) an inadequate information base combined with a lack of research capability to select appropriate technologies, guide natural resource management programs and monitor the effects of development projects; and 7) Cultural attitudes and lack of public understanding of the value of natural resources.

Recognizing these problems, USAID/Ecuador proposed the SUBIR

Project in November 1989. Design of a ten-year project, with grant financing of \$15 million, was approved by AID/W. USAID/Ecuador will initially authorize the Project for six years, with a subsequent three-year phase contingent on a favorable evaluation of the pilot phase. The final four years will be authorized by AID/Washington. USAID/Ecuador elected to use a Collaborative Assistance Method for both the design and the implementation of SUBIR. The Consortium composed of CARE, The Nature Conservancy (TNC) and Wildlife Conservation International (WCI) was selected to both design and manage implementation of the Project. Consortium members will complement USAID's grant with their own and other donor funds, as well as with contributions from project participants.

Based upon a review of existing natural resource information, a rapid reconnaissance of critical geographic areas, and consultations with governmental agencies, non-governmental organizations, USAID/Ecuador, and local communities, three conservation units were selected for the initial phase of the Project: Cotacachi-Cayapas Ecological Reserve, Cayambe-Coca Ecological Reserve, and Yasuni National Park. These reserves are representative of the wide range of ecological life zones and rural communities found in Ecuador. Each conservation unit has a core reserve of high biological diversity, and a buffer zone of demonstrated potential to provide economic benefits to the adjacent communities. SUBIR will implement pilot activities in these three conservation units through five basic strategies during the first phase of the Project:

- (1) Organizational strengthening of local community organizations and regionally and nationally-based GOE institutions and NGOs, to develop their capability to better manage programs of biological resources in conservation units and their buffer zones;
- (2) Protected areas management of the core biological reserve to maintain ecological systems for their scientific and economic value and for the flow of benefits to the surrounding buffer zones and the nation as a whole;
- (3) Ecotourism development to valorize biological diversity as represented in conservation units, provide a source of recurrent income designated for the management of protected areas and to generate employment for local inhabitants;

¹ The SUBIR design team defines "buffer zone" in the more liberal context as: the zone of influence around established protected areas, within which systems of resource use and management may have an actual or potential, direct or indirect impact on the ecological quality, diversity, and economic value of the biological resources within the protected areas.

- (4) Improved use of land and biological resources to increase the productivity of existing practices, and to diversify economic activities and employment opportunities involving sustainable resource management strategies; and
- (5) Research and monitoring to improve basic knowledge of the biological resources present, establish an information base for the preparation of management plans for the core reserves, identify possible economic uses for biological resources in surrounding buffer zones, monitor the impact of project activities, evaluate ecological and socioeconomic factors leading to sustainable resource use, and identify policy constraints.

The Project strategy emphasizes decentralization of project implementation to the resource-user level and will directly involve local community organizations, governmental institutions, NGOs, educational institutions, and private enterprises in the planning, management, monitoring and evaluation of environmentally and economically-sound resource utilization activities. In succeeding phases of the Project, the lessons learned will be applied in at least three other conservation units.

The major inputs for implementation of project activities are technical assistance, in-country training, and commodity procurement. The proposed approaches for project interventions are technically feasible, and are socially and environmentally sound.

II. BACKGROUND

A. Project Setting

1. Natural Resources and Biological Diversity

Ecuador is among the most biologically rich countries in the world. Twenty-five of the 30 "life zones" identified by Holdridge are found in its boundaries (Cabarle et al, 1988). The variety of its ecological systems supports an incredible variety of plants and animals. Ecuador, about the size of the State of Colorado, has an estimated 20,000 to 25,000 vascular plant species, compared to the 17,000 known for all of North America. Over 2,400 species of terrestrial vertebrates have been found, including 1,550 bird species, more than twice as many as recorded for the continental United States. These ecosystems are the repository of germplasm of plants and animals of great economic importance, as well as unknown species of potential benefit to mankind.

Forest reserves are the principal repository of biological diversity, and Ecuador is still basically well-endowed with forests. The primary national threat to forest resources is not commercial forestry but clearing of forests for farming. While

SUFOREN estimates that the rate of deforestation is approximately 250,000 ha per year, the World Resources Institute puts the figure at 350,000 ha per year--the highest in Latin America. Deforestation is particularly acute in the Northwest and Northeast regions. Extrapolation of the current rate of deforestation suggests a treeless Ecuador around the year 2025.

The forests and natural areas of Ecuador provide other environmental services besides harboring a wealth of biological diversity. Services derived from the forests and natural areas include: watershed protection; regulation of the hydrologic cycle; maintenance of water quality; soil development and stabilization; climate amelioration; and absorption and breakdown of pollutants. Ecuador's economic sectors, including agriculture, forestry, fisheries, energy, recreation and tourism, depend in great measure on these ecological services.

In order to conserve and protect the nation's renewable biological resources, the GOE signed the Ecuadorian Forestry Law, Ley Forestal y de Conservación de Areas Naturales y Vida Silvestre (Ley No. 74), in 1981, which officially established a national system of conservation units: national parks; ecological, ethnological, and geobotanical reserves; wildlife production reserves; and recreation areas. This system totals about 3.5 million ha or nearly 13% of the country, and includes examples of most of the significant ecological and ethnological systems of Ecuador (see Table 1 and Figure 1). Despite the effort to demarcate a balanced and comprehensive group of conservation areas and to ensure their protection, Ecuadorian parks and reserves are, for the most part, almost entirely undefended. Government policies have been oriented towards colonization programs and increasing the area under agricultural production rather than encouraging sound, intensified use of those areas already cultivated. The present GOE colonization policy encourages deforestation and the destruction of natural areas to increase food and commodities production, while paying scant attention to the long-term economic and ecological sustainability of these activities. A weak park service makes protected areas vulnerable to colonization, timber extraction, mining and petroleum exploration and extraction, all of which are legally prohibited inside natural protected areas.

The economic benefits supplied by the system of conservation units and their adjacent buffer zones are generally overlooked or undervalued. The wise use and protection of these ecological systems is essential to the development of sustainable economic options for Ecuador.

TABLE 1
Protected Areas of Ecuador

National Parks	Area (ha)	
Cotopaxi	33,393	
Galápagos	693,700	
Machalilla	46,683	
Podocarpus	146,280	
Sangay	271,925	
Yasuni	668,000	
Biological Reserves		
Limoncocha	4,613	
Ecological Reserves		
Cayambe Coca	403,103	
Cotacachi-Cayapas	204,420	
Manglares Churute	35,042	
Geobotanical Reserves		
Pululahua	3,383	
Ethnic Territorial Reserves		
Awa	101,000	
Huaorani	584,000	
Faunal Production Reserves		
Cuyabeno	254,760	
Chimborazo	58,560	
National Recreation Areas		
Boliche	1,077	Cajas 28,808
TOTAL - 17 AREAS	3,538,747	

2. Social Setting

Natural resource projects are concerned with influencing the way people, individually and collectively, manage land, water, and forest resources. The interaction of human activities with fragile environments is at the heart of this project. Resource use incentives, cultural values, property regimes, formal and informal authority systems, local rules of conduct, social organizations, and knowledge of alternatives all play a role in determining the nature of human interaction with the natural resource base. It is at this level where the sustainability of resource management interventions is determined: protection and conservation are long-term concepts that need to be understood in areas where people have critical short-term needs.

The ethnic groups in the Project areas include indigenous, black and colonist (of both mestizo and Indian origins) populations. The indigenous population of the Oriente is estimated to be between 85,000 and 100,000 inhabitants. Quichuas (40,000) and Shuar (35,000) comprise the majority of this population. Other cultural groups include the Chachi, Embera, Awa, Cofan, and

Huaorani. In 1964, the Shuar Federation was formed and since then many indigenous populations of Ecuador have successively formed numerous regional federations to defend their cultures and ethnic identities, as well as to secure government recognition and protection of their traditional lands. These organizations came together in 1980 to form the Confederacion de Nacionalidades Indigenas de la Amazonia Ecuatoriana (CONFENIAE). In 1984, CONFENIAE united with Indian organizations of the Sierra to form the Confederacion de Nacionalidades Indigenas del Ecuador (CONAIE).

In the Oriente, colonization and agricultural expansion have occurred in the Napo and Sucumbios Provinces, following the development of petroleum activities which provide basic roads. Some thirty-six percent of the Napo/Sucumbios area has been claimed by agricultural colonists, while Ministry of Agriculture (MAG) (1987) studies indicate that no more than sixteen percent of these areas is apt for crops and/or pastures. Between 1974 and 1989, the pasture areas of these provinces grew at an average annual rate of approximately eight percent, totalling some 212,000 ha by 1989. In the Province of Morona Santiago, the average growth rate since 1974 exceeds six percent, and pastures cover some 333,600 ha. Population growth in the Oriente is rapid --approximately five percent per annum since 1974--due to migration: seventy percent of the population in 1982 had moved to the area in the previous ten years.

The major conflict between the indigenous groups and the GOE is in regard to provision of land rights and the recognition of their traditional land holdings. The land rights of indigenous populations are ambiguous under current legislation. In large part, their lands fall under the category of "tierras baldias" --unoccupied lands. Their rights are recognized only in the context of their integration into the processes of agrarian reform and colonization which requires them to destroy the land that provides their subsistence. Government policies with regard to land rights have also been erratic over time. The ambiguity in land rights, erratic government policies, and the threat from increased colonization from migrants--whose rights are well defined--is omnipresent. Brief profiles of the indigenous groups in the Project are presented in the summary of the Social Analysis in section IV.G.

3. Economic and Policy Setting

a. Economic Setting

The Ecuadorian economy can be characterized as small and basically open. Led by the petroleum boom of the 1970s, GDP grew in real terms at an average rate of 8.2 percent from 1965 to 1981. Transportation, communications, and industrial sectors grew at rates exceeding 9 percent during the same period. In contrast,

agriculture was relatively stagnant, growing at a rate of only 3.4 percent during the period. This pattern reflects the petroleum boom and the general industrialization subsidy policies of the 1970s. This pattern was reversed after 1982: overall economic growth stagnated, with GDP growing only 2.3 percent per annum from 1982 to 1988. Agriculture, however, grew at an average annual rate of 6.2 percent during the 1982-88 period. The demand for food and fiber creates a derived demand for natural resources, principally land. Internally, increased production can be met by increasing area and/or by increasing yields. During the import-substitution period, much of the increased demand for food and fiber was met by increased imports. In a more open economy, the derived demand for production factors will likely fall more heavily on the domestic resource base. While the data is somewhat contradictory, average agricultural yields for most commodities have increased, yet yields remain low relative to other South American countries, and investments in a science-based agriculture are also low. Increased demand for food and fiber coupled with low yields and increased agricultural exports will place increased pressure on land through expansion of cultivated areas.

b. Policy Setting

As described by Whittaker *et al* (1990), policy issues are an important factor in understanding inappropriate natural resource use. The major policies, as expressed in legislation, which affect natural resources are the following (see also Annex III.H, Policy Analysis):

Lev de Reforma Agraria. This law charges the State (through the Instituto Ecuatoriano de Reforma Agraria y Colonizacion - IERAC) with selecting regions and/or areas whose productive resources permit the establishment of farm families, along with the concomitant infrastructure to support them. Land which is not fulfilling its social function is subject to expropriation and adjudication. Land covered with natural vegetation (i.e. forests and paramos) not under current use are subject to expropriation and colonization.

Lev de Colonizacion de la Region Amazonica. This law establishes that colonization of the area is a national priority, and designates the Instituto Nacional de Colonizacion de la Region Amazonica Ecuatoriana (INCRAC) as a primary body for coordination and policy development as well as providing land titles through IERAC. The law establishes that MAG will select those territories that can be used for colonization as well as by indigenous populations (Article 3). One of its objectives is the preservation of indigenous cultures. Yet, another objective of this law is to expand the agricultural frontier, a situation which threatens indigenous cultures of the Oriente.

Ley de Tierras Baldias y Colonizacion. This law defines "unoccupied land" as belonging to IERAC and available for adjudication to colonists. Unoccupied land is understood to be land that has no other owner, has been returned to the State under legal processes, or that has not been cultivated for 10 years. By this definition it can be interpreted that most of the Amazonian land "belongs" to IERAC for disposition. Under this definition, lands occupied by indigenous populations and covered with forest are not owned. The Ley de Tierras Baldias affects the settlement process by stating that "unoccupied lands" constitute the principal land reserve for colonization and settlement. This controversial law has as a requirement that for legal titling a settler must clear the forest and replace it with crops or pasture to show domain. Additionally, the law fails to recognize many important social realities of these areas, such as that indigenous groups have occupied those lands for centuries, that much of this land continues to be used sustainably by indigenous groups, and that forested land provides important environmental services.

Ley Forestal y de Conservacion de Areas Naturales y Vida Silvestre. Signed in 1981, this law officially established a national system of conservation units: national parks; ecological, ethnological, and geobotanical reserves; wildlife production reserves; and recreation areas to be managed by MAG (see Table 1 and Figure 1). The law also establishes three categories of forest reserves: Patrimonio Forestal, which may be utilized only under approved management plans; Bosques Productores, which are delimited for timber extraction and regeneration; and Bosques Protectores, which are reserved for environmental services, such as watersheds. The Ley Forestal clearly outlines the protection and management requirements for each protected area and forest reserve, limiting the exploitation of forest products under management plans and prohibiting the extraction of forest products and non-renewable natural resources within national parks and ecological reserves. However, the Forestry Law (Articles 41 and 48) promotes agricultural activities on up to 80% of the land adjacent to protected areas, thus creating a land use conflict between buffer zones and the established protected areas. Chapter VI, Article 44, creates a Forest Guard, as a dependency of MAG, with collaboration of the Armed Forces and National Police, to apply the law and its regulations. The Law further states in Article 139 that the organization and functions of the Forest Guard will be described in special regulations that will be developed at some future date. As of 1991, this still has not been done.

Ley de Minería y de Hidrocarburos. This law has a special characteristic, in that it has precedence over other laws. The Ley de Minería y de Hidrocarburos actively promotes oil exploration to the extent that it supersedes all other laws, including those that protect Ecuador's national parks and reserves (Ley Forestal). According to the Hydrocarbon Law, national parks begin at the soil

surface; any minerals found below the surface inside a national park or other public or private land in Ecuador are the property of the Government and can be exploited at its discretion.

There are contradictions, ambiguities, and inconsistencies among these laws. Appropriate implementation of these laws is difficult, not only because of the legal problems raised, but also due to public sector weaknesses--human resource constraints, budget limitations and management and administrative inefficiencies. Another serious problem is that the general public does not hold its government accountable to accurately implement these laws, and therefore, some individuals or organizations profit at the expense of the general public.

B. Problem Definition and Constraints

The basic problem is how to manage Ecuador's natural resources to permit conservation activities as well as to preserve biodiversity and the cultural viability of local indigenous populations. Conservation is defined as the sustainable utilization of renewable resources which may include preservation. The tropical forests of Ecuador are special as unique repositories of biodiversity and as the homes of indigenous populations. These forests are fragile because of poor soils, generally inappropriate for sustained agricultural production. Deforestation due to agricultural expansion along the petroleum and colonization frontiers is advancing at an alarming rate. The social balance among colonists, indigenous populations, and the State is conflictive. The primary constraints to the development and establishment of conservations units are identified below.

1. Inadequate Policy and Legislative Framework

Whitaker (1990) synthesizes the policy issues in the following terms:

* **Inappropriate Tenurial Arrangements.** Extensive government-owned lands are poorly managed; all subsurface resources are State-owned, water resources are nationalized, coastal wetlands are "national patrimony," and much of what is tropical forests are "patrimonio forestal." While these territories are extensive, the government's real capacity to manage and control access to these territories is limited. The result is that state property is de facto, an open access resource. Even when individual or communal property rights are recognized, incentives for appropriate use are often skewed: land clearing appears as a pre-condition to obtaining land title. The land titling process is slow, resulting in ownership insecurity. Communal property rights are not clear under existing legislation.

* **Government Intervention in Markets for Natural Resource Commodities.** Price controls on food and fiber diminish incentives for sustainable management of resources. Input subsidies cause overuse of inputs, such as irrigation water.

* **Macroeconomic and Agricultural Pricing Policies.** These policies discriminate against agriculture and hold down returns to investment in agriculture--thus small farmers may be disinclined to make investments in resource conservation.

* **Failure to Invest in the National Scientific Base.** The limited science base for agriculture results in relatively low yields per unit of land and tends to push farmers to degrade the natural base because they have few technological alternatives.

2. Institutional Constraint

Institutional constraints exist at various levels. At one level, the public sector entities with responsibilities for the development, protection, and conservation of natural resources are ill-prepared for the task due to limited budgets, inadequately trained personnel, and low levels of capitalization (managerially and physically). The institutional framework provided by laws and regulations is ambiguous and contradictory. Government responsibility for dealing with conservation issues is dispersed among several agencies. No government agency is adequately financed for operations, or provided with the transport and communication equipment needed for effective programs at regional and local levels.

At the local level, rapid changes since the petroleum boom have upset local traditions, social organizations and structures. Lands managed under common property regimes and local authority relationships were placed under increased pressures. The legal-institutional framework for dealing with common property is unclear. Common property structures are breaking down and being replaced by open access regimes. Just as deforestation is the result of thousands of individual actions, sustainable management systems will have to be applied by individuals at the local level. Thus the institutional and organizational constraints at the local level need to be understood. Little is known about the social and institutional factors that affect resource use. Limited GOE support has been directed to assist local organizations to adequately manage the natural resources at their disposition, provide them with economic opportunities, and give them access to participate in national economic development. However, the ability to use the natural resource base in a sustainable manner depends on the social organizational forms and management patterns under different property regimes.

The relationship between the public and private sectors in dealing with natural resource issues is also obscure. Growing public awareness regarding the deterioration of the environment has led to the formation of several nongovernment organizations concerned with conservation. At the local level, communities and indigenous groups are organizing to better defend their interests against encroachment, and to cooperate on improving their economic and social conditions. Among the Quito-based private voluntary organizations, Fundación Natura (FN) has developed a strong conservation agenda. FN has been very successful in attracting financial assistance and is the leader in administering debt-for-nature swaps. The organization's programs include environmental education, support to protected areas, and promoting changes in environmental legislation.

3. Lack of Knowledge and Adequate Technology

Too little is known about the current status of renewable natural resources, the impact of human activities on these resources, the effectiveness and sustainability of technologies used to conserve these resources, and the forms of social organization most appropriate for management of the resources. Further, there is scarce institutional capacity to carry out research, monitor impacts of human activities, and analyze natural resource information. Many of these are long-term activities: research on the economics of natural forest management requires at least 20-30 years. Scientific information necessary for proper management of conservation units, and for developing the economic potential of biological resources is sparse, difficult to access or nonexistent. Existing information must be collected and made available to users at the level of local communities, as well as to resource managers, planners and policy makers. The need for information with which to manage biological resources and to monitor the impact of development programs should define the research agenda. Research must include the investigation of the human-resource interface, socioeconomic realities and the physical parameters that influence biological diversity in key ecosystems and the sustainability of resource utilization practices.

Closely related to the lack of information regarding the natural resource-human interaction, is the shortage of appropriate technologies. The Project will use existing technological packages or develop new ones in natural forest management, agroforestry, silvopastoral systems, soil conservation, and agronomy.

4. Human Resource Constraint

Ecuador does not have sufficient personnel trained at the professional and technical level to implement renewable natural resource management activities. Low salaries in government service make it difficult to recruit and retain competent personnel. With

certain exceptions, the non-governmental organizations are dependent on international financing or their work is carried out by volunteers. Few community members have been adequately trained in natural resources management to satisfy the needs at the local level. Additionally, the military needs to be trained in conservation activities because they play an important role in the management of natural resources, especially in the parks situated along the border with Peru.

C. Project Rationale

The causes of deforestation and loss of biodiversity are multiple, long-standing, and almost intractable. Success stories in reducing the rate of loss are very few. The Project, both in Phase I and over time, will focus on selected conservation units to preserve biodiversity and enhance the economic well-being of local inhabitants. The protection of an area and the enhancement of local incomes, are not simple activities to implement. They are not achieved by drawing boundaries on a map, naming a commission, or passing a law. The Project goal will not be achieved through a single instrument or component of the Project, but through the effective and integral implementation of all project components. Further, the complementary efforts of international donors, Ecuadorian and international conservation NGO's, and the GOE, in raising conservation consciousness will be vital for the achievement of project objectives.

This Project concentrates primarily on actions at the field level, to change the way people, individually and collectively, manage the use of natural resources. The emphasis on field level activities complements the important work in the policy arena supported by AID and the World Bank. As described by Bromley and Cernea (1989): "Development assistance for agriculture, environmental protection and natural resource management will succeed only if programs and projects become more concerned with the people using natural resources, rather than primarily preoccupied with the particular commodities around which projects have often been organized. That is, projects must focus on the social actors who are the users and the producers of these commodities and whose very livelihood depends upon livestock, fuelwood, or water points."

The Project purpose will be achieved through the phased implementation of five interrelated components: (1) Organizational Development--to strengthen the capacity of community, public, and private organizations to sustainably manage natural resources; (2) Protected Area Management--to preserve core areas of biological diversity; (3) Ecotourism Development--to diversify income generating sources; (4) Improved Use of Land and Biological Resources in Buffer Zones--to provide local resource users with sustainable agricultural alternatives; and (5) Research and Monitoring--to increase understanding of biological and social

relationships and to guide project interventions.

The Project strategy is based on the premise that sustainable development of biological resources is possible, and "optimizes the economic and other societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future." (Goodland, 1987). The Project places strong emphasis on strengthening local communities and regional public and private sector organizations. The development of each project activity will be based on full participation by project participants. The implementation mode for each activity will be grant agreements between the Consortium and various organizations in which roles and responsibilities will be specified to assure that the desired outputs will be attained.

The relative lack of knowledge regarding key relationships--biological, institutional, social, and technological is a major factor in project design and implementation. There is no implementation recipe; rather, what is required is a revolving process of research, testing, monitoring and evaluation, adapting interventions to new information and insights. This process is implicit in the Project Purpose: to identify, test, and develop economically, ecologically and socially sustainable resource management models in selected conservation units (and their buffer zones) to preserve biodiversity and improve the economic well-being of local communities through their participation in the management of renewable natural resources. The key features of this process are listed below.

Phasing. Social and technological interventions are developed through research and testing before application on a wide scale. The Project will begin work in only three areas during the initial phase. This cautious approach is a consequence of the lack of information and the need to develop and document technical and organizational approaches gradually.

Local Participation. If the Project is intended to change how people interact with natural resources, they must be able to influence how the Project will affect their lives. Resource management models will be established and sustained by individuals and their social organizations. This participatory approach should alleviate some of the institutional constraints and is also consistent with the lessons learned from other natural resource projects.

Training. The successful transfer of technical and managerial capabilities is vital to the sustainability of project interventions after funding terminates, therefore training will be offered to all project participants and beneficiary groups. During the first six months of the project, a training needs assessment will be conducted and submitted to USAID Ecuador for review. This analysis will serve as the basis of the project training plan. The

training plan, which will be submitted to USAID/Ecuador for review and approval before any training is provided, will describe training objectives, methodologies, monitoring and impact evaluation plans and will also identify the types of training that will be required to achieve project goals.

SUBIR represents an innovative natural resources management approach, both for AID and for Ecuador. Much of this Project is experimental in nature, and the strategy and specific interventions will need to be modified during implementation in order to address changing political, technical, social, and economic realities. Project activities will be monitored continuously and evaluated periodically to provide feedback necessary to improve implementation throughout the LOP. The Project's flexible design also allows for the continuing evaluation of activities implemented by collaborators participating in Project implementation.

Acknowledging the built-in flexibility afforded by the Project design, especially in its first phase, the Project's operational and administrative structure provides an excellent framework for on-going design improvements during implementation. The planning, monitoring, and evaluation process, coupled with applied research, will provide the Project continual guidance during implementation. Feedback from this process will provide USAID, other donors, and the GOE with the information base necessary to accurately address Ecuador's environmental and natural resource management problems.

D. Conformance with Government Priorities and Strategies

1. Government of Ecuador Policies

In August 1990, the President of Ecuador, Dr. Rodrigo Borja Cevallos, named the 1990s the "Decade of the Environment and Development". This statement reflects the fundamental goal of his government to provide the rational utilization of the country's natural resources for the benefit of all the people. Goals for environmental protection and natural resources conservation are included in the National Development Plan, 1989-1992. As yet, however, the Government has been unable to define the steps to achieve these goals. Ecuador does not have a clearly-defined, comprehensive strategy that will prevent the further degradation of the nation's natural resource base. The many existing laws pertaining to natural resources are overlapping, contradictory, and subject to varying interpretations by officials charged with their application.

There has emerged, however, a commitment within Ecuadorian government institutions to improve natural resources management. As first steps, the government has created subsecretariats for the

environment in the various ministries. Of particular note is the newly elevated institution, Subsecretariat of Forestry and Renewable Natural Resources (SUFOREN) in the Ministry of Agriculture, and the creation of the Subsecretariat of Environment within the Ministry of Energy and Mines. Similar subsecretaries are in the planning stage for other key ministries such as Education, Industry and Transport. Also, an Ecuadorian Congressional Commission on the Environment has been created and is currently reviewing a draft of a new Environmental Protection Law.

With regard to forest resources, MAG/SUFOREN recently outlined the components of a forestry strategy in the Forest Action Plan for Ecuador (PAFE) 1991-1995. The components of the Plan are: reforestation; conservation of biodiversity and forests; agroforestry; research; industrial development; and institutional coordination. Approximately \$70 million have been promised to the GOE by bilateral and multilateral donors under this plan.

E. Relationship to AID Policy and Strategy

The goal of the USAID/Ecuador Natural Resources Strategy (1989) is to develop the socio-cultural, institutional, policy and scientific basis for the conservation of Ecuador's natural resources. Towards this goal, AID activities are directed towards stemming the loss of biodiversity through tropical deforestation. The constraints to achieving the goal are identified as: (1) limited access to economic opportunity related to slow growth of urban employment opportunities and low returns in agriculture; (2) public sector incapacity due to the lack of coordination between public and private sectors, lack of funds and qualified personnel; (3) policy constraints related to skewed incentives for resource use and legal ambiguities; (4) lack of scientific information on natural resources/human interactions and alternative resource management technologies; (5) lack of public awareness and understanding of the value of the natural resource base; and (6) rapid population growth. The specific objectives of the strategy are:

(1) Promote increased access to economic opportunities for the Ecuadorian poor, both urban and rural, to alleviate pressure to expand into fragile resource areas.

(2) Develop and test institutional systems and arrangements which are capable of managing natural resources in a sustainable manner.

(3) Develop policies and laws that promote conservation that do not impact adversely on the natural resource base.

(4) Develop and test sustainable land-use technologies in buffer zones surrounding protected areas.

(5) Through education and research, promote improved knowledge of natural resource management issues among the general population and specifically among scientists.

(6) Contribute to the conservation of renewable biological resources.

SUBIR contributes directly to the above objectives.

SUBIR is consistent with U.S. Government policy and laws and AID/W Policy Determinations, such as the International Environmental Protection Act of 1983, and the 1986 Amendments to the Foreign Assistance Act (Section 118, Protection of Tropical Forests, and Section 119 which mandates the protection of biological diversity). The Project is in accordance with the AID draft Action Plan on Conserving Biological Diversity in Developing countries (AID/ST/FENR, 1986), and with AID's Policy Paper on Environment and Natural Resources (PN-AAV-464, April 1988). The objectives of these policy statements are to assist developing countries conserve and protect their environment and natural resources, and to promote long-term economic growth by managing natural resources for sustainable yields. SUBIR also conforms to the Agency's Blueprint for Development, which states that the Agency is "concerned about assuring that development occurs in a way that respects the long term importance of land resources," and with Policy Determinations 7 and 8 regarding forestry programs, and environmental and natural resource aspects of development assistance.

The Project is also consistent with USAID/Ecuador's 1991 Action Plan under Strategic Objective No. 5, "Sustainable Uses of Biological Resources in Selected Geographic Areas" which is linked to AID/LAC Bureau's Objective I and which encourages preservation and sustainable uses of the natural resource base. The Mission intends to achieve this objective through activities outlined under SUBIR.

USAID/Ecuador and AID/Washington are supporting several natural resource projects in the country, and SUBIR's collaboration with and/or incorporation of lessons learned from these projects should enhance the successful outcome of proposed activities. These Projects include:

- 1) The USAID/Ecuador-funded Forestry Sector Development Project (FSDP), implemented through MAG/SUFOREN/DESFIL has focused on agroforestry, delimitation and management of natural areas, research on forest protection problems, and botanical research. Through its Agroforestry Subproject with various colonists and several indigenous communities, agroforestry and traditional mixed-crop models have been developed along Via Loreto, and Via Coca-Yuca-Auca in the Oriente and in the Highlands under CARE/PROMUSTA. USAID/Ecuador support for this Project ends in September 1991, but

much of the technology and "lessons learned" are directly applicable to the proposed buffer zones management activities and will be continued in SUBIR project areas.

2) The AID/W funded Plant Resources of Amazonian Ecuador project is implemented by the New York Botanical Garden (NYBG) and the Missouri Botanical Garden (MBG). The Project has identified economically useful plants and supported the development of Ecuadorian botanical research capacity, including the establishment of the Natural Herbarium at Quito's Museum of Natural Sciences. SUBIR will allocate funds to continue these activities.

3) The AID/W Forestry Private Enterprise Initiative (FPEI) which, with the help of ESF-generated local currency, has developed private sector activities that promote forest conservation, including assistance to CORMADERA to promote forestry research, and FEPROTUR to develop the potential for ecotourism in and around protected natural areas.

4) The AID/W/S&T/AG funded Biodiversity Project awarded to USDA and The Nature Conservancy (TNC) to identify and protect wild crop relatives. It may be possible to apply field technologies developed in this project to conservation needs in SUBIR project areas.

5) The USAID/Ecuador-funded Agricultural Sector Reorientation Project (ASRP) supports policy analysis in the MAG and in Fundacion IDEA, a private-sector policy analysis organization. SUBIR will provide information from the results of applied research and monitoring activities that will support ongoing policy analysis and dialogue at the national level. Additionally, SUBIR will contract with IDEA to carry out several studies to examine the environmental policy constraints at the national level in order to support project implementation.

USAID/Ecuador supports several other natural resource activities that have set the stage for the design and implementation of SUBIR: (1) a series of grants to Fundacion Natura (EDUNAT I, II, and III) for public environmental education; (2) the Coastal Resources Management Project which generates policy, technical assistance, and infrastructure inputs for resolving conservation and management problems in coastal areas; (3) the Development Strategies for Fragile Lands Project (DESFIL) which carried out the workshops and land use planning studies associated with the SUBIR preliminary design phase; and (4) the Sustainable Land Use Management in the Andes Project (PROMUSTA) which has generated applicable experience in highland agriculture, agroforestry, and soil conservation activities.

F. Relationship to Other Donor Projects

Through the PAFE, and other initiatives, significant collaboration from other donors is underway or expected that will complement SUBIR. No less than eleven major conservation and natural resources management initiatives were approved in the early 1991 PAFE meetings. The Federal Republic of Germany has signed an agreement for a forestry development program that includes soil conservation, agroforestry and forest grazing. The German Technical Agency (GTZ) is considering projects for the protection and increased production of community forests, and for the development of a small forest industry in the Sucumbios Province. Assistance from the governments of Belgium and Holland will be used to implement projects for integrated development of natural resources used by communities, fuelwood plantations, and agricultural and livestock extension.

Directly related to SUBIR is a joint FAO/Japan project in tropical silviculture, which establishes a data bank for forest inventories, identification of little known wood species, and evaluates tropical forest management practices. (For more detailed information see SUBIR subproject area plans in Annexes III.A. 1, 2 and 3.)

The World Bank is finalizing the preparation of its Environmental Management and Technical Assistance Project which is intended to serve as a catalyst for identifying and addressing high-priority environmental concerns in Ecuador. The Project will finance technical assistance, training and equipment for the following components:

- * Strengthening existing and proposed sectoral units responsible for management of natural resources and/or environmental protection (including MEM/Subsecretariat for the Environment and MAG/SUFOREN);

- * Establishment of a central environmental entity responsible for advising the Government on environmental policy and strategy, and for coordinating regulatory actions across sectors;

- * Drafting and executing norms and regulations to support proposed environmental legislation;

- * Development of management plans and encouraging investments for national parks and reserve areas;

- * Introduction of environmental education in schools and universities;

- * Supporting studies on specific environmental subprojects;

and

* Development of action plans for phasing out the use of chlorofluorocarbons in compliance of the Montreal Protocol.

Other U.S. organizations such as TNC, WWF, WCI, and Missouri and New York Botanical Gardens are focusing on conservation of natural areas. In March 1989, the Monetary Board of the Government of Ecuador, TNC, WWF and Fundacion Natura (FN) signed a Debt-for-Nature agreement. This Agreement stipulates that the interest (in local currency) derived from monetary stabilization bonds issued by the Central Bank, using approximately \$3.61 million of Ecuadorian debt acquired by TNC from American Express Bank, will be dedicated exclusively to conservation activities. These stabilization bonds began interest payments on February 6, 1990, and will yield semester interest payments (every February and August) over an eight year period until 1998. TNC and Fundacion Natura assigned more than 25 percent of the total debt swap funds available to provide immediate protection to four of Ecuador's most important ecological reserves. The protected areas supported in this program are Yasuni National Park, Machalilla National Park, Podocarpus National Park, and Cayambe-Coca Ecological Reserve. In 1991-1992 FN/TNC plan to provide MAG with approximately US\$ 70,000 in sucres for park guard salaries, equipment, materials, and other basic protection support in Yasuni National Park and for Cayambe-Coca. There are several other donor supported programs that SUBIR can enhance or build upon. These include TNC's Parks in Peril Program and the proposed Conoco/Smithsonian Tropical Research Institute/PUCE research station on the Rio Tiputini. CARE/Ecuador is managing the Sustained Land Use Management in the Andes Project (PROMUSTA) with support from nine international donors. Also, WCI is assisting Ecuadorian universities and Ecociencia in research and training in biological sciences. As described in latter sections, the Project intends to collaborate across a range of actual and future programs.

III. DETAILED PROJECT DESCRIPTION

A. Goal and Purpose

The goal of the Project is the conservation and management of Ecuador's renewable natural resources for sustained economic development. Its purpose is to identify, test, and develop economically, ecologically, and socially sustainable resource management models in selected conservation units and their buffer zones in order to preserve biodiversity and improve the economic well-being of local communities through their participation in the management of renewable natural resources.

B. Project Site Selection and Description

In order to select project areas for SUBIR's Phase I, twelve areas representative of the variety of ecosystems present in Ecuador and of the different categories of reserve status (see Annex III.B. for complete listing) were analyzed according to the following criteria recommended by the World Wildlife Fund (1988):

Biodiversity. The protection of Ecuador's diverse biological resources is at the heart of the project purpose. Biodiversity is defined in terms of: (1) genetic diversity, or the genetic variability of a variety of individual species, (2) species diversity, or the number of species of flora and fauna in an ecosystem, and (3) ecosystem diversity, as in the variability or number of ecosystems in a given area.

Vulnerability. This is understood as the "endangerment" of the reserve in terms of human intervention in and around the reserve.

Access and Logistical Costs. Good access into a project area facilitates outreach of proposed activities in a cost efficient manner. The inverse raises the cost's of communication and logistics. Access is also related to vulnerability.

Local Interest and Potential for Community and/or Institutional Participation. This attempts to gauge the attitude of the local populations concerning rational resource use, and the presence and outreach of government institutions working in the area.

Cultural Values and Ethnicity. The importance of an area's cultural knowledge and values, and the preservation of their ethnic identity and traditional biological resource use.

National Importance and Focus. An area may have political, economic, or social importance for Ecuador's population at a national level, thereby affecting or having benefits for a large number of people (eg. importance of Cayambe-Coca as Quito's major watershed) or an area may have only limited importance at the local level affecting a small sector of the population.

Replicability. SUBIR's pilot phase activities are intended to establish model interventions to be replicated in other areas in later phases. It is necessary to consider project areas that are representative of others in Ecuador where these models may later be promoted.

Endemism. While biodiversity is an important evaluation criterion, the extent to which species are endemic to an area (and found nowhere else in the world) is also considered of importance to SUBIR objectives.

Each area was rated on each criterion, the criteria were weighted, and relative rankings determined. Eight areas were identified for more intensive review at the field level (in rank order):

1. Yasuni National Park
2. Cayambe-Coca Ecological Reserve
3. Cotacachi-Cayapas Ecological Reserve
4. Awa Ethnic Territorial Reserve
5. Cuyabeno Wildlife Refuge
6. Gran Sumaco Forest Reserve
7. Antisana Multiple-Use Area (non-designated)
8. Machalilla National Park

The field review did not change the relative rankings of the sites (Annex III.B). The final selection of the three highest ranked sites will be the focus for Phase I of the Project. These areas--Yasuni National Park, Cayambe-Coca Ecological Reserve, and Cotacachi-Cayapas Ecological Reserve (and buffer zones)--are representative of almost all ecosystems present in the country. While these areas already have protection status under Ecuadorian law, they are, in reality, minimally protected, and encroaching colonization and uncontrolled resource extraction threaten their future existence.

The selection of three Project sites attempts to achieve a balance between management constraints and the necessity to support a minimum number of project sites on which to evaluate the viability of interventions for replication. While some element of subjectivity is inherent in any geographic site selection, this process resulted in a reasonable cross-section of agroecological zones and social organizations. During year three, research results and data gathered will determine future site selections. CIDE (1989) identified principle "hotspots" for the conservation of biological diversity for four areas of Ecuador: the Northwest, Western Andean Slopes, the Amazon Basin, and Eastern Andean Slopes. Cotacachi-Cayapas and Cayambe-Coca were the most frequently mentioned areas. Fundacion Natura's "Assessment and Revision of the National Protected Natural Areas Strategy" (1991, draft) identified the same two areas as the most endangered by development pressures.

The following presents brief descriptions of the three sites selected for Phase I activities. Maps of each area are presented in Annex II.E. Full detailed descriptions of each area are provided in Annex III.A.

Yasuni National Park (YNP). Yasuni was declared a National Park in 1979 and originally covered 679,730 ha in the Napo Province of the Ecuadorian Amazon. In 1990, the boundaries were altered by establishment of the 610,000 ha Huorani Ethnic Territorial Reserve that consumed a large portion of the western section of the Park.

Its southern boundaries were extended to the Rio Curaray and the Park now encompasses about 668,000 ha. In 1989, Yasuni was declared by UNESCO as a "Man and the Biosphere Reserve". It is a massive park, covering rolling Amazon hills and plains between the Curaray and Tiputini Rivers. The entire Park is classified as moist to humid tropical forest, but also contains an extensive series of wetlands, marshes and lakes. The Park is essentially unaltered by commercial activities, with the exception of seismic breaches and drilling pads from oil exploration. Of the 668,000 ha, some 275,000 ha have been given in petroleum concessions. The climate is tropical, with annual rainfall averaging 2900 mm to 3200 mm and temperatures averaging 25 degrees Celsius. The soils are comprised of red and gray clays, acidic to very acidic; and darker, more organic soils in alluvial areas. Soils are not generally suited for agriculture. Various indigenous groups live in and around YNP, principally Quichua, Huorani, and Shuar.

The majority of YNP is currently intact and not under intensive colonization pressure. This situation could change due to proposed plans to increase road access for petroleum development. Colonization pressure along the western and northern sections appears to be increasing rapidly. Yasuni is at the center of an international controversy about protecting tropical rain forests versus petroleum development. The conflict focuses on the development of reserves in Block 22, a concession granted to CONOCO/DuPont and other investors. Although strict environmental protection measures are being proposed as part of oil development in this area, Ecuador's bleak environmental record on petroleum development (ie. in the Cuyabeno Reserve) and the proposed construction of an access road through the Park and traditional indigenous homelands have galvanized opposition to the development.

The area has been only slightly studied. Botanical expeditions by the University of Aarhus, PUCE, University of Gotenburg, the NY and Missouri Botanical Gardens, and the Ecuadorian Museum of Natural Sciences provide some information, principally inventories of flora and fauna. MAG maintains a small staff consisting of a Park Director and seven park guards. Infrastructure consists of two buildings: a headquarters/guard station in Nuevo Rocafuerte and a guard station in Jatuncocha. Operational budgets are limited. Within the park, river travel is the only practical means of transport. MAG has only one vehicle and one boat to patrol the entire Park.

Cotacachi-Cayapas Ecological Reserve (RECC). This area was established on August 29, 1968, by Executive Decree 1468 and was subsequently reformed by Executive Decree 818 on November 17, 1970. Its borders were defined by Interministerial Agreement 322 on July 26, 1979. The 204,000 ha of this reserve extend from the paramos of Mt. Cotacachi (4939 m) in the Western Cordillera, to the western humid tropical lowland forests (200 m) in the provinces of Imbabura and Esmeraldas, covering 11 biozones found in the northern Andes

and in coastal Colombia. The principal ecosystems are: paramo, mountain slope tropical forest (ceja de selva), cloud forest, and humid tropical forest.

This reserve contains the most pristine conditions found in any of the protected areas of the country, due to its climatic conditions of high humidity, severe topography, and the isolation of its western section. This area is the most visited by tourists with more than 100,000 per year. These tourists mainly visit Lake Cuicocha on the eastern side of the reserve which occupies an enormous crater at the foot of Mt. Cotacachi, and can be reached via first class road from Cotacachi and Ibarra. In spite of its isolated conditions, colonization and wood extraction have reached the limits of the reserve, putting the natural area in severe danger.

Although this reserve is found on the western slope of the Andes and is a part of the Choco Formation, known as a center of dispersion for the biodiversity of the entire region, environmental conditions and its isolation have not permitted systematic research. Little is known about its flora and fauna except for temporary studies and collections conducted by students and professionals of Universidad Catolica (PUCE), Escuela Politecnica Nacional (EPN) and the University of Aarhus. Within or near the reserve limits live Quichuas, Chachis, blacks, and mestizos. Insufficient information is available concerning the organizational structures and resource management systems of these peoples.

MAG maintains an administrative center with headquarters in Cuicocha. The staff consists of 40 administrators, technicians and park guards. In Borbon there is a rustic subcenter, and there are guards in Piñan, Cuellage, San Miguel and Lita.

Cayambe-Coca Ecological Reserve (RECAV). This reserve is the third largest (403,103 ha) of the State's natural patrimony, after the Galapagos and Yasuni. It was established by Executive Decree 812 on November 17, 1970 and its limits were defined on November 20, 1979, by Interministerial Agreement 322. It is located in the provinces of Imbabura, Pichincha, Sucumbios, and Napo. This reserve contains areas of permanent snow (Mt. Cayambe, 5790 m), paramo of the Cordillera Central, ceja de selva, western cloud forest, and subtropical humid forest.

Although there is a lack of biological studies conducted in Cayambe-Coca, it is known to be one of the natural areas of highest diversity in Ecuador. Here, for example, thrive the spectacled bear, the woolly tapir, and the Andean Condor. In spite of the adverse climatic conditions and the difficult topography, the cloud forest is under colonization pressure with settlements found as much as 10 km inside the reserve from the Papallacta-Lumbaqui highway. In the Sierra, the indigenous Quichua communities have turned paramo into agricultural land and pasture for their cattle.

Due to easy access from several locations, RECAJ has the highest concentration of human settlements in its zone of influence. MAG recently halted construction of a road being built through the center of the Reserve between Chaco and Oyacachi.

C. Project Components

1. Organisational Development

The Project strategy focuses on the empowerment of local communities and resource users to deal effectively with issues affecting conservation. The key to achieving Project objectives is the strengthening of rural communities, private, public and non-governmental organizations. This will require increased technical understanding, improved administration, and the capability to correctly manage biological resources. SUBIR will work at regional and national levels by: signing agreements that will require the mutual provision of technical assistance and extension services to project participants; provision of technical training at the professional level; research activities; and the organization of regional and national committees as fora for the coordination of SUBIR and other natural resource related activities.

The specific objectives of this component are:

1. Increase technical understanding among project participants on how to develop and apply sustainable uses of natural resources which satisfy economic needs.
2. Strengthen the managerial capabilities of selected community organizations, public institutions, and private parties, to carry out SUBIR natural resource project activities.
3. Provide a forum to assist in the resolution of resource conflicts by providing technical information and conducting analyses of natural resource issues at local, regional and national levels.

SUBIR will use a decentralized implementation approach in order to increase the efficiencies and impact of project interventions directly at the beneficiary/implementor level (see Figure 2). Project management and coordination by the Consortium is fully described in sections V and VI of the PP. The discussion in the following subsections deals directly with strengthening of local community, GOE and NGO organizations.

a. Local Community Organizations as Project Implementors and Beneficiaries

SUBIR's principal focus will be the resource users at the local level, within the conservation units and their buffer zones. Local people will participate in the design, implementation and monitoring of project activities. Beneficiaries targeted are mestizo, black, indigenous peoples, and will include women. These project participants are direct users of natural resources: subsistence farmers, commercial farmers, ranchers, woodcutters, fishermen, and hunters.

Operationally, the structure presented in Figure 2 is inverted. Beginning at the local level, SUBIR activities will be implemented directly by local organizations and individuals according to each component's focus. Individuals will be assigned by their organizations as counterparts for each activity. SUBIR will focus on training these counterparts to become extension agents. Community leaders will receive training in: organizational development, leadership, communication techniques, how to carry out basic needs assessment, management, auto-evaluation, monitoring techniques, supervision, developing budgets and accounting systems, conservation, and proposal preparation for seeking assistance from international donors, GOE, NGOs, and private-sector enterprises. In theory, these leaders will become trainers and extension agents for their constituencies.

The Project will provide full support to participating communities for four years and intermittently as needed for up to two more years. It is envisioned that the communities will finance recurrent costs to continue natural resource conservation activities. They will also be capable of submitting proposals to solicit resources (credit, technical assistance, debt swap, etc), individually or with support of the Regional Interorganizational Coordinating Committees--RICC.

b. Collaboration with GOE, NGO and Private Sector Organizations, and Other Donor-Financed Programs

During SUBIR's Design Phase, more than 125 organizations were contacted (see Annex III.C). Field assessments performed for first-phase activities have yielded potential counterparts at the local and regional levels. The Ministry of Agriculture and Livestock, Subsecretariat for Forestry, Natural Areas and Wildlife (SUFOREN), will be the principal government counterpart in the Protected Areas Management and Improved Use of Land and Biological Resources components.

The SUBIR Consortium will select the organizations based on competitive bids, sole source, and unsolicited proposals. The Consortium will sign "collaborative agreements" with these

organizations to achieve two basic objectives: 1) to use existing organizations and professionals already in Ecuador; and 2) improve their capability to manage conservation activities strengthening of GOE agencies will not be a priority due to their organization weakness as discussed in Section VI.A. of this PP. It is expected that these organizations and their personnel will provide guidance and assistance to similar programs throughout Ecuador.

The Consortium will require counterpart contributions totalling 25% of the total costs programmed to complete these activities. This contribution can be offered in cash or kind. It is anticipated that this mutual funding arrangement will increase the potential for sustainability of project activities by placing financial responsibility on the beneficiaries. Agreements or contracts will be established based on: specific terms of references, outputs, well defined roles and responsibilities, and mandatory adherence to SUEIR's monitoring and evaluation program. The Consortium will administer and provide financial accountability for USAID and Consortium contributions, while collaborators will administer their own counterpart contributions.

SUBIR will co-finance selected activities wherever possible--especially those involving research and training. The SUBIR Consortium has held discussions with: MAG/DEFIL staff concerning collaboration on agroforestry interventions in the Oriente; GTZ and KfW (Kreditanstalt für Wiederaufbau) representatives concerning agroforestry and biological resource conservation activities in Sucumbios and the Grand Sumaco; Petroecuador's Environmental Protection Unit and Conoco concerning environmental management in Amazonian oil fields; Ecuadorian Armed Forces concerning the control of illegal woodcutting and wildlife trafficking in protected areas; and environmental education programs for officials and conscripts; tour operators and hoteliers concerning ecotourism development; national and international research and educational institutions concerning SUBIR research and training activities; national governmental and non-governmental organizations concerning policy initiatives (IDEA, Fundacion Natura); and the creation of biological resource conservation corridors with Fundacion Antisana, UTEPA, and EMAP (see Letters of Interest and Proposals in Annex II.F).

Annex II.E presents an illustrative list of potential collaborators in SUBIR activities, which are more fully discussed in Annexes III.A.1, 2 and 3 for each subproject area.

c. Regional Interorganizational Coordinating Committees (RICCs)

Due to the complex mix of resource users and development approaches found in the selected conservation units and their buffer zones, it is necessary to establish a structure to effectively transfer information, coordinate Project interventions,

and address resource-use conflicts. SUBIR will facilitate the establishment of Regional Interorganizational Coordinating Committees (RICCs) to bring together the parties involved with resource development and conservation within each Project Area.

The RICCs will initially serve as informal consultative bodies, and as fora for two-way information exchange and dialogue. They will be made up of representatives of community organizations, local and national government institutions, NGOs, and the private sector. The different representatives will discuss and analyze land and resource-use priorities, seek resolution of resource-use conflicts, and provide guidance to SUBIR on how the Project can best support conservation options. SUBIR's Regional Coordinators will update the RICCs on project progress to apprise the various representatives on conservation options.

As these committees evolve, SUBIR may advocate that they be legally constituted according to the National Civil Code, conforming with jurisdictions established for environmental groups. Eventually, RICCs may develop into functioning regional NGOs or associations similar to Fundación Antisana, which unites government and non-government organizations, and private interests into an autonomous resource conservation organization. The RICCs will take over SUBIR's role of coordinating conservation activities in the selected conservation units and their buffer zones after project termination.

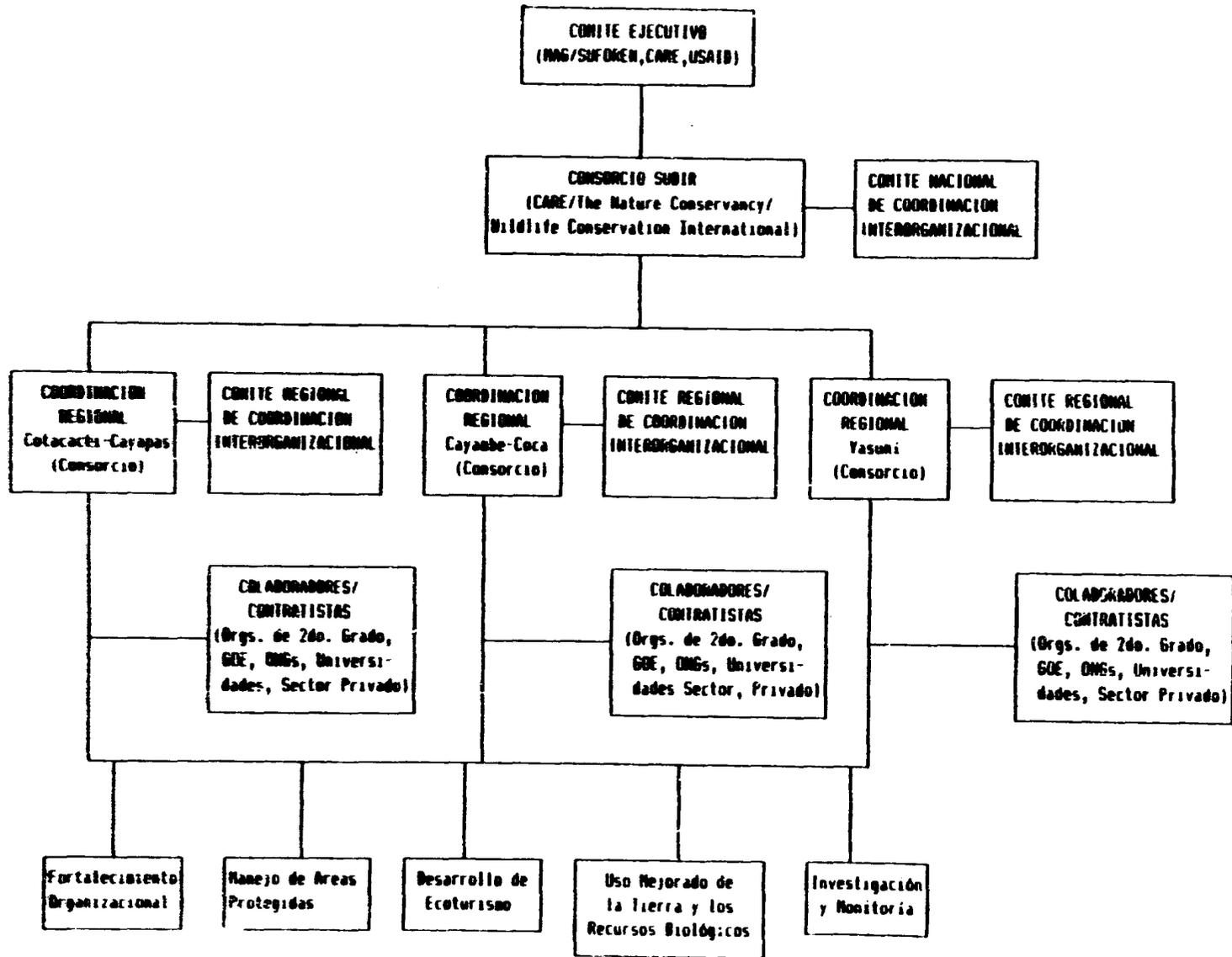
However, the exact nature of the institutionalization of project activities will be developed as the project progresses. SUBIR must support the RICCs for four years as a direct facilitator. After this period, project funding for the Consortium's Regional Coordinator and staff will be withdrawn, and their responsibilities assumed by trained counterparts. SUBIR will gradually reduce its financial support, funding up to 50% of recurrent costs over the following two years. Technical and managerial assistance will be similarly reduced to an intermittent or as-needed basis over this period until the RICCs are fully functional and self-sufficient, or until some other permanent structure is in place that can sustain project outputs. The RICCs will manage the "spread effects" of the activities originally supported by SUBIR, as well as coordinate biological resource utilization and conservation.

d. National Interorganizational Coordinating Committee (NICC)

As the SUBIR evolves, it is expected that the resolution of resource-use conflicts and policies will necessitate the establishment of a National Interorganizational Coordinating Committee (NICC). The NICC could be developed, if appropriate, around the existing Interinstitutional Committee for Environmental

Figura 1

SUBIR IMPLEMENTING STRUCTURE
ESQUEMA OPERACIONAL DEL PROYECTO SUBIR



PROYECTO LOCALES/COMUNITARIOS

Protection (CIPA), or serve as a sub-committee to the same. As envisioned, the NICC will be made up of representatives from Ecuador's Congressional Environmental Commission, government institutions, non-governmental organizations, educational institutions, private sector, and community organizations. The NICC will act as a consultative and coordinating body, and will discuss, analyze, and seek resolution of resource-use conflicts at regional and national levels. SUBIR will update the Committee on the progress of project activities, share research and monitoring results, and will establish the NICC as a forum for the support of project activities.

e. Planning and Monitoring of Project Activities

SUBIR will use a bottom-up participatory approach to guide planning and monitoring. Once the First Phase Workplan is approved, work will begin at local and regional levels to identify strategies to implement SUBIR activities. This approach involves the following:

Baseline Studies and Diagnostic Assessments. Data collected on the status of natural resources, utilization systems, and socioeconomic characteristics of local populations will provide criteria for selection of interventions, and more importantly, establish baseline indicators for monitoring the impact of project activities. Technical assistance combined with local community organizations will carry out rigorous baseline studies following standard methods suitable for comparison with other projects.

Participatory Planning. Project staff will carry out planning exercises with communities in order to develop strategies, operational plans, budgets, and to provide "on-the-job training" in planning and program development.

Monitoring Project Activities. A continuous program will be established with project participants to monitor activities. Concurrently, a program will be instituted with communities to monitor the impact of project outputs. Possible indicators to measure impact are: crop production data, research results on soil organic matter, nutrition surveys, market price surveys, changes in agronomic practices, participation of women, the number of tourism visits, and changes in forest cover. These are indicators of success in achieving objectives of the Project which will be the basis of its evaluation.

Computerized Management Information System. Information generated will be recorded in the SUBIR computerized Management Information System (MIS) located at the Quito office. Data will be collected, recorded, analyzed, and provided to senior project management and others to guide project implementation and also track problem areas.

f. Summary of Inputs

The following is a description of the inputs required for organizational development under Phase I (in addition to Consortium Core Costs). Detailed information concerning technical assistance, training, commodities, and budgets for Phase I are available in Annexes II.B and II.D. Life-of-Project inputs are presented at the end of this subsection.

PHASE I

1) Technical Assistance

The project will require technical assistance totalling \$303,000 in the following disciplines and will be provided by Ecuadorian nationals:

TA Discipline	Level of Effort (Person Months)			
	YNP	RECC	RECAV	TOTAL
Social Sciences	18	8		26
Environmental Education	18			18
Community Outreach	16	1	6	23
Administration/Financial Mgt.	8	3	5	16
Outreach Materials	5	8	10	23
Graphics	10			10
Educator		6	6	12
TOTAL				128
Animators	300	42		342

2) Training (Cost included under Equipment and Commodities)

SUBIR will train community leaders and counterpart personnel in: conservation education, needs assessments, planning, monitoring, evaluation methodology, accounting, administration, management, supervision, and the preparation of proposals. The following number of participants are expected to be trained in each subproject area:

No. of Participants in Organizational Development Training

<u>YNP</u>	<u>RECC</u>	<u>RECAV</u>	<u>TOTAL</u>
85	67	58	210

3) Commodities

Expenditures in this category include publications, office supplies, audiovisual equipment, computer equipment, training materials, and course costs for room, board, and transportation. Total costs budgeted are \$134,000.

LIFE-OF-PROJECT

Technical Assistance	\$	977,700
Commodities		604,200
TOTAL	\$	1,581,900

g. Summary of Outputs

The following benchmarks are expected at the end of Phase I and at the PACD:

PHASE I

- * 53 community organizations strengthened in management and administrative techniques and coordinating SUBIR promoted activities for their members.
- * 53 communities implementing conservation activities in the three conservation units and their respective buffer zones.
- * 12 Ecuadorian trainers providing training and extension services to community organizations and their constituency.
- * Natural resources management and community development curricula incorporated into Ecuador's Armed Forces training program. Military officials actively participating in project's environmental education program.

LIFE OF PROJECT

- * 150 community organizations implementing SUBIR promoted activities with no assistance from the project.
- * 20 NGOs and 8 GOE institutions providing training and extension services in community development and implementing conservation activities in selected conservation units and their respective buffer zones.

- * 800 members of Ecuador's Armed Forces trained in environmental science, community development, and conservation of biological resources.

2. Protected Areas Management

a. Objectives and Justification

The purpose of this component is to preserve the biodiversity of the core areas within the selected conservation units. The first phase sites represent three conservation units for the identification, testing, and development of management protection schemes via research activities. Specific objectives of this component are:

- * Enhance the conservation of biological diversity in selected conservation sites through the development, demonstration, and promotion of improved management techniques in protected areas;
- * Develop at least three large-scale conservation units (protected areas and surrounding buffer zones) representative of the major continental geographic regions of the country (Coast, Sierra, Amazon) to serve as long-term natural resource management models for other protected areas in Ecuador;
- * Demonstrate organizational models that enable local communities to participate in and receive benefits from the management of protected areas and buffer zones;
- * Strengthen the capacity of local institutions, both public and private, to identify, design, implement and manage conservation activities in and around the protected natural areas.

b. Activities

The activities to be carried out to achieve these objectives are described in the following paragraphs. Specific activities by project area are listed in Annex II.E, with a complete discussion of activities by project area provided in Annex III.

Management Plans. Management plans exist for the three selected reserves, but in the case of Cotacachi-Cayapas and Cayambe-Coca they have only been applied in part. Yasuni's plan was never approved nor implemented. This activity proposes to evaluate existing plans, update diagnostic studies of the areas, and develop new management plans based on UNESCO's "Man and the Biosphere Reserve" concepts. This will be achieved through the establishment of interdisciplinary and institutional work groups in

each area, that will be fundamental in guiding programs and proposals in the areas of administration, education, research and training (K. Miller, 1980). They will also serve to integrate local and national actions carried out in these areas.

Conceptually, biosphere reserves such as Yasuni, are established by international bodies to buttress the protection of legally-declared protected areas. Surrounding the core protected area, there is a transition or buffer zone of limited human activity, where activities such as agroforestry, sustainable forest management, low-impact agriculture, hunting, fishing, recreation and tourism are permitted in a controlled manner, to ensure that the environment is not severely disrupted. The outer zone of the biosphere reserve is a cultural area, where resource use follows generally acceptable practices.

To support the development of the management plans, the Project will facilitate the creation of local working groups, and provide them with technical assistance and training through workshops and seminars. The public sector counterpart for the development of the management plans will be MAG/SUFOREN, through its Department of Natural Areas and Forest Resources.

Project inputs include short-term technical assistance in the areas of park management, overall guidance by the SUBIR long-term advisor, and logistical support for workshops and seminars. The three management plans for the selected conservation units are expected to be completed during the first eighteen months of Project implementation.

Definition and Physical Marking of Reserve Boundaries. The definition of boundaries is a critical and interdependent part of the planning process. It is a tool that gives form to protected areas and allows effective patrolling, protection, and assistance in the resolution of land-use conflicts. Boundary demarcation does not, by itself, prevent incursions, but rather provides a means for identification of incursions and illustrates where the protected area is legally defined. Demarcation will be carried out only in those areas of actual or potential incursion, or tenure and resource-use conflicts.

Boundary demarcation will be preceded by an evaluation of the boundaries, comparing the legal limits to those that actually exist (or do not) in the field. Because of limited availability of good-quality map and aerial photo coverage, many segments of reserve boundaries will be approximate (ie. plus-or-minus 2-5 Km). Where appropriate, formal demarcation will be done by placing permanent concrete posts in open areas where they can be easily seen. In forested areas, a swath of approximately 20 meters will be cut and planted with native or naturalized species such as Alnus in the highlands and Palmaceae in the Oriente. The marking of boundaries will be done by communities, MAG and IERAC. Local people will be

contracted during the slack agricultural season when people are available for employment off farm.

The Project will provide short-term technical assistance to MAG/SUFOREN in mapping and boundary location, logistical support, collaborative supervision, and materials for the process of demarcation. Approximately 100 km will be defined, mapped, and demarcated during the first phase of the Project and 300 km over the LOP.

Training of Reserve Personnel. The purpose of the training activities is to increase the capacity of park guards and supervisors to carry out their responsibilities as identified in management plans. Training will be provided to the park guards and selected members of communities who will be involved in monitoring activities and recreational activities. The total number of guards to receive training during Phase I will be 66 (20 in Cotocachi-Cayapas, 20 in Cayambe-Coca, and 26 in Yasuni), and at least 20 individuals from local communities for each selected reserve. Training will be provided in ecology, field monitoring techniques, park management, and conservation practices.

In addition to increasing the technical capacity of existing staff, additional personnel are required in some areas. The Project will support the hiring of 10 new guards, principally in Yasuni which is understaffed. A total of 25 additional staff will be hired in collaboration with MAG, Fundacion Natura, the Debt for Nature Swap, and Parks in Peril programs.

Project inputs to training activities include: short-term technical assistance in biology, ecology, park management, infrastructure development, monitoring, financial administration, logistical and material support for workshops, seminars, manuals and other publications.

Infrastructure Development and Support. Infrastructure in the three reserves is inadequate for park management as well as for scientific and ecotourism activities. The basic field equipment required to implement management activities is also lacking. The purpose of this component is to support the development of basic infrastructure to support park administration, ecotourism, and scientific research. The Consortium will include in its agreement with MAG/SUFOREN provisions for cost sharing of construction activities on a declining basis over three years, with MAG/SUFOREN assuming full financing after three years. Construction activities include:

- * The construction of rustic buildings that can serve as work centers as well as for lodging for reserve staff and researchers. These buildings will be located in Lita and Canande (Cotocachi-Cayapas), Chuscuyacu, Sinangue,

Mirador (Tres Cruces), and Mariano Acosta (Cayambe-Coca), Golondrinas, and Indillama (Yasuni).

- * In each reserve two to three well-supplied administrative control centers will be established. For example, in Cuicocha, Lita, and Borbon for Cotacachi-Cayapas; in Cayambe, El Chaco, and Lumbaqui for Cayambe-Coca; and in Rio Tiputini, Añangu, and Nuevo Rocafuerte for Yasuni. These control centers will also receive financial support from the Debt for Nature Swap and from Parks in Peril.
- * Materials will include canoes with outboard motors for San Miguel in Cotacachi-Cayapas and Añangu in Yasuni. Field equipment for park guards includes such items as raincoats, rubber boots, sleeping bags, tents, camping equipment, communication equipment, etc.

Project inputs to this activity include commodity procurement and technical assistance.

Establishment of Community-Based Environmental Monitoring Network. The establishment of a community monitoring network will be carried out by selected communities to detect and report destructive activities within or near the selected conservation units. The basis for the monitoring network will be developed as part of SUBIR's training program to raise conservation consciousness across the range of resource users. Network members will report to the appropriate authorities on illegal activities in and around protected areas that directly impact their well-being, such as unauthorized colonization, clearing for agriculture, oil spills, road construction, forest/paramo fires, dynamite fishing, hunting activities, etc.

The network is designed to assist Reserve Managers to monitor and to take prompt action when needed. The community-based network will be integrated with SUBIR's overall environmental monitoring program (see Research and Monitoring section below). The RICCs will act as the focal point for discussing and resolving resource use conflicts detected by the network. The Project will fund technical assistance and training in monitoring techniques. In addition, SUBIR will feed back information about environmental conditions in the conservation units that will be distributed by network members to their respective communities and organizations.

Enforcement of Legal Mandates for Protected Areas. This activity is intended to develop and improve decentralized authority to monitor and enforce legal mandates concerned with protected areas. SUBIR will support SUFOREN's ongoing effort to develop increased authority at the regional level, and to monitor and enforce the National Forests, Protected Areas and Wildlife Law. SUFOREN has entered into discussions with the Command of the Ecuadorian Army in order to develop a national "forest platoon" to

work with park and forest guards in controlling colonization, and illegal extraction of biological resources within protected areas. SUBIR will provide technical assistance in monitoring and enforcement programs in protected areas. Project personnel will examine how other Latin American countries implement their park enforcement programs in order to develop an enforcement program appropriate for Ecuador. The system developed should be efficient, equitable, and appropriate given social and legal conditions. The Project will collaborate with IERAC, Fundación Natura, CONAIE, WWF, Cultural Survival, and other relevant organizations in support of this activity.

c. Summary of Expected Inputs

The following is a description of the inputs required to implement the activities proposed under this component for Phase I (in addition to Consortium core costs). Detailed information concerning technical assistance, training, commodities, and their respective budgets for Phase I are available in Annexes II.B and II.E. Life-of-Project inputs are presented at the end of this subsection.

PHASE I

1) Technical Assistance

This component will require technical assistance totalling \$533,000 and will cover the following disciplines:

TA Discipline	Level of Effort (Person-Months)			
	YNP	RECC	RECA Y	TOTAL
Parks Management	6	8	9	23
Forester	6	0		6
Extension	11			11
Cartographer	15	6	5	26
Geographer			3	3
Social Science	4	4	3	11
Archaeologist	4			4
Environmental Engineer	3	3		6
Hydrology			3	3
Remote Sensing	6	3		9
Architect		3		3
Biologist			3	3
Total				108
Trainers (local)			30	30
Survey Crew (local)		16		16
Park Guards	210	120		330
Field Assistants (local)	240	186	420	846

Total

1222

2) Training (Costs included under Equipment and Commodities)

SUBIR will train park personnel and community leaders in planing, monitoring, administration, organizational development, leadership, preparation of proposals, and preparation of budgets. The following number of participants will receive training:

Number of Participants in Protected Areas Management

YNP	RECC	RECAV	TOTAL
40	80	60	180

3) Equipment and Commodities

Expenditures in this category include office rental, audiovisual and field equipment, vehicles, boats, publications, promotion materials and training costs. Total costs estimated are \$252,200.

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Technical Assistance	\$ 1,965,700
Commodities	1,133,100
TOTAL	\$ 3,098,800

d. Summary of Expected Outputs

The following benchmarks are expected at the end of Phase I and at the 10 year PACD:

PHASE I

- * Man and Biosphere (MAB) Management Plans being implemented in Cayambe-Coca, Yasuni, and Cotocachi-Cayapas.
- * One hundred km. of reserve boundaries posted.
- * Thirty park guards and community extensionists equipped, trained, and managing three conservation units.
- * Twenty seven community workshops held.
- * Three community environmental monitoring networks established and functioning.

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- * Six MAB Management Plans being implemented in six reserves or parks.
- * Three hundred km of reserve boundaries posted.
- * One hundred reserve guards and community extensionists equipped, trained, and managing six protected areas.
- * Thirty community workshops and seminars held in each of the six areas.

3. Ecotourism Development

a. Justification and Objectives

Ecuador has significant potential to develop its national and international ecotourism market. Tourism has become an important foreign exchange earner for Ecuador (\$ 180 million in 1990), ranking third behind petroleum production and agriculture. However, the development of ecotourism will place demands on the resource base as well as upon management and administrative capacities. Ecotourism can represent a viable non-consumptive use option for conservation only when the necessary park protection and management capabilities are in place and functioning, and tour operators and guides have sufficient training to act as reserve conservationists.

Each of the three selected areas for Phase I offers the self-guided, nature-oriented visitor numerous possibilities. However, organized visitation is constrained by: 1) lack of infrastructure in and near the reserves; 2) a shortage of experienced and well-trained reserve personnel and tour guides; and 3) inadequate natural history, interpretive, promotional and educational materials. The specific objectives of this activity are:

- * to develop well-managed ecotourism activities that enhance the protection efforts in each area;
- * provide the tourist with a satisfactory and educational recreation experience; and
- * assure that the economic benefits resulting from ecotourism flow to the local communities.

b. Activities

Ecotourism Evaluation and Management Plans. SUBIR will evaluate the ecotourism potential of each conservation unit and its buffer zone. Specific criteria for evaluation include: the availability and quality of infrastructure to effectively manage ecotourism visitation; the identification of ecological, geological, cultural, and aesthetic ecotourism visitor sites; the impacts on the natural resource base (increased environmental awareness of visitors and local residents versus poaching, increased pollution, perturbation of wildlife habitat, disruption of local cultural life, ecological damage, etc.); the identification of beneficiaries; the distribution of costs and benefits; the availability of training opportunities for local guides; and private-sector investment.

The Project will organize MAG/SUFOREN, CETUR, FEPROTUR, tourism operators, and local communities to assess current levels of tourist visitation to each area, to locate actual and potential sites, and to evaluate these areas per the criterion cited previously. FEPROTUR will take the lead in carrying out assessment activities and in coordinating the efforts of the other organizations. After this assessment, a tourism plan for each area will be prepared describing the quality of each site, the identification of infrastructure requirements, mitigations, and estimated carrying capacity.

SUBIR will establish working groups that include MAG/SUFOREN personnel, community representatives, and tourism operators, to constitute a monitoring team to support and evaluate tourism activities. The Project will promote ecotourism as a long-term economic alternative for local communities and also to assist national development. The organizations qualified to conduct tourism activities in each area are listed in Annex II.E.

The Project will provide technical assistance in the following areas: tourism evaluation and planning, tourism trail design, preparation of information materials, and designing methodologies to monitor tourism activities. Logistical support such as transportation, organization of workshops, publication of studies and derived educational materials will also be provided. It is expected that the three studies will be completed by June 1992.

Community Based Ecotourism Programs. Community-based ecotourism programs in each selected area will be designed and implemented. The following have been identified as primary candidate sites: Comuna Añangu (Yasuni National Park), San Miguel (Cotacachi-Cayapas Ecological Reserve), and Papallacta (Cayambe-Coca Ecological Reserve).

The Comuna Añangu has initiated a small ecotourism program in Añangu Cocha for which it has requested SUBIR assistance. In the

case of San Miguel, the community will implement the activity while in Papallacta, Fundacion Antisana (FUNAN) will be contracted to develop the activity, but the local ecological group, Asociación Rumicocha, will be a direct counterpart. SUBIR staff and collaborators will provide assistance in the design and development of the programs.

The Consortium will enter into collaborative agreements with these local organizations that delineate each party's responsibilities, inputs, and outputs under this activity. Community contribution on a matching basis will be required. Project inputs include: overall guidance and support from a SUBIR long-term technical advisor; short-term technical assistance in community organization techniques, construction, training, preparation of exhibits, trail design, information/promotional materials, and financial support for construction and/or improvement of trails and recreation areas, development of maps and educational materials, and installation of potable water, garbage disposal, latrines and bathrooms. The Project will also support a series of workshops between the communities and tour operators to facilitate the development of commercial relationships and investment opportunities, replicating the experience developed by FUNAN between Viajes ORION and the communities of Pintag, Papallacta and Bermejo. The three community programs are expected to be fully operational by the end of 1993.

Ecotourism Interpretative Centers. The Project will support the design, construction and management of an ecotourism interpretation center for each project area. The initial review identified Coca (Yasuni), Laguna Cuicocha (Cotacachi-Cayapas), and Papallacta (Cayambe-Coca) as the most probable sites. The ecotourism evaluation will provide a final site determination. The interpretative centers will consist of the following: an aesthetically integrated building constructed with local materials and featuring local architecture; exhibits showing the entire protected area buffer zone, visitor sites and trails, and the natural value of each place and their surroundings, with drawings, maps and photographs; audiovisual equipment for media programs; and information desk, snack bar, gift shop and rest rooms.

The Centers will be designed in accordance with tourism management plans for each area by an architect under contract to SUBIR. The displays will be done with Peace Corps assistance and consultants. Local people will derive benefit from the centers through conservation educational programs, offering services to visitors and charging fees for the Centers.

The ecotourism interpretative centers will be managed in Coca by a local group including FCUNAE and Mision Capuchina that will be organized and developed through the RICC; in Cuicocha by the MAG reserve personnel; and in Papallacta by FUNAN/Rumicocha.

The Project will provide financial and technical assistance through Consortium staff and collaborators (CETUR, FEPROTUR, Fundacion Natura, tourism agencies) for the design, construction, and management of these centers in the following areas: design of exhibits, and audiovisual programs and materials; center management training; environmental education programs; and language training. Information generated through the SUBIR research component (see below) will be incorporated into exhibits, and provide a better knowledge of the project area. It is expected that the three Interpretative Centers will be fully operational by the end of FY 93 and will be funding operational costs of the centers after approximately five years of operation through a combination of user fees, and sales of literature and promotional materials.

Ecotourism Guide Training. Analysis and observation of the qualifications of guides in the project areas indicated they are deficient in understanding of local cultures and the natural environment. The Project will work with NGO's, CETUR, MAG and FEPROTUR to design and deliver specific training programs for guides and tour operators in each of the project areas. Training will be provided through workshops and seminars, utilizing material generated through the SUBIR research activities and will include the following general topics: public relations, tourist rules, preparation of audiovisual materials, photography, interpretation of scientific information, and first aid. The Galapagos model will be adapted for SUBIR project areas. This model requires that guides be fully-trained and re-licensed every three years. Galapagos guides have developed into true conservation agents and are an integral part of the management strategy of the national park.

Training manuals and educational materials will be developed in collaboration with MAG/SUFOREN, CETUR, FUNAN, Fundacion Natura, and tour operators. Under this activity training will also be provided to MAG/SUFOREN reserve guards and officials, as well as to municipal government staff. It is anticipated that during the first phase of the Project, approximately 60 tour guides will be trained and that MAG/SUFOREN and other project counterparts will have the capacity to manage training programs with resources from tour operators.

Ecotourism Information and Promotion Campaign. The lack of information available to the tourist in the three project sites constrains the potential for increasing ecotourism and investment in tourism infrastructure and services. Information developed under the component of Management of Protected Areas, the Ecotourism Evaluation component, and the Research and Monitoring component will be synthesized and disseminated through various channels (schools, tour operators, newspapers, newsletters, publications, seminars and workshops) to generate demand for

ecotourism in selected areas and the identification of ecotourism-related investments by potential investors. The publications will be of three types: high-quality naturalist glossier (flora, fauna, natural history), access and user orientation (maps, trail guides), and service facilities (accommodations and guides).

Once materials have been prepared, SUBIR will collaborate with CETUR, FEPOTUR and MAG/SUFOREN in the development of a multimedia promotion campaign for each protected area, linking ecotourism opportunities to local communities, hoteliers, tour agencies, and licensed guide operators. These same materials will provide the basis for investment seminars for interested tour operators, and for the promotion of educational tours involving schools and universities throughout the country. Some materials will be distributed free (promotional), while others (guide books and bird lists) will be sold.

c. Summary of Expected Inputs

The following presents a description of the inputs required to realize the activities proposed under this project component for Phase I (in addition to Consortium core costs). Detailed information concerning technical assistance, training, commodities, and their respective budgets for Phase I are available in Annexes II.B and II.D. Life-of-Project inputs are presented in summary at the end of this subsection.

PHASE I

1) Technical Assistance

This component will require technical assistance totalling \$154,700 to be provided by SUBIR, the Consortium, and counterparts. Technical Assistance will cover the following disciplines:

TA Discipline	Level of Effort (Person-Months)			
	YNP	RECC	RECA	TOTAL
Ecotourism	6	5	5	16
Parks/Natural Areas	3			3
Sociologist	5			5
Architect	3	4		7
Tourism Promotion	5	3	9	17
Recreation		1	3	4
Archaeologist			2	2
Total				54
Construction	30	27		57
Field assistants		8	180	188

Total

245

2) Training (Costs included under Equipment and Commodities)

SUBIR will train community leaders, counterparts, and Reserve personnel in: nature interpretation, tourist guiding techniques, administration of tourism facilities, and organization development. The following number of participants are expected in each subproject area:

Number of Participants in Ecotourism Development

YNP	RECC	RECAV	TOTAL
24	20	25	69

3) Commodities

Expenditures will be \$219,000 to finance publications, construction of interpretative centers, training and audiovisual equipment and materials.

LIFE-OF-PROJECT

Technical Assistance	\$ 558,900
Commodities	869,800
Total	\$ 1,428,700

d. Summary of Expected Outputs

The following benchmarks are expected at the end of Phase I and at the 10 year PACD:

PHASE I

- * Completion of ecotourism evaluations for each selected conservation unit, with their recommendations being carried out in management plans.
- * Three community-based ecotourism model projects being implemented.
- * Three ecotourism interpretative centers functioning and offering full services to tourists.
- * Six ecotourism workshops held in each area for a total of 18 workshops.
- * Sixty-nine nature guides carrying out their duties.

- * Three inventories of ecotourism sites completed.
- * A natural history guide, two promotional posters, and informative audiovisual materials for each area developed and being used by the general public.

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- * Development of a country-wide ecotourism training guide that provides standardized training and professional guidance.
- Twelve community-based ecotourism programs are self-sufficient and do not require project assistance.
- * Six ecotourism programs providing communities with direct economic benefits.
- * 150 ecotourism guides working at SUBIR sites.

4. Improved Use of Land and Biological Resources in Buffer Zones

a. Justification and Objectives

Due to the wide ecological diversity both within the selected protected areas and their buffer zones, and the range of uses to which these are subjected, three complementary and mutually-supporting technical sub-components are to be implemented:

- * Community Forest Management,
- * Intensification and Diversification of Land Use, and
- * Pilot Projects in the Collection, Processing and Commercialization of Biological Resources

The justification for this component is based on the premise that by improving the productivity and sustainability of resource use systems surrounding protected areas, pressure to convert wildlands within and near the protected areas to pasture and agricultural fields will be significantly reduced as land users enter more stable, sustainable and economically viable systems. Activities under this component will be interrelated and implemented concurrently so as to effect the comprehensive management of biological resources in a single land parcel, and among the collective land parcels in the project areas. As resource users improve their agricultural activities, they will be offered training in rational forest management and agroforestry. In addition, SUBIR will work with local communities and IERAC to facilitate adjudication of land parcels, and restrict settling of areas not apt for agricultural conversion in order to reduce colonization pressures in buffer zones. Furthermore, improved resource use practices will help maintain biological corridors and

important ecological services. The principal objectives for this component are:

- * Provide counterparts and participants with the appropriate technical skills to improve the management and utilization of buffer zone lands and related resources;
- * Provide access to and opportunities for environmentally sound land-use practices; and
- * Validate research findings and transfer to the field low-input promising technologies which have applicability and replicability.

SUBIR's strategy will be to promote more intensive production systems that diversify crop mix, reduce economic risks, and encourage sustainable yields. As resource utilization systems come under growing demographic pressure, and indigenous populations become increasingly drawn to commercial agriculture, it is imperative to reinforce the value of traditional systems so that they are not lost, but rather serve as models for resource users. Resource utilization systems can be intensified and simple technical interventions can increase productivity and income, and simultaneously conserve the resource base. The long-term Natural Resources Planner will guide the activities proposed under this component.

b. Activities

SUBIR will determine which specific "technical packages" to promote within targeted communities in accordance with the results of diagnostic baseline studies. Interventions will determine solutions to high priority resource use problems such as basic food production, and improvement in small scale commercial production systems. Selection of species of crops and trees will be based on land use criteria derived from evaluations of soils. Past and present farmer experiences with the adaptability and acceptance of certain crops and agroforestry mixes will be evaluated and included in the selection of technical packages. The following activities are indicated for the buffer zones. Annex II.E presents a list of specific activities that are prescribed for each project area during Phase I (also see Annexes III.A.1, 2 and 3 for details on each project area). The following descriptions provide an overview of the technical approaches to be employed in the implementation of these activities.

Community Forest Management and Agroforestry. These activities are oriented both to the rational management of existing secondary and primary forests, as well as the reintroduction of trees or shrubs in areas where they are scarce or have significant potential. The objectives of this activity are to increase local

people's perception as to the value of multiple products harvested from well-managed forests and to implement more diversified crop mixes which may provide longer-term economic alternatives offered by agroforestry systems.

Activities will be implemented directly through community organizations. As explained in the Organizational Development component, SUBIR will tap human and material resources of counterparts for the provision of technical assistance, training, and extension services. For instance, where MAG/SUFOREN and MBS/DRI counterpart personnel are available, they will collaborate in Project activities. Where no GOE extension personnel are available, NGOs will provide extension services and will exert quality control over activities through the SUBIR monitoring program. The specific technical interventions contemplated for SUBIR project areas include.

Forest inventories. As a basis for rational forest management, community and privately owned forests will be inventoried using a simple resource assessment scheme to be developed early in project implementation. The Missouri Botanical Garden will provide the technical direction to project staff, community members and individual forest holders to carry out plant inventories. These inventories will assess existence, distribution and density of: forest resources of known value, medicinal plants, colorants, fruits, fibers, ornamental plants, seed stocks, and wildlife. Project participants will receive training in the value of traditional and alternative forest products in terms of quick return extractive practices and in terms of sustained yield alternative practices. SUBIR will work closely with the Missouri Botanical Garden, the New York Botanical Garden, and the National Herbarium to facilitate implementation.

Forest management plans. Simple plans for harvesting of selected products, both for subsistence and small-scale commercialization, will be developed based on consumption patterns and marketing schemes. Harvest rates will emphasize sustained yields and will balance priorities between products and ecological services to maintain biodiversity in managed forests. All inventories and management plans will be submitted to MAG/SUFOREN for approval under Forestry Law regulations.

Agroforestry. In buffer zone areas where forest cover has been severely denuded and where agroforestry activities should be promoted, SUBIR will assist communities and groups in establishing agroforestry nurseries. These "low-tech" nurseries will be located on sites that provide year-round access to water and other materials. SUBIR will provide training, technical assistance, and materials such as plastic bags, fertilizers, tools, agrichemicals, seeds, and vegetative materials. Communities will provide locally available materials and the labor to implement all nursery operations. Species selection will depend on the results of the

diagnostic surveys and inventories. These nurseries are expected to produce multipurpose tree seedlings, high-value timber species, fruit-bearing plants, and vegetative material for green manures and pastures. Experience in Ecuador has shown that women make the best nursery managers and staff. SUBIR will therefore, recruit and train women to manage the nurseries, subject to analysis conducted in the planning stage of this activity that provides data on the social impacts.

In areas where the need to reestablish, increase the density and/or diversity, or manage existing forest cover, SUBIR will support agroforestry activities. These activities will build on the positive as well as negative experiences of past or existing projects such as AID/SUFOREN-DEFIL, Colegio Agropecuario de Quinindé, CARE/PROMUSTA, and GTZ/Lumbaqui.

In buffer zones areas, livestock raising is a principal land use. For areas experiencing current or potential overgrazing, SUBIR will promote agrosilvipastoral systems combining selected crops, grasses, shrubs and tree species. The Project will encourage increasing tree densities in pastures using legumes such as Erythrina and Gliricidia as living fence posts and enriched fallows. High value timber species such as Cedrela, Juglans, and Hyeronimas will be planted with fast growing pioneer species such as Cordia, Helioscarpus, and Pollalesta in correct spacing densities that balance timber and pasture production. These silvipastoral systems should recuperate sites, increase biodiversity, and provide desired site specific environmental benefits.

Intensification and Diversification of Land Use. In order to dissuade the burgeoning need to convert primary and secondary forests to extensive agricultural lands under non-sustainable land use practices, SUBIR will promote a series of activities aimed at intensifying and diversifying land use in situ. These improved practices should result in increased productivity per unit of land, improved soil characteristics, and more diversified crop mixes, all leading to increased farm income. These activities will be carried out in concert with community forestry activities described above. As presented in Annex II.E, SUBIR will coordinate technical and extension assistance to local community organizations through MAG/SUFOREN and MBS/DRI personnel where available. CARE/PROMUSTA is already working in proximity to both RECC and RECAJ buffer zones and will redirect resources to support SUBIR activities. In PNY, the eastern flank of RECAJ and the western flank of RECC, SUBIR will coordinate land use activities through NGOs. In all cases, SUBIR will provide technical, logistical, and financial assistance through collaborative agreements, and maintain control over the quality of operations through the Project's monitoring program.

Improvement and/or diversification of perennial and annual crops. In order to provide medium-to long-term economically viable agricultural alternatives, SUBIR will support the use of perennial crops in local farming systems. Ongoing research (e.g. INIAP, FUNDAGRO) has resulted in recommendations for promising species which could be tested and demonstrated in selected communities (eg. chontaduro and cacao in PNY, avocado and fruits in RECAJ, and disease resistant plantains and citrus in RECC). In other analogous areas with similar agro-ecological conditions in Latin America, numerous varieties of tropical and subtropical perennial crops are being met with commercial success. The project will secure and plant these promising varieties to observe their performance under Ecuadorian conditions. For selected species already cultivated at the farm level, SUBIR will encourage communities to collect seed and vegetative material for propagation and eventually distribution.

Similar to the objectives for the introduction of alternative perennial crops, when and where appropriate SUBIR will encourage the diversification of annual crop mixes appropriate to the region. This activity will be oriented primarily to farmers who depend almost exclusively on higher-risk monocultures such as maize, coffee and barley. In many cases, plant spacing and plant density can be increased to yield greater production results, especially for maize, beans, coffee and fruit trees. Improved spacing can also reduce weed growth by shading out the understory. Careful selection of seed from local non-hybrid varieties of cereals, legumes, and tubers, can improve the quality and productivity of crops. Farmers will be advised as to the advantages of a diversified crop base which has lower economic risks, greater productivity per unit of land, and guarantees a higher level of food self-sufficiency. Small surpluses in production from a varied range of annual crops, when combined with the production of commercial perennial crops, can lead to a significant increase in disposable family income. While SUBIR will place emphasis in increasing production of traditional crop varieties, improved varieties will be introduced into the cropping patterns after they have been screened through applied research. Some examples include: improved varieties of rice and yuca from CIAT in Colombia; disease-resistant potatoes from CIP and improved varieties of wheat and barley from CIMMYT.

Improved agricultural and soil conservation practices. SUBIR will promote soil conservation and low-input agriculture. The maintenance of soil quality and fertility are important considerations for sustainable yields and SUBIR will promote soil building and organic manuring. Green manure species such as Arachys pentolii, Desmodium ovalifolium, Vicia sp., forrage oats and vetch, can be grown, cut and plowed under, returning organic matter and nitrogen to the soil. To limit pest problems and help manage soil fertility, crop rotation and intercropping will be encouraged. Where livestock raising is prevalent, animals can be contained in

corrals or tethered, and cut fodder can be brought to them. Animal manures are collected and applied to fields as an organic fertilizer.

Where waterlogging is a problem, especially around Cotacachi-Cayapas, SUBIR will promote simple improved drainage options such as furrows, drainage canals and "hilling". Proper techniques for managing water and small-scale irrigation will be taught. In areas of RECC and RECAJ where topography is steeper, SUBIR will build on successful PROMUSTA strategies of contour furrows, drainage ditches, terraces and green barriers of selected grasses, trees and shrubs (Baccharis, Desmodium, Panicum, Pennisetum, Glicicidia, Vigna) on the contour. In order to reduce the need for pesticides in all project areas, SUBIR will support integrated pest management (IPM) strategies, and will adhere to CARE's Pesticide Policy which promotes reduced use of less toxic chemical compounds and safe application methods. SUBIR will also support a "no-burn" land preparation policy in order to induce a return of cultivated land to a more ecologically balanced system.

Pilot Projects in the Collection, Processing and Commercialization of Biological Resources. Ecuadorian rural areas, including the buffer zones surrounding the protected areas, have traditionally been exploited for wood that was transported to urban areas. Thus, much of the "value added" does not stay in the region. SUBIR will promote viable alternatives for the processing and commercialization of selected biological resources in the buffer zones in order to capture a greater portion of the economic potential than that offered by raw products only. These pilot projects will offer employment and income-generation alternatives to community members. The diagnostic studies performed prior to developing this activity will indicate where it is appropriate to target these opportunities for the benefit of women and youth. SUBIR will provide small grants or loan guarantee funds for the purchase of limited amounts of tools and equipment. The Project will coordinate activities among GOE and NGO collaborators, such as CENAPIA, IADAP, Museo Nacional de Artesanias, Museo Abya Yala, Escuela Nacional Politécnica, and Misión Capuchina; will monitor training and technical assistance activities, and assess the progress in marketing operations between community groups and the private sector.

Each pilot project will be preceded by baseline feasibility studies that focus on: the current distribution and density of raw materials targeted for investigation and their qualities, production potential according to product, and feasibility of collection, processing and commercialization (including potential markets). Limited research will also be carried out on processing alternatives in order to derive, test and demonstrate which products and by-products to consider for commercialization. These activities have a direct link with those of Community Forest Management. Forest management and wood extraction plans, for

instance, will be integrated with marketing strategies. SUBIR will facilitate market linkages between community organizations and the private sector, especially emphasizing the evolving "green market" dedicated to the environment-minded consumer. During the SUBIR Design Phase, contact was made with various private-sector representatives such as Amazonia, International Plant Medicine, La Bodega, Ecological Trading Company, and ANEPIM concerning marketing potentials.

Indigenous populations in the project areas have passed, from generation to generation, their traditions of arts and crafts, including the handcrafting of tools, mats, nets, hammocks, ornaments, and baskets. Many of these items are used daily by communities with few items being sold externally. Within the buffer zones, there exists untapped wealth of both artisanal talent and raw materials. Similarly, SUBIR field investigations have detected several viable markets, albeit initially small, that can provide the impetus for local artisans to enter commercial markets.

The first and foremost market is that of an ever-increasing ecotourist trade, primarily foreigners who come independently or in tour groups. An overview of tourist centers and hotels in many areas close to protected areas, showed that very few souvenirs are offered beyond printed tee-shirts. SUBIR will support the development of small-scale artisanal trade through the provision of training in traditional and alternative craft forms using locally available biological resources. The initial market will be hotels and ecotourism hostels, and may later include regional artisans' cooperative shops, craft markets in Quito and Guayaquil, and import shops in the US and Europe (eg. Pier 1, Once a Tree, and catalogue companies such as The Nature Store, Eddie Bauer, The Peruvian Connection).

SUBIR will conduct a survey of artisan capabilities in the project areas, including an inventory of crafts and utilitarian objects currently being produced with local materials. The market potential resulting from the tourist trade in the region will be quantified. Based on the results of the survey, a series of craft lines will be promoted, with training, if necessary, and offered to selected artisans. SUBIR will encourage the creative potential of local artisans, and build on those traditional handicrafts that are already produced. It is expected that the bulk of SUBIR's input to the effort will be in basic small-business training and investigating markets and their potential. The following are considered viable artisanal products: baskets and mats, reeds and palms (RECC and RECA); hammocks and fishing nets (RECC and PNY); souvenir weapons and ceremonial objects made of local woods, seeds and fibers (PNY); wooden carvings (RECA); musical instruments (RECC and PNY); floral and ornamental wreaths and arrangements; necklaces with local vines, flowers and seedpods (all areas); and ceramic pots and ornaments (RECA, PNY). Also, as the potential for other pilot projects becomes known, SUBIR will analyze

biological resource inventories and promote development of additional products such as resins, herbs, spices, nuts, and fruits.

There are limits to extraction because they can only benefit a fraction of the growing number of people that are forced to destroy forests to survive, extractive reserves are no substitute for programs to redistribute farmland, reform farming practices, and halt population growth. Though overshadowed by the appeal of extractive reserves, inviolate biological reserves are still crucial for protecting the full range of ecosystems, species, and genetic diversity. Extractive reserves cannot play this role.

Neither can non-timber forest products provide for all the needs of the rural poor. Agriculture and forest extraction usually go hand-in-hand: most forest gathers also farm small clearings, and most small farmers rely on nearby forests for off-season food or other products. Relatively little attention has been paid to this connection. Extractive reserves can demonstrate how fragile ecosystems can be used without causing wholesale destruction and how the rural poor can assume greater influence over their lives Ryan (1991).

c. Summary of Expected Inputs

The following presents a description of the inputs required to implement the activities proposed under this project component for Phase I (in addition to Core Consortium inputs). Detailed information concerning technical assistance, training, and commodities, and their respective budgets for SUBIR Phase I are available in Annexes II.B. and II.E. Life-of-Project inputs are presented in summary form at the end of this subsection.

PHASE I

1) Technical Assistance (\$557,000)

TA Discipline	Level of Effort (Person-Months)			
	<u>YNP</u>	<u>RECC</u>	<u>REGAY</u>	<u>TOTAL</u>
Agroforestry	3	7	7	17
Forestry	10	7	3	20
Social Science	4	3	10	17
Agronomy	6	5	6	17
Horticulture	3		4	7
Ag. Extension	8			8

Processing/Marketing	6	4	3	13
Artisanal Development	8	6	9	23
Botany	2			2
Trainer/Educator			6	6
Cartography		1		1
Fisheries			9	9
TOTAL				140
Field Extensionist (local)		258	90	348
Field Assistant (students)		36	90	126
Extension Assistants (local)	180	180	600	960
TOTAL				1434

2) Training (Costs included under equipment and materials)

SUBIR will facilitate "training of trainers" programs to community leaders, who will in turn train members of their organizations. Specific training themes and course curricula will be developed pending the results of diagnostic surveys and training needs assessments. The following training themes have been identified: natural forest management planning and sustainable extraction techniques; agroforestry and extension methods; horticulture and home gardens; nursery management; improved agricultural practices and soil conservation; pasture management and silvipasture; biological resource harvesting and processing methods; artisanal development; and marketing techniques. More detailed information on training is provided in Annex II.E and Annexes III.A 1, 2 and 3. The following total number of participants are expected during SUBIR Phase I:

<u>YNP</u>	<u>RECC</u>	<u>RECAV</u>	<u>TOTAL</u>
300	1050	650	2000

3) Commodities

Expenditures are estimated to be \$366,700 and will include: vehicle procurement and maintenance, extension materials, field equipment, nursery and plant material, agricultural tools and supplies, training materials, and costs associated for workshops and seminars. Procurement lists for each project area are presented in Annex II.B.

LIFE OF PROJECT

Technical Assistance	\$ 2,250,200
Commodities	1,406,400
TOTAL	\$ 3,656,600

d. Summary of Expected Outputs**PHASE ONE**

- * 3 models operating in each project area for a total of 9. These models will consist of community forest management, sustainable agriculture, and processing and marketing of biological resources activities.
- * 2,000 families have received technical assistance in land use and extraction of biological resources, and at least 80% are actively using these technologies.
- * 13,680 participants have received training in land use activities in buffer zones.
- * 30 demonstration farms established in buffer zones illustrating SUBIR promoted land use technologies (10 each area).
- * 150 community-level nurseries producing high quality seedlings.
- * 4,000 hectares of buffer zone lands treated with SUBIR promoted community forest management and agricultural technologies.

LIFE OF PROJECT

- * 27 models in 6 project areas on community forestry, agriculture, and biological resources extraction have been developed and adopted by project participants.
- * 4,500 families have received direct technical assistance in land use and extraction of biological resources.
- * 9,000 participants have received training in land use technologies for buffer zones and 80% are using these technologies on their lands.
- * 90 demonstration farms established in 6 buffer zones illustrating SUBIR promoted technologies.

- 450 community-level nurseries producing high quality seedlings.
- * 12,000 hectares of buffer zone lands treated with SUBIR promoted community forest management and agriculture practices.

3. Research and Monitoring

Despite the outstanding importance of Ecuador's forests as reservoirs of biodiversity, providers of essential ecological services, and potential long-term sources of economically valuable forest products, extremely little is known about these ecosystems and their relationship with bordering lands which are more intensively used. Ecuadorian land-use managers lack critical biological and socioeconomic information on which to base actions for natural resource protection, for the promotion of sustainable uses of forest resources, and appropriate agricultural uses of sensitive buffer zone lands. Due to a lack of both funds and experts, Ecuadorian governmental institutions, universities and NGOs have not developed a tradition of field investigation outside of the Galapagos Islands. Meanwhile, the research activities of foreign scientists in Ecuador have focused primarily on theoretical or taxonomic concerns, and have not addressed practical problems in biological conservation. In many cases, research information has not been repatriated to Ecuador ("data flight").

Recently, Ecuador has received much greater support for applied research on natural resource management, with a series of projects being funded by USAID and other international donors, implemented by, among others, the Missouri Botanical Garden, the New York Botanical Garden, Wildlife Conservation International, Cultural Survival, Philadelphia Academy of Natural Sciences, FUNDAGRO, Fundación IDEA, CECIA, EcoCiencia, University of California-Davis, and the University of Aarhus. These research projects represent a promising start, but are insufficient to lead Ecuadorians to recognize: (1) the ecological dynamics of intact tropical ecosystems; (2) the basis for sustainable use of natural resources; (3) the potential sustainable benefits derived from these areas; and (4) the complex socioeconomic, legal and political factors associated with their misuse of resources. Furthermore, no adequate mechanism currently exists to coordinate research efforts and effectively distribute research results; thus, research has only infrequently been applied to management of biological resources.

a. Justification and Objectives

In order to improve conservation and long-term sustainable use of biological resources, a multidisciplinary program of investigation is essential for providing information on the status

of resources in question, ecological processes in which they are implicated, current use patterns and their impacts, alternative sustainable production systems, and an enhanced understanding of the legal and socioeconomic forces that influence land- and resource-use practices. The program of investigation planned under SUBIR will generate information directly applicable to the objectives and the range of activities proposed under the Project, and will distribute such information for wider use. A central goal of the Project is to develop models that demonstrate the economic value of conservation and sustainable use of natural resources. Implementation of this program will involve the participation of both Ecuadorian and international organizations, strengthen national capabilities to conduct such work in the future, and promote international cooperation in the research agenda.

A major focus of SUBIR will be to foster a multidisciplinary investigation program with the following specific objectives :

- * Increase the information base and establish monitoring systems concerning natural biological systems and the consequences of human use;
- * Assess management systems, especially those based on traditional use, and explore alternative uses of biological resources;
- * In support of ongoing policy initiatives in Ecuador, examine the influence of regional or national-level, land tenure and resource-use policies on local management of biological resources;
- * Contribute to the training of Ecuadorian social scientists, biologists and foresters in field research techniques and extension methods, as well as Ecuadorian natural resource managers and decision-makers;
- * Strengthen national research institutions and NGOs by increasing their level of participation in problem-solving research related to natural resource management;
- * Monitor SUBIR project activities and their impact on biological resources and the people that use them.

b. Activities

To generate models of long-term sustainable management of biological resources, the SUBIR Research and Monitoring component will encompass baseline inventory and monitoring of biological resources in the selected natural areas, and more detailed investigation of current and alternative resource utilization systems (including forest products) within the protected areas and

their buffer zones. This component fully supports the three components discussed above, providing the basis for technology selection, assessment of the success of a given activity, and is intended to provide the basis for generating viable innovations.

SUBIR intends to collaborate, expand, and/or continue research assistance where appropriate. Many technological advances are now in development in the Oriente by the New York Botanical Garden, Missouri Botanical Garden (including Yasuni National Park), the USAID/Ecuador-funded DESFIL activities (Sumaco and Agroforestry Subproject), as well as the WCI/EcoCiencia Cloud Forest Indicator Species Program, CARE/PROMUSTA, and the Upper Napo and Awa Ethnic Reserve assistance efforts by Cultural Survival and WWF. All research conducted under SUBIR will provide data to the Conservation Data Center (CDC) at CONACYT to facilitate the analysis and nationwide dissemination of research findings. Further, the close ties WCI and TNC have with the Organization for Tropical Studies (OTS) in Costa Rica and the Smithsonian Tropical Research Institute (STRI) in Panamá, and CARE and TNC's participation in similar projects in Central America, will provide SUBIR with useful models to guide field research and training efforts in Ecuador.

Implementation of this program will be based on collaboration between national and international institutions to bring a multidisciplinary perspective to project activities at the reserve, community, and ecosystem levels. As the Project proceeds and in-country research capabilities expand, greater responsibility for research design and implementation will be undertaken by Ecuadorian institutions and personnel. It is therefore intended that by the end of the Project, a research system will be in place that can operate without SUBIR support. Research and monitoring activities will be designed to integrate with other SUBIR components and will seek active participation of local people.

Support for research activities will be administered via two mechanisms. First, major activities will be financed through collaborative agreements with non-governmental organizations with specialized research expertise. Technical assistance will be required to address urgent questions of inappropriate resource management, and in design of research methods directly applicable to these problems. One source of technical assistance will be the long-term SUBIR Research Coordinator who will have overall responsibilities for the component. In other cases, short-term expatriate technical assistance will be necessary. Second, a small grants fund will be established for specific projects to be administered by the Program for Research Grants in Natural Resource Conservation, currently being managed by EcoCiencia and WCI. This program relies on a Research Review Committee consisting of Ecuadorian representatives from GOE and NGO organizations. For SUBIR activities, the SUBIR Research Coordinator will be a member

of the Committee. The selection of collaborating NGOs, universities, and government entities to perform research will be based on four factors: 1) proven experience and competence in applied field research; 2) previously demonstrated commitment to field investigation in Ecuador; 3) willingness to directly collaborate with other SUBIR activities via guidance from the SUBIR regional coordinators; and 4) capacity to contribute resources in addition to those offered by SUBIR.

Finally, two related activities will be essential for a successful research program to be implemented in the project areas: 1) training in field methodologies for Ecuadorian biologists and social scientists; and 2) wide distribution of research results among scientists, resource managers, participating local communities, and the general public. Training in field methodologies will be essential to the sustainability of the research program, as the necessary expertise is not currently available in Ecuador. Intensive field-based courses, including independent student projects, should rapidly improve Ecuadorian scientific capacity. Distribution of results of research activities will be ensured through seminars presented to local communities, regional and national scientific and education institutions, as well as through publications available at the national and international level. More direct results of specific problem-oriented research will be immediately integrated in SUBIR-facilitated extension programs. SUBIR-sponsored investigators will also be encouraged to produce research-related materials suitable for use in the Ecuadorian school system. The project will work closely with the USAID financed Environmental Education Project with the Nature Foundation to assist in producing these materials. Further, SUBIR will seek linkages with organizations carrying out similar AID financed activities throughout Latin America (PACA, MAYAREMA, FORESTA, LUPE) in order to encourage information exchanges, and collaboration in Ecuador with the Conservation Data Center (CDC) of CONACYT.

Diagnostic investigations will identify specific problems and opportunities for the subsequent analytical research within each project area, thereby ensuring strong linkages between research and project objectives. After the first year, the problem-solving analytical investigations will form the core of the SUBIR Research component (although, if appropriate baseline data already exist for project areas from the Design Phase of SUBIR or other sources, analytical studies will begin during the first year). These studies will be useful to both the long-term objectives of SUBIR and for application to similar ecosystems throughout Ecuador. Generally, for research on improved and/or alternative uses of biological resources, SUBIR will follow the process illustrated in Figure 3. Interventions are screened according to ecological and socioeconomic factors before being preselected for further research and/or for direct "packaging" for transfer to resource users. Technology is further diffused (spread effect) through the use of

demonstration and promotional strategies. Regarding specific research activities, the project will coordinate the following general lines of investigation. Annex II.E presents a list of research themes for each project area (see also Annexes III.A 1, 2 and 3 for more details).

Baseline Surveys and Selective Inventories of Ecological and Social Conditions and Resource-Use Systems. The goal of this research will be to inventory and assess the status of those biological resources present and the various utilization management systems that impact upon them. Information gathered will indicate baseline distribution and relative abundance of species of interest for ecotourism, endangered species requiring further protection, and species which commonly respond to human influence (indicator species). Data will provide baseline information for monitoring the impact of uses in comparable areas, for monitoring trends over time and for tracking the impact of project activities. Exhaustive surveys of each of the reserves will not be attempted directly by SUBIR, although links will be made with existing efforts regarding floral and faunal inventories such as those being undertaken by the Missouri Botanical Garden, the New York Botanical Garden, the Philadelphia Academy of Natural Sciences, the Universidad Politecnica, Universidad Catolica, the Museo de Ciencias Naturales, and various other Ecuadorian and international institutions. For SUBIR-designed surveys, the reserves will be stratified into classes of vegetation types, and representative sampling will be conducted in each class type. Areas of high biodiversity or high human use will be designated for attention as well.

Of equal importance are baseline socioeconomic surveys to diagnose local resource-use patterns, including women's roles in land management and community capacity to plan local resource utilization for long-term benefits. Baseline data will be collected by cultural (ethnic) group and will be disaggregated by gender whenever possible. Such information will be critical in designing technical assistance and training opportunities within the project areas. Both biological and socioeconomic surveys and inventories will initially be designed by the SUBIR Core Staff Research Coordinator with input from other staff specialists. Studies will then be conducted by project staff, reserve personnel, local assistants, scientific trainees, and collaborators (universities, NGOs, GOE institutions) with assistance of local-community representatives. The work will take advantage of studies already completed and those in progress. Local individuals and institutions will be included in this phase of the research, especially in socioeconomic components. The studies will yield information concerning such aspects as:

- existence, distribution, morphology, and dynamics of flora and fauna and unique natural, cultural and archeological features/sites;

- * demographic characteristics and vocations census of property (land, animals);
- * actual crops and resource/land-use systems, and their productivity levels (yields);
- * household infrastructure, income levels, and gender roles in production and distribution of income;
- * reserve and ecotourism infrastructure;
- * availability of technical assistance (e.g. from GOE or others), activities and outreach of other projects (past and present);
- * operations and impact of extractive and processing industries, marketing options for principal products (agriculture, biological resources), access to agricultural inputs;
- * community organizational structure, capability and experience, including the status and participation of women;
- * critical or fragile environmental areas;
- * land-use and vegetative cover/characteristics;
- * land tenure systems and indices of colonization and land and resource-use conflicts;
- * skills, education levels, health and nutrition levels disaggregated by gender;
- * water quantity, quality, and availability and priority watershed protection needs; and
- * soil productivity levels (fertility, impediments to agriculture).

Taxa and socioeconomic target groups to be surveyed will be determined in the initial phase of the Project (subject to change as more information is gathered). Ecological surveys will include both flora and fauna that are of interest as indicator species, threatened species, species demonstrating important ecological roles, and/or those of attraction to tourists. Socioeconomic surveys will concentrate on human use of resources and local conditions in an around reserves, especially in those areas which are subject to the most rapid incursions by colonists, acute hunting pressure, or other intensive resource utilization. These studies will be carried out by multidisciplinary field teams involving SUBIR staff, collaborating GOE and NGO organizations, contracted consultants and representatives of local community organizations. Considering that these diagnostic surveys and

activities are essential for long-term planning and initiation of many other research activities, they will be carried out in a succinct, organized fashion during the first year of SUBIR implementation; will be integrated across the information needs under each project component; and will be coordinated both geographically and in terms of scheduling to take the best advantage of cross-cutting technical expertise of the diagnostic study field teams.

Ethnobotanical Research to Identify Economically Valuable Plant Species and Alternative Uses of Biological Resources. Within Ecuador, indigenous and colonist knowledge of flora and fauna represent a valuable and under-recognized source of information regarding biological resources. Survey results of indigenous and local knowledge may reveal potentially valuable forest products (medicinal plants, fruits, nuts, colorants, extracts, essences, fibers, etc) and novel low-impact extraction techniques. The New York Botanical Garden's Institute of Economic Botany just finalized its USAID-financed "Useful Plants of Amazonian Ecuador Project" and has initiated its "Extractive Reserves in Amazonian Ecuador Project." These two efforts have yielded the most important data to date on both the composition, economic, and traditional utilitarian value of biological resources found in tropical forests in Ecuador. SUBIR's ethnobotanical research will be important for identifying useful plant species, estimating the standing value of natural forest products and describing traditional forms of use and current levels of extraction of marketable products. At each project site, studies will identify the top ten to twenty species most commonly used by the community to determine priority topics for applied research and production trials. In addition, comparing the level of knowledge among different generations and of indigenous people and between genders will call attention to the rapid loss of knowledge as a resource.

Initial research efforts will precisely determine current use of selected biological resources in project areas. Information will be used by project personnel to become familiar with the socio-economics of forest product uses, to help identify specific localities for development of project activities (e.g. more in-depth assessments of extractive activities, assistance in commercialization of products, encouragement of alternative activities if use is clearly unsustainable), and as baseline data for monitoring of use patterns, forest knowledge, and socioeconomic status over time. These activities will be completed first in limited areas identified for likely project intervention, but will continue across the regions in a manner to cover different forest types, ethnic groups, and ages of settlement. Care will also be taken to ensure survey work in areas in which the Project does not intend to be active, serving as "controls" for the sake of monitoring.

As mentioned, important ethnobiological research in Ecuador has been initiated by the Institute for Economic Botany of the New York Botanical Garden and also the Missouri Botanical Garden (especially in the Amazon). SUBIR-sponsored research in this field will be coordinated with, and provide complementary support to, ongoing initiatives of these and other institutions. Surveys will be coordinated by central project staff (Research Coordinator and Anthropologist), with implementation by regional project staff, reserve personnel, local assistants, scientific trainees, university personnel and collaborating institutions.

Applied Research to Improve and Diversify Agriculture and Forestry Practices in Zones of Influence. Many of these research activities will be based on the monitoring of current land and resource-use systems (traditional and introduced) in an effort to identify possible improvements in management, processing, and marketing practices in terms of their economic and environmental sustainability. Research is directly linked at the field level with the activities described under the component for Improved Use of Land and Biological Resources. Resource users at the local level will be the principal "research assistants" under these activities, as they experiment with selected technological interventions and incorporate them into their resource use systems (thereby proving their viability at the local level) or discard them as inappropriate or non-viable (see Figure 3). SUBIR staff and collaborators will monitor this process and take data accordingly. Information collected in these activities will be critical for promoting diversification and intensification of agriculture and forestry activities around protected areas. Improved silvipastoral techniques will provide an alternative to pasture expansion and deforestation. Market analyses of various products will permit the adoption of economically-viable alternatives away from destructive land uses and resources extraction.

Socioeconomic Research to Analyze Land Tenure/Land-use Conflicts and Identify Sustainable Management Systems of Biological Resources. The social, economic and political origins of deforestation and uncontrolled expansion of the agricultural frontier have not been adequately analyzed to date, and yet are fundamental obstacles to achieving sustainable use of biological resources. SUBIR will finance case studies that analyze the relationships between resource degradation and inappropriate land tenure and/or economic policies and will also support studies demonstrating alternative sustainable land uses. Such information will be used as a basis for conflict resolution among resource users within each project area (i.e. through the RICCs) and to influence policy reform at the national level through the provision of information to organizations active in policy analysis at this level (Fundacion IDEA, Fundacion Natura, World Bank, MAG/IERAC). The direct application of these research results to the sustainable use and conservation of natural resources will be assured through

60a
LOCAL
DIAGNOSTIC STUDIES

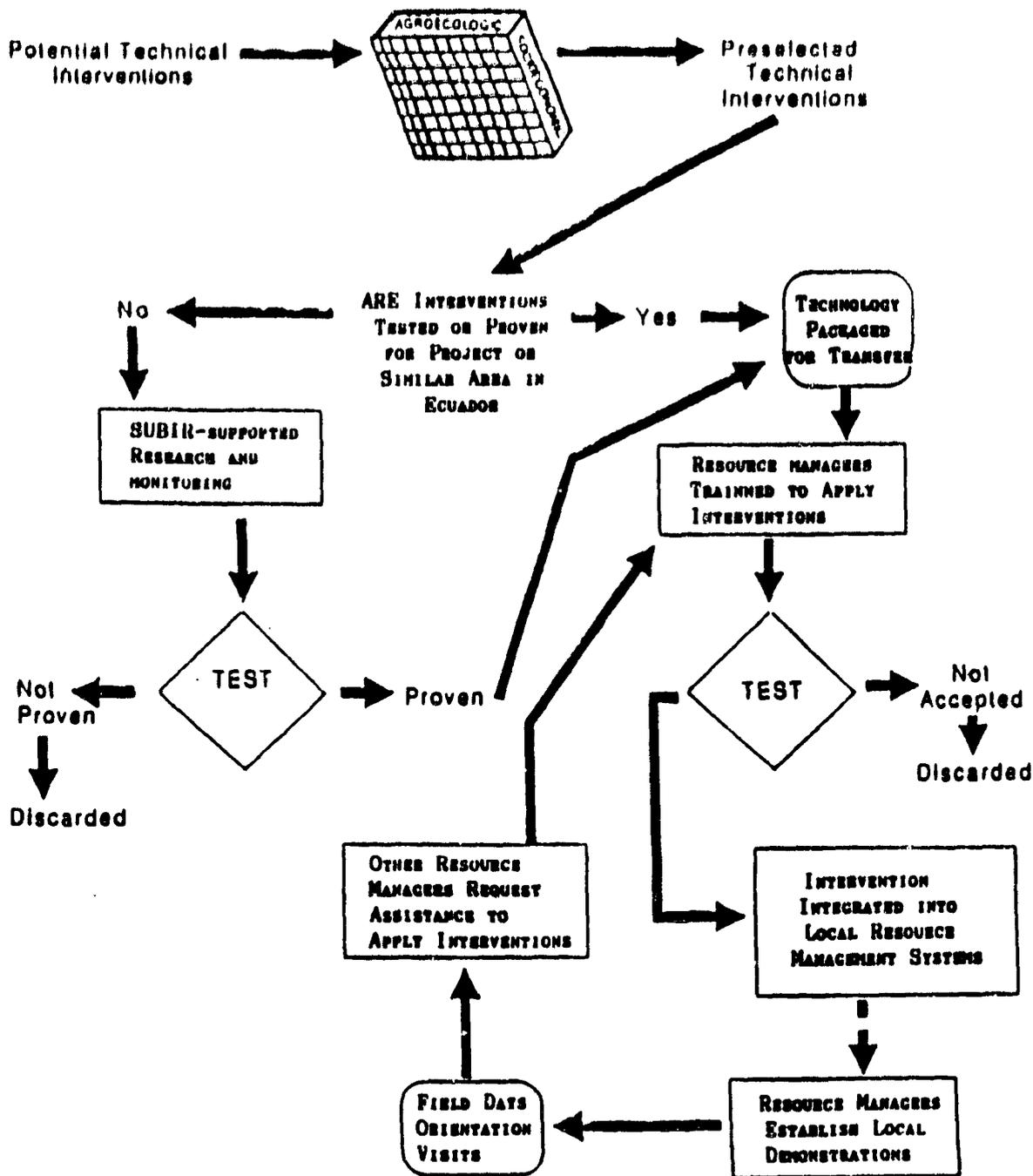


FIGURE 3: PROCESS PROPOSED FOR SELECTING, TESTING, DEMONSTRATION AND TRANSFER OF INTERVENTIONS FOR IMPROVED MANAGEMENT AND CONSERVATION OF BIOLOGICAL RESOURCES. (NOTE: RESOURCE USERS ARE ALSO CONSIDERED RESOURCE MANAGERS).

its integral coordination with other SUBIR activities, especially improvement of land and resource use programs in buffer zones and ecotourism.

Monitoring of the Impact of Project Activities and Changes in the Environment of Project Areas. In order to determine sustainability of biological resources extraction one must first gather information about carrying capacities, yields, population dynamics, regeneration, silviculture, etc., under natural as well as managed conditions. In addition, the use of biological indicator species under natural conditions has wide applicability towards the understanding of human impacts on such systems. This information will guide management of resources within protected areas and buffer zones.

Based on initial results, more detailed investigations of key species will be undertaken. These investigations will gather data necessary for the sustainable harvest and management of the species group in question and/or for the development of long-term biological monitoring mechanisms for project areas. Undertaking these activities in natural areas will provide data that can be compared to socioeconomic studies in areas of human use, to further examine the effects of intervention on functional ecosystems. These monitoring activities will be coordinated by the SUBIR Research Coordinator, with assistance of other Core staff, reserve personnel, student trainees, university personnel, and collaborators; and will incorporate local-community counterparts as field assistants. Information from monitoring activities will be managed through the SUBIR Management Information System (MIS), with data disseminated at local, regional, national and international levels (see section VI.B.5). Examples of the types of indicator instruments to be used in impact monitoring are:

- * farmer/resource-user field registers, crop and forest-product harvest data, market studies and cost/price dynamics;
- * SUBIR-sponsored research results, periodic impact assessment (measured against baseline studies data);
- * deforestation rates (measured in area and/or forest composition/density), soil organic material content and erosion studies;
- * surveys of nutrition and family income levels;
- * results of environmental monitoring studies, e.g., reduction in oil spills near protected areas and streams (see below).

Special comprehensive impact studies will be carried out in concert with the independent formative evaluations scheduled toward

the end of each of SUBIR's three phases. These studies will gauge the impact of project interventions as measured from baseline study data and assess the impact of the Project on beneficiaries and on the biological resource base.

SUBIR will also establish an Environmental Monitoring Program at two levels. As described in the Protected Areas Management component for the three first-phase areas, SUBIR will involve local/community organizations in an Environmental Monitoring Network in order to detect illegal extraction and colonization activities in protected areas and buffer zones, as well as to report accidental or intentional discharge of pollutants (oil spills, pesticides, sewerage) into the environment. On another level, SUBIR will seek collaboration with MAG, MEM, Petroecuador, CLIRSEN and international organizations (UN, FAO, IUCN, WWF, CI, Cultural Survival) in the development of a Regional and National Environmental Monitoring Program using advanced technology (satellite imagery, aerial photography and overflights, periodic on-site inspections and sampling) to ascertain changes in the quality of resources. Factors to be monitored and analyzed include such aspects as:

- * forest cover and agricultural/industrial frontiers (colonization, wood extraction, petroleum development);
- * oil spills and other pollutant discharges;
- * settlement patterns and their impacts;
- * erosion and watershed condition surveys; and
- * changes in access routes and their conditions.

c. Summary of Expected Inputs

The following presents a description of the inputs required to realize the activities proposed under this project component for Phase I (in addition to Core Consortium inputs). Detailed information concerning technical assistance, training, commodities, and their respective budgets for SUBIR Phase I are available in Annexes II.B. and II.D. Life-of-Project inputs are presented in summary form at the end of this subsection.

PHASE I

1) Technical Assistance

The Project will require technical assistance inputs to be provided by the Consortium, counterparts and collaborators.

Technical assistance is estimated to be \$566,500 and will cover the following disciplines:

TA Discipline	Level of Effort (Person-Months)			
	YNP	RECC	RECAV	TOTAL
Agroforestry			3	3
Forestry	7	7	9	23
Social Sciences	8	15	11	34
Agronomy	7	6	6	19
Land Tenure	6	4	3	13
Zoology	6	7	12	25
Ecology	6	12	12	30
Environment Monitoring	3			3
Ethnobiology	7		6	13
Botany	8	7	18	33
Natural Resources Economics	6	3	3	12
Remote Sensing	10			10
Chemistry	3			3
Legal	4			4
Archeology			3	3
TOTAL				219
Research Interns (students)	28	84	54	166
Field Assistants (local)	250	150	150	550

2) Training (Costs included under equipment and commodities)

SUBIR will facilitate training up to a total of 60 Ecuadorian professionals in both formal courses and on-the-job training while carrying out diagnostic and applied research programs in the project areas. Training themes to be included in the Research and Monitoring component are oriented to baseline-study, field-research, and data-collection methodologies in : forest products inventory and taxonomic classification (flora and fauna); socioeconomic, ethnobotanical, and archeological factors; recognition and classification of unique natural resources phenomena of ecotourism and recreational value; agricultural and resource-use production systems; land tenure, economic policies and resource-use conflicts; and socioeconomic and environmental techniques.

3) Commodities

Expenditures in this category are estimated to be \$110,000 and will include: audiovisual and field equipment, computer systems and supplies, materials and equipment for establishing research station and field shelters; laboratory analysis; funds for purchase and

production of publications; and workshops and seminars costs (see Annex II.B for details).

LIFE OF PROJECT

Technical Assistance	\$ 1,883,100
Materials and Equipment	434,800
TOTAL	\$ 2,317,900

PHASE ONE

1. Socioeconomic and resource-use systems characterized and SUBIR baseline biological/socioeconomic indicators established for monitoring project impact across a range of component activities; SUBIR monitoring system established and operative.
2. Preliminary lists published for those plants and animals most highly-valued and used in indigenous cultures of Quichua, Chachi, Cofan, and Black communities in the three project areas. Economic valuation established for standing natural forests based on case studies of traditional use systems in each area.
3. Species lists and information for natural history guides available for key ecotourism sites in each project area.
4. Preliminary results of applied research on alternative agricultural and forest products, including processing and marketing studies applicable to project areas and ecosystems published and disseminated.
5. Preliminary results of research on the occurrence, natural yield, productivity, and management potential of selected biological resources (including indicator/critical/endemic species, sustainable-use products, ecosystem dynamics) published and disseminated.
6. Research published on land-use conflicts and speculation; recommendations made through the policy analysis and dialogue channels to Ecuadorian authorities in order to reform non-sustainable land-adjudication practices.
7. Applied research methodologies and capabilities improved in 10 governmental, non-governmental and educational/research organizations, and a minimum of 60 professionals trained in field research methods appropriate to Ecuador.

LIFE OF PROJECT

1. Substantial improvement of the knowledge base concerning the condition, dynamics and utilization systems of biological resources across a range of ecosystems being accessed by an increasing number of students, scientists, resource managers, private enterprises and local communities.
2. A system to establish and monitor project baseline socioeconomic and biological resource impact indicators will have been tested, proven effective and available for application by GOE institutions, NGOs, universities, and donors.
3. Traditional knowledge of as many as six indigenous cultures about biological resources, their values and uses, chronicled and disseminated, to a selected number of scientists and research institutions.
4. Research on selected resource management practices, cropping mixes, and economically promising species completed, and results incorporated into project-supported forest management and agricultural diversification activities.
5. Studies on the collection, processing and commercialization of alternative biological resources completed, and recommendations incorporated into project training and extension activities.
6. Applied research methodologies and capabilities improved in up to 20 governmental, non-governmental and educational research organizations, and a minimum of 200 professionals trained in field research methods appropriate to Ecuador.

VI. PROJECT ANALYSES SUMMARIES

The SUBIR Design Team has determined that the activities proposed in the PP address the conservation and natural resource problems outlined in AID's natural resource strategy and SUBIR project documents. Based on available information, the most suitable and cost-effective technical alternatives were selected. Planned activities are technically feasible and culturally sound, and the proposed management and administrative structures are appropriate for the political and economic realities in Ecuador.

A. Organizational Development and Project Management

A detailed analysis of SUBIR's Organizational Development component is presented in Annex III.F. When combined with the Social Soundness Analysis (Annex III.E), SUBIR's approach in working through local organizations is found to be sound on social and political grounds. Annex III.G contains the Project Management

and Administrative Analysis which describes, in detail, the Project's decentralized implementing structure. The following analysis provides a summary of SUBIR's organizational and project management approach.

The Design Team carried out a review of the literature and had various meetings with GOE, NGO, local-community, and private-sector representatives concerning the viability of differing institutional, organizational and administrative structures necessary to successfully implement natural resources management projects in Ecuador. Each structure has its advantages and disadvantages. Some projects have met with limited success due to their participatory approach and administrative structures, while others have been dismal failures, due primarily to their inefficient centralized and bureaucratic structures. Generally, three distinct types of structures have been employed, although a hybrid structure involving a combination of two of the three distinct types has also been employed for several programs.

1. Bilateral or Multilateral Agreements with the GOE

This structure involves either a bilateral agreement between an international donor (USAID, GTZ, JICA, etc) or multilateral development organization (World Bank, IDB, UN) directly with one or more GOE institutions. Funds are transferred to the Central Bank, and disbursed to implementing institutions according to annual budgets. This type of project mode usually involves structural adjustments and "institutional strengthening" and has been a mainstay for GOE institutions' planilla (payroll) and basic infrastructure. Hence, much of the funds are absorbed in paying the recurrent costs of administration at the central level, leaving only limited funds for operations at the field level. Even though GOE institutions have regional representation, the lack of operational funds available at this level confounds program outreach. Ecuador essentially lacks an agricultural extension system. Very little extension assistance has reached resource users at the rural-community level. Similarly, local organizations have foundered due to the lack of training, and technical and financial assistance.

Experience with this type of structure has generally been poor because of the inherent operational deficiencies of Ecuador's centralized government model. USAID's Forestry Development Project, agroforestry projects financed by the Belgium Government and GTZ, the IDB-financed PROTECA (Agricultural Technification Project)--each implemented through the Ministry of Agriculture and Livestock-- have suffered from bureaucratic delays, constant personnel changes, and only limited success in meeting their goals and objectives. Also, the GOE has not been able to continue activities once financing has been withdrawn--in effect, the structure is non-sustainable under current governmental

institutional structures, and even less so at regional and local levels. In addition to the problem posed by personnel changes is that of maintaining an adequate human resource base with sufficient training and experience. The current supply and quality of natural resources management personnel in GOE institutions does not meet the demand, and is one of the principal constraints to rational resource development and conservation in the country.

2. Centrally-based Ecuadorian Non-Government Organisations

NGO-operated programs and projects have proven more efficient in administering funds for development initiatives, because they are not bound by the plethora of bureaucratic procedures that hamper GOE efforts. Fundación Natura, for instance, has administered millions of dollars in grants and debt swaps from international donors and NGOs in activities related to environmental education and management programs. FUNDAGRO has carried out research and training in Ecuador in support of agricultural diversification and improvement, and extension and outreach programs. Fundación IDEA is researching agricultural and natural resources policies in an effort to promote dialogue among policy makers, and eventual economic and legislative reform. Also, private-sector organizations such as COMUNIDEC, CEPP, FEPP, Catholic Relief Services, CEPIME, and CIDESA carry out community-based socio-economic research in order to develop enhanced resource utilization systems and economic improvement in rural areas.

Still, these NGOs are mostly based in central urban areas (especially in Quito) and have only limited experience in actually implementing development programs at the regional and local levels. They are still on the "learning curve." While these centrally-based NGOs have been successful in research, preparation of educational media, conducting seminars, and disseminating information, their outreach generally has been limited to the larger urban areas and provincial capitals, with but a few rural pilot projects of isolated impacts. Several of the managerial and implementing structures are innovative and participative, with broad involvement of members (e.g., COMUNIDEC). While projects managed centrally by NGOs offer a promising alternative to GOE-administered projects, as yet their impact has been limited to only a few rural areas, and their capacity to manage larger-scale projects has not yet been tested.

3. Community-based Projects

There are various small projects being carried out at the community level throughout Ecuador. Many of these are funded through microgrants administered through community organizations (FEFANE, Comuna Río Santiago-Cayapas, UNORSAL, Unión de Comunidades de Campesinos de Cuellaje, Federación Shuar), with the assistance

of small regional foundations (e.g. Fundación Andes, FEPP, Fundación Maquipucuna,, Fundación Jatun Sacha) and/or with the assistance of several centrally-based NGOs with regional representations (e.g. CARE, CEDECO, Tierra Viva, COMUNIDEC, CIDESA, Capuchin Mission). Depending on the level of administrative and management capabilities, organizations operating under this structure are the most efficient in delivering logistics and technical assistance, albeit in limited geographical scope. The greatest limitation of community based projects is that of scale. Outreach is restricted by the microgrant funding levels available to most of these organizations. Furthermore, the lack of appropriately-trained personnel restricts the potential multiplier or spread effect that these organizations can have.

4. Hybrid Structures

Hybrid structures are those that mix elements of the first three types. One example of this type of implementing structure is that of the USAID/Ecuador-funded Coastal Resources Management Project (CRMP) which is headquartered in Guayaquil. CRMP has established five regional management structures in Zonas Especiales de Manejo (ZEMs). The ZEM structures incorporate GOE and private-sector technical and managerial personnel who develop assistance plans based on local infrastructure and resource conservation needs (especially fisheries and water development projects). This hybrid model of governmental and non-governmental technical assistance has met with success due to its capability to respond to project beneficiaries at the local and regional levels. Activities under this project will be continued after the USAID PACD through Inter-American Development Bank financing. CARE/PROMUSTA also represents a hybrid structure. CARE assumes all financial and administrative control over project financing, and coordinates technical assistance and extension activities through national and provincial government institutions and local community organizations. PROMUSTA is also decentralized, with offices in the provinces of Cotopaxi, Tungurahua, Imbabura, Chimborazo, Cañar and Loja.

5. SUBIR's Proposed Organizational and Administrative Structure

Based on evaluations and lessons learned in the implementation of agricultural and natural resources management projects in Ecuador--including those based on bilateral and multilateral agreements with the GOE and those carried out under national and/or international NGOs (including Consortium members)--the Design Team is proposing an innovative approach to project organization and administration (see discussion in sections III.B, V and VI). SUBIR will use a decentralized management and administrative structure in order to increase the efficiency and impact of project interventions which will be aimed directly at the beneficiary level (see Figure 2). The proposed implementing structure is similar to the hybrids described above. The implementing structure serves the

dual purpose of incorporating the agility and efficiency of non-government organizations (the Consortium), and supporting SUBIR's strategic objectives of encouraging broad participation and strengthening of Ecuadorian governmental, non-governmental, private sector, educational and local community organizations as both collaborators and co-beneficiaries.

Through its Organizational Development component, SUBIR's approach focuses on the strengthening of local community-based and regional organizations as the basis for the continuation of programs of sustainable resource development and conservation. The SUBIR Consortium will decentralize project operations directly to participating organizations. Further, the structure is in itself a principal conduit for the resolution of natural resource management conflicts at the regional level. These innovative arrangements will directly support and strengthen the technical, management, and administrative capabilities of a broad range of Ecuadorian organizations, from the grassroots community level to government, non-government, and educational organizations, and private enterprises at regional and national levels.

The SUBIR Design Team has assessed the needs for core personnel and found that the proposed staff is the absolute minimum necessary to successfully manage the complexities of the Project. Through the innovative approach of accessing professional resources available in governmental institutions and NGOs, SUBIR will, in turn, strengthen these organizations through the mutual provision of collaborative technical assistance. Over the life of the Project, the Consortium will gradually transfer project implementation responsibilities to institutions and organizations at the local/regional level. This process will be key to the development of Ecuadorian institutions involved in managing natural resources, and will enable them to continue to collaborate with one another and with international organizations once Project financing is terminated.

As interventions prove to be attractive, communities and their organizations are expected to absorb recurrent costs through cash or in-kind contributions necessary to continue implementing interventions, and will be capable of preparing proposals to government institutions or NGOs to solicit co-funding (credit, technical assistance, debt swap, etc). At the regional level (i.e. in relation to distinct project areas), Interorganizational Coordinating Committees (RICCs) should be sufficiently grounded in the protocols and mechanisms necessary to continue mutually supporting interventions, and conscious of the need to continue their activities of supporting rational resource development and resolution of resource-use conflicts. Similar approaches to the RICCs have been successful in Colombia (Consejos Verdes) and Costa Rica (Centros Agrícolas Cantonales). Also, a sufficient number of technical professionals in governmental and non-governmental organizations, universities and the private sector will be capable

of providing effective technical assistance as necessary, to support the "spread effects" of project-promoted interventions at the local and regional levels.

The justification for creating the NICC is the current lack of coordination among programs of GOE, NGO, private-sector, and community advocacy organizations--including international donors. Similar committees have functioned well in Colombia (i.e. related to Regional Development Corporations) and in Costa Rica (the ministerial-level Executive Watersheds Group) when these have been associated with specific resource conservation priorities. The Interinstitutional Committee for Environmental Protection (CIPA) has been constituted in Ecuador, chaired by the Minister of Public Health, with participation of other governmental ministries and international organizations (eg. World Bank, IDB). This committee could serve as the vehicle for the objectives of the NICC, but its membership should be expanded to include NGO, private-sector and community-advocacy (including indigenous) organizations. Also, its agenda should focus on the resolution of specific resource-use conflicts in finite geographical areas in order to generate "case-study" examples of conflict resolution.

B. Protected Areas Management

Each area selected for SUBIR Phase I is an outstanding repository of Ecuador's biological diversity and an essential part of Ecuador's economic future. However, these natural areas cannot support extractive uses or produce greater economic outputs beyond the carrying capacity of their present natural ecosystem production levels. The Man and the Biosphere Reserve strategy fits well into the overall objectives and approaches put forward by SUBIR, which balance conservation of resources within the reserve (controlled tourism and research) and its buffer zones (rational natural resource management). Also, in considering long-range sustainability of economic development for Ecuador, the potentials for future, higher uses for biological resources can only be realized through this integrated conservation and research program as proposed.

The Protected Areas Management component is a strategy of protection coupled with rational planned use. As described in the SUBIR PID, "investments in resource development activities that conserve natural forest ecosystems and other biological resources have higher economic returns than activities [required to] that restore these resources when degraded." Successful park and equivalent-reserve programs in many countries, including the U.S., Peru, and Costa Rica, and in the Kuna Indigenous Reserve in Panama, have demonstrated that controlled use is the best assurance for conservation. Strategies to protect land by "locking it up" have proved unsuccessful under the burgeoning pressures for land and resources. However, due to ecological fragility in most parks and reserves, permitted uses must be very carefully researched and

carried out under management plans. Techniques for this kind of planning have been introduced throughout Latin America via TNC's AID-supported Parks in Peril program, and locally on a modest scale through the Fundacion Natura/TNC/WWF debt-for-nature swap, as well as through the support of IUCN, FAO, and UNESCO's Man and the Biosphere (MAB) program.

SUBIR will support the development of the technical capability in the GOE and NGOs to establish and maintain decentralized protection and management programs for Ecuador's biological and cultural resources. Community development approaches (Organizational Development component), coupled with realistic, field-tested biodiversity management techniques (Improved Use of Resources and Research components), will assure the integration of biological resource conservation with local socioeconomic activities. In addition, the Ecotourism Development component (see analysis below) is seen as a complement to that of Protected Area Management. As ecotourism expands in and around the reserves, it will be more highly valued and will be considered as an integral economic resource in national development strategies.

C. Ecotourism Development

Currently, most of the important biological and cultural areas of Ecuador are known only superficially and lack the basic infrastructure necessary to manage and direct the specialized nature-tourist. These natural areas require improved planning, management and protection, if they are to be developed as tourism resources. Despite this, tourism, and especially nature-based or ecotourism, is fast becoming an important economic earner for Ecuador. In 1990, tourism accounted for \$180 million in foreign exchange, placing it third after petroleum and agriculture in the national economy. There is a growing understanding that the rational, non-destructive utilization of biodiversity resources via ecotourism can make a major contribution to Ecuador's economic development and provide significant employment opportunities. Also, as petroleum reserves will dwindle over the next 10 years, ecotourism represents an increasingly important alternative for the diversification of the economy and foreign exchange earnings.

SUBIR's strategy is based on positive experiences of ecotourism development in Ecuador and other Latin American countries (Galapagos, Mexico, Costa Rica). For example, Ecuador's experience with the Galapagos "ecotourism model" has shown that the training of 110 local independent tour guides as conservation officers has effectively extended the ability of the Park to protect the fragile island biome far beyond the limited control capability of the 30 resident park guards. The establishment of local community-based ecotourism development models should be replicable throughout the country. Local community involvement and employment generation will complement SUBIR objectives to build communities' conservation ethic toward the reserves.

SUBIR will support and expand the on-going efforts of the FPEI-supported tourism program conducted by FEPROTUR and incorporate the salient ecotourism recommendations proposed during the "Natural Areas Development and Biodiversity" workshops financed by USAID/Ecuador and carried out by DESFIL in 1989. A regional and national-level framework for ecotourism regulation and promotion will be established that utilizes the lessons learned from the Galapagos Islands. This component will bring together the local communities, public sector and national and international ecotourism operators, and encourage direct local participation and investment in nature tourism enterprises. Beginning in the start-up phase, the Consortium will carry out ecotourism inventories as part of the diagnostic studies, using ecological, social and economic baseline indicators and their monitoring to gauge changes in investments and tourism earnings, and ensure that interventions avoid short or long-term damage to ecological systems or indigenous cultures.

D. Improved Use of Land and Biological Resources in Buffer Zones

This component is composed of three sub-components: 1) Community Forest Management, 2) Intensification and Diversification of Land and Resource Use, and 3) Pilot Projects in the Collection, Processing and Commercialization of Biological Resources. The Design Team has analyzed current and potential resource-use systems in selected areas of Ecuador and is proposing a series of technical interventions that are appropriate in terms of existing socioeconomic, cultural, and agroecologic conditions.

Many of the proposed interventions/activities are essentially outgrowths of agricultural, forestry and land/resource management practices that have already met with some degree of success in Ecuador and in the regions in which SUBIR is to work. The USAID/DINAF Agroforestry Component and CARE's PROMUSTA, for instance, have achieved measurable success in implementing agroforestry, soil conservation and sustainable agriculture activities at the local level. A study of the MAG-DINAF Agroforestry Subproject (Seré *et al.*, 1990) showed a very positive cost/benefit ratio for agroforestry interventions (and marginally positive for silvopastoral activities) on farms sampled in the Amazon. Similarly, PROMUSTA regenerative agriculture and soil conservation interventions in the Andean Highlands have shown impressive increases in productivity of traditional crops, including: 216% in barley, 47% in beans, 260% in potatoes and 80-90% in onions and garlic. The spread effect of both of these projects is an important indicator of the success of the interventions--the same will be promoted under SUBIR activities, which will maximize the utilization of local resources and technical knowledge, and be carried out within this context. Nurseries, for example, will be small, technologically simple, and dependent almost entirely on local materials.

SUBIR's highly participatory approach will give counterparts and participants ample opportunity to evaluate and improve on any land-use technology before, during and after implementation. Conservation extensionists will actively monitor the impact of interventions and recommend improvements. SUBIR will respond to feedback from research, field and extension activities and expeditiously integrate any new or modified interventions and methodologies into its technical packages and training program (see Figure 3). The Project will be implemented at a gradual pace to ensure that interventions are implemented with sufficient analysis and feedback. SUBIR's 10-year, three-phase, flexible implementation structure places less pressure on project implementors to produce immediate results. This is particularly important when dealing with forestry and agricultural activities which generally produce results in the medium-and long-term.

Community Forest Management. Experiences to date, both within Ecuador and in analogous areas in Latin America, demonstrate that there exists considerable potential to improve the productivity and sustainable management of primary and secondary forests. Recent efforts of Cultural Survival and Ecological Trading Company to establish socially and technically appropriate forest harvesting and management models in rural communities, and the Fundacion Forestal Durini's innovative reforestation approach, will be studied to assess their applicability and potential for success in SUBIR project areas. Agroforestry systems in the humid tropics, with reasonably good management, can be expected to produce 10-20 cubic meters/ha of harvestable wood annually (and in the case of alder in Ecuador, 20 cubic meters/ha/year on 20-year rotations). CARE/PROMUSTA has some 30 functioning village-level nurseries which have met with wide acceptance of local communities and land-user groups in the Andean highlands. From a social and economic standpoint, it is also important to note that communities in the project areas are vigorously pursuing legal rights to manage their own forests and are seeking assistance to do so (see letters of Expression of Interest, Annex II.F).

Intensification and Diversification of Land Use. Ecuador's land and resource users recognize that yields are declining, soils are eroding away, drought is more prolonged and devastating, agricultural inputs are increasingly expensive, and that agriculture is economically becoming a high-risk activity. Once again, in Ecuador and other parts of Latin America, there are numerous tangible examples of how farmers with appropriate technical guidance and the provision of small quantities of critical resources have managed to achieve significant and sustainable increases in agricultural production in relatively short periods of time. As mentioned above, PROMUSTA reports that production increases in traditional Andean crops averaged 227% during the first five years of the project. After seven years, production continues to increase while the requirement for labor and inputs diminishes considerably. In "A Case Study of an Andean

Farmer", Neimlos (1988) points out that not only does productivity increase but so do property values when soils are rehabilitated with terraces and other physical structures. Crop diversification holds the key to increasing agricultural sustainability and farm household incomes. The challenge lies in identifying, testing and disseminating the most promising crops for selected areas.

Pilot Projects in the Collection, Processing and Commercialization of Biological Resources. Although these activities will vary depending on the particular enterprise, SUBIR will make every effort to ensure that each activity is technically and environmentally sound before it is replicated. Wood processing, handicrafts, collection of local medicinal plants, the raising of small animals, and the sale of nursery seedlings are, to a limited extent, already part of the income-earning strategy of many residents of the project areas. New York Botanical Garden's recent work on ethnobotany with the Shuar Indians and subsequent economic botany research in Jatun Sacha documents the potential for developing alternative, non-timber forest products in Ecuador. The CI/CIDESA - supported "Tagua initiative" with the Comuna Rio Santiago represents an evolving case study of application to SUBIR objectives. Once markets have been located, SUBIR will identify and support those economic activities which are most socially appropriate, technically sustainable, and have the greatest income-earning potential. The "green" consumer market" is gaining popularity in the US and Europe as witnessed by inquiries from and discussions between entrepreneurs (Amazonia, Int. Plant Medicine, and Ecological Trading Co.) and the SUBIR design team. CARE's positive experiences with credit and revolving-loan funds, and other credit programs will be analyzed for their applicability under SUBIR before implementation of activities requiring credit. Community and counterpart participation throughout the implementation of this activity will help ensure its social, technical and economic viability.

E. Research and Monitoring

The SUBIR multidisciplinary research program will provide information on the status of critical natural resources, current resource-use patterns and their impacts, alternative sustainable production systems, and legal and socioeconomic forces that drive these systems. This critical information will be generated at three complementary levels: preliminary socioeconomic and biodiversity site evaluations; analytical investigations that stress alternatives for sustainable uses of biological resources; and applied pilot research that will examine specific land use and resource conservation conflicts. Based on the deficient knowledge base, and lack of adequately trained professionals to improve this situation, the Research and Monitoring Component is fully justifiable.

Programs which seek to ensure sustainable human use of natural resources must, by definition, ensure that these natural ecosystems are monitored and protected to maintain their ability to provide services and products for local and national human populations. Simultaneously, protected ecosystems provide controls that can provide comparison for judging impacts in human-altered systems.

SUBIR's research program must produce not only descriptive and comparative information for immediate management applications in natural areas, but also provide detailed analyses of resource-utilization systems for long-term models of sustainable use of biological resources. To achieve this, research will follow two general levels of inquiry:

1) To establish what resources are available in a region, short-term diagnostic investigations will examine ecological and social conditions and identify potentially valuable biological resources and /or sustainable management practices. This research will include principally applied investigations, and will be particularly important during the first year of the project.

2) To provide information regarding how to manage resources and optimize local conditions which have been identified in the above diagnostic studies (as well as those identified from other investigations in the project areas or from ecologically similar regions), SUBIR will support problem-solving, analytical research and monitoring regarding ecological and/or socio-economic conditions necessary for sustainable management of natural resources. These applied investigations will include both observational and experimental data collection methodologies as dictated by local needs and priorities. Analytical research programs will become more prevalent after the first year of SUBIR when results from the above rigorous diagnostic studies are available.

To generate models of long-term sustainable management of biological resources, the SUBIR research component will encompass baseline inventory and monitoring of biological resources in the selected natural areas, and more detailed investigation of resource-use systems and alternative forest products located within and outside the protected areas. This component fully supports the three components discussed above, providing the basis for technology selection, assessment of the success (impact) of a given activity, and generating resource-use innovations.

SUBIR strategy is oriented to "applied" research, with a particular end-product in mind. An expanded knowledge base will lead to more economically and environmentally-sound resource management decisions. The strategy involving the rescue of knowledge of indigenous cultures on the uses of biological resources (medicinal plants, colorants, fruits, fibers, etc.) is intended to provide a better understanding of the value of these

resources and to identify useful species with potential for management in mestizo communities as well.

The research component will use the many technological advances now in development in the Oriente by the New York Botanical Garden, Missouri Botanical Garden (including Yasuni National Park), the USAID/Ecuador-funded Sumaco and agroforestry project (FSDP), as well as the WCI/EcoCiencia Cloud Forest Indicator Species Program, CARE's PROMUSTA Program, the Awa Ethnical Reserve efforts by Cultural Survival and WWF, and the Durini Foundation's innovative natural forestry management model. All research conducted under SUBIR will provide data to the CDC at CONACYT to facilitate the analysis and nation-wide dissemination of research findings. The close ties WCI and TNC have with the Organization for Tropical Studies (OTS) in Costa Rica and the Smithsonian Tropical Research Institute (STRI) in Panamá, will provide SUBIR with useful models to guide field research and training efforts in Ecuador.

This component will involve local scientists, students and resource managers (GOE, NGO, and private sector) in research projects, and will include training in field research methods appropriate to Ecuador. At the EOP, 200 better-trained professionals should be capable of performing quality applied research that contributes to the rational development and conservation of resources, and presents alternative economically-viable uses for the same. These scientists will, in turn strengthen the organizations for which they work, thus institutionalizing research.

F. Economic Analysis

Following the guidance in Handbook 3, Least Cost Analysis (or cost effectiveness) was used to examine the viability of this project. This section is organized in four parts: (a) justification of the use of least-cost analysis; (b) a brief description of least-cost analysis; (c) presentation of the results of the analysis; and (d) recommendations to improve Project monitoring and evaluation through the use of this type of analytical framework. Tables summarizing the results are annexed. The information used in the analysis comes from the PP draft and Financial Plan.

1. Choice of Technique

In general, the economic feasibility of a Project is analyzed by comparing the net present value of its benefit stream to the net present value of its cost stream. The use of the methodology requires that benefits and costs be measurable in value terms. Annual projections of benefits and costs are placed in present value terms through the use of a discount rate. The discount rate reflects the opportunity cost of capital. The use of a positive

discount rate assumes that future consumption benefits are worth less than current consumption benefits. The higher the discount rate, the stronger the preference for current consumption over future consumption.

There are two major difficulties in applying standard cost-benefit analysis to this Project: difficulties in measurement of benefits and, secondly, conceptual problems.

Measurement Difficulties

The measurement and valorization of Project benefits is difficult for at least two reasons. First, many of the benefits of proposed interventions are inherently difficult to measure in financial and/or economic terms. While it is likely possible to construct a series of hypotheses regarding potential economic benefits of these interventions, the result would be extremely hypothetical and probably not terribly useful to Project reviewers. Other proposed interventions lack sufficient information upon which to base a solid analysis. To make twenty year projections based upon a paltry data base would again result in an extremely hypothetical exercise. This problem is most acute for the land use and ecotourism related interventions. With regard to the land use interventions, however, it should be noted that evaluations in other countries (Peru, Honduras, and Guatemala) of the low-input technologies proposed, suggest that this type of intervention is both financially profitable to the farmer and makes economic sense. On the cost side, Project costs are not broken into costs per activity, only aggregate component costs. An economic analysis requires costs disaggregated at the activity level.

Conceptual Difficulties

The objective function of this Project is conservation of biodiversity. Conservation tends to imply a redistribution of resource use and consumption towards the future. However, the use of a standard discount rate weights current consumption over future consumption. The analytical instrument is somewhat contradictory to the objective function. This could be accounted for by the use of a low, or even negative, discount rate and appropriate shadow pricing. But again, the exercise would become quite hypothetical. Combining this problem with the measurement difficulties indicated above would result in an analysis of little use to Project evaluators.

2. Least Cost Analysis

AID Handbook 3 provides for cases in which a Project is of a pilot, experimental, research, or institution-building nature and benefits are difficult to measure. In those cases, a least cost analysis is deemed more appropriate than the standard economic feasibility analysis. The SUBIR Project fits that category.

There are two ways of considering least cost analysis. The fundamental question for least cost analysis is whether there is an alternative feasible design that produces, at minimum, the same output at a lower cost. It is assumed that the goal to be achieved is valid. An alternative way to describe the analysis is cost-effectiveness: what is the cost of achieving a specified output or goal. The analysis permits experts to identify the reasonableness of costs associated with output achievement and to identify trade-offs. A costly activity that impacts marginally on goal achievement can be traded for a less costly activity that impacts significantly on goal achievement. The linking of costs to output/goal achievement is the key element of the analysis. While based on budget data, this differs from a financial review. The financial review considers whether the costs of inputs are reasonable. It does not indicate whether too much "input" is being applied to the achievement of an output.

Standard least cost analysis for Project Papers is usually descriptive. A feasible alternative implementation mode is posited, compared to the implementation mode proposed in the design, and the designed implementation mode is deemed a less costly alternative. In this particular case, the designed implementation mode is through a NGO consortium. The NGO consortium will work through local organizations, local NGO's, and some elements of the public sector. The primary feasible alternative to this mode is public sector management. Generally, NGO management and implementation are more effective than public sector management. USAID/Ecuador experience with CARE, the lead institution, has been highly positive in projects with activities similar to those proposed in this Project. Therefore, the overall design of the implementation mode appears more cost-effective than the primary feasible alternative. Additionally, the consortium members are providing additional financial resources to the Project. Public sector counterpart contributions are often in-kind, and, more often, non-existent. Thus, the NGO mode provides additional resources to supplement those of AID, increasing cost-effectiveness of AID funding.

The above summary analysis could be further elaborated and documented, but it is, in the end, a subjective, descriptive argument. It doesn't enable the reviewer to see what AID will get for its money. It doesn't allow a reviewer to make judgements regarding the reasonableness of the expenditures in terms of achievement of outputs and/or goals. It doesn't enable the identification of trade-offs. The least cost analysis described below attempts to provide some quantitative response to those issues.

3. Application of Least-Cost Analysis

The procedure followed is straight-forward. It requires explicit definition of quantifiable outputs and allocation of all

Project costs to those outputs.

Definition of Outputs

The definition of outputs is taken directly from the final draft PP. For each component, the primary quantifiable outputs are identified. Not all outputs are included. Some indicated outputs are actually inputs into the achievement of the primary outputs, such as training (in some cases) or persons receiving extension services. Other outputs are non-quantifiable, such as consciousness raising, increased awareness, etc. For each component, three to five primary quantifiable outputs are identified. A caution is in order. This analysis works with outputs at the component level, not at the Project Purpose level. The logic of the PP argues that if the component level outputs are realized, then the Purpose level outputs will be realized. The design does not permit an analysis of costs associated with the achievement of purpose level outputs. That linkage is taken as a given.

Cost Allocation

As the Project budget and financial plan is aggregated at the component level, the disaggregation of costs to outputs is done in steps. Those core costs that could be allocated to specific components are allocated to the components. For example, the long-term research advisor is allocated to the research component, that of the park management specialist is divided equally among park management and ecotourism components, the anthropologist to organizational development, etc. Core costs deemed common to all activities are allocated to each component on the basis of the proportional cost of the component. For example, the Chief of Party (COP) will work on all components as will local administrative staff. To allocate component costs to output achievement, the principal designers were asked to provide their estimate of the proportional level of effort required to achieve the specified outputs. That proportion is applied to the total component cost to determine the cost per unit of output. (CARE overhead and AID evaluation/audit funds are not allocated to outputs).

4. Results of Analysis

The results are presented in the following Tables 1 through 7.

Table 1 shows the allocation of total Project costs to each component. The land use and research components account for fifty per cent of total Project costs.

Table 2 is a summary table showing the per unit costs of achieving the primary outputs of each component. For example, the estimated cost of strengthening one local community organization in

the first phase is \$10,130 and, over the LOP, \$12,290.

Tables 3-7 are basically the component worksheets, showing the data relevant to the calculations for each component.

Specific comments on the results are briefly described below.

Organizational Development

The results suggest an average cost per organization strengthened on the order of \$10-12,000. Assuming that some organizations will not end up "being strengthened", the total amount of funds per strengthened organization will be less than that calculated. Each organization will be supported for a period of three to four years. Thus the per year per organization support provided will be on the order of \$2500. This appears low, given the importance of the output to the Project purpose. For the purpose of future monitoring and evaluation, it is important to establish baseline data on the organizations and indicators of strengthening. Similar comments apply to the output of institutions strengthened.

Protected Areas Management

The most costly elements of this component are the Management Plans, \$1700,000 per plan. The cost of the second set of plans rises significantly above the cost of those done in the first phase. That may be because basic plans exist for some of areas to be planned in the first phase. The cost of equipping and training additional guards is approximately \$1,000 per year per guard.

Ecotourism Development

While this is the least costly Project component, the costs per unit of output are the highest. The major cost elements in this component are the development of ecotourism plans (\$50-35,000 per plan) and the interpretive centers (\$80-140,000 per center). The cost of the second set of plans and centers increases significantly above the cost of the first set. The cost per established community ecotourism model is approximately \$30,000. Assuming support will be provided over a three to four year period, the annual average cost of this output is \$7500-\$10,000.

Improved Land Use Management

This component receives most Project funds and appears to be the most cost effective. Assuming that the establishment of models may require support for two-three years, the annual cost per model established is \$1700-2500. The costs per ha managed and per nursery established are low.

Research

The research component receives approximately 25 per cent of total Project funds. The average cost per study is on the order of \$35-83,000. The monitoring system is the most costly element of this component, particularly if the baseline studies are considered part of the monitoring system. Again, the costs of the second set of studies increase significantly above those accomplished during the first phase.

5. Recommendations

Four primary recommendations stem from this analysis:

- a. That in the development of annual operating plans, budgeting be made on an activity basis rather than a component basis. As it is fairly easy to align activities with outputs, Project management can evaluate costs per achievement of output. For example, there should be a specific budget for community ecotourism models, nursery development, surveying and posting, etc.
- b. That the accounting system permit expenditures to be reported by activity rather than just line item expenditures. This will permit future evaluations to analyze the real cost per unit of output.
- c. That an attempt be made to directly link component level output achievement with purpose level output achievement. A purpose level output, for example, could be reduction in the rate of deforestation along protected area perimeters. This is the kind of output that is of importance. For future evaluation purposes, it will be important to know how that rate has changed and what has been the impact of the different Project components on the rate of change.
- d. The monitoring system should include measures of output achievement. For example, what constitutes a strengthened organizations, a developed ecotourism community model, a successful interpretive center, a well managed buffer area, a trained guard fulfilling his responsibilities, a valuable research study, etc. These indicators should be established ex ante.

In the absence of activity level budgets in the PP, the allocation of costs to specific outputs is somewhat subjective. Of note, however, is that LOP average costs per unit of output generally exceed unit output costs during the first phase. This implies that average unit output costs during the second phase are significantly above the LOP average. This is a curious result.

Specific activity budgets would be required to explain the result. One hypothesis is uncertainty; another is that there is

slack in the LOP estimates; another is that the first phase cost estimates are low. Implementation of the four measures indicated above will enable the mid-term evaluators to follow-up this analysis with data on real expenditures and measured impact and, thereby, allow the LOP budget to be adjusted to a least-cost path.

SUMMARY COMPONENT BUDGET
ALLOCATING ALL PROJECT COSTS (AID)
TO COMPONENTS (\$)

	<u>Phase I</u>	<u>LOP</u>	
Organizational Development	715.8	2458	(18.5)
Protected Areas Management	733.8	2517.5	(18.9)
Ecotourism Development	488.8	1699.3	(12.8)
Imp. Land Use	983.7	3324.9	(25%)
Research	1027.3	3300.3	(24.8)
	<u>3949.4</u>	<u>13300</u>	
AID Eval/Audit	150	500	
CARE OVHD	350	1200	
	<u>4459</u>	<u>15000</u>	

**SUMMARY TABLE OF COST PER UNIT
OF OUTPUT, BY COMPONENT**

	<u>Output</u>		<u>Costs Per Unit (\$)</u>	
	<u>P1</u>	<u>LOP</u>	<u>Phase I</u>	<u>LOP</u>
<u>Organizational Strengthening</u>				
1. Local Org. Strengthened	53	150	\$10,130	\$12,290
2. Institutions Strengthened	20	28	7,158	7,557
3. AF Trained	600	1800	60	68
<u>Protected Areas Management</u>				
1. Park Management Plans	3	6	\$97,840	\$167,833
2. Boundaries Surv. & Posted	100Km	300Km	1,468	1,678
3. Additional Guards trained and equipped	25	100	11,741	10,070
<u>Ecotourism Development</u>				
1. Ecotourism Eval. & Plans	3	6	\$48,800	\$84,965
2. Community Ecotour Models	3	12	32,587	28,322
3. Interpretive Counters	3	6	81,466	141,608
<u>Improved Land Use</u>				
1. Models of Sust. Res. Use	39	120	\$ 5,045	\$ 5,542
2. Buffer Zone Management	4000ha	12000ha	172	194
3. Nurseries Established	150	450	656	739
<u>Research</u>				
1. Baseline Studies	3	6	\$51,365	\$82,508
2. Ethnobotanical Studies	4	6	38,524	82,508
3. Applied Ag/For. Studies	9	27	34,243	36,670
4. Socio Econ. Studies	3	9	51,365	55,005
5. Monitoring System	3	6	85,608	137,513

ORG. DEVELOPMENT

COSTS: Phase I: 715.8
 LOP: 2458.0

Primary Outputs

Phase 1: A1: 53 Community Orgs. Strengthened
 A2: 20 Institutions (NGO, Public Sector)
 Strengthened
 A3: 600 AF Trained

LOP: A1: 150 Communities Strengthened
 A2: 28 Institutions Strengthened
 A3: 1800 AF Trained

Cost Allocation: A1: 75%
 A2: 20%
 A3: 5%

Results: Cost per Unit of Output

Phase 1: A1: \$10,130 per Comm. Org. Strengthened
 A2: \$ 7,158 per Institution Strengthened
 A3: \$ 60 per student trained

LOP: A1: \$12,290 per Com. Org. Strengthened
 A2: \$17,557 per Inst. Strengthened
 A3: \$ 68 per student trained

AREA MANAGEMENT

COSTS: Phase I: 733.8
 LOP: 2517.5

Primary Outputs

Phase 1: A1: 3 Community Orgs. Strengthened
 A2: 100KM Institutions (NGO, Public Sector)
 Strengthened
 A3: 25 AF Trained

LOP: A1: 150 Communities Strengthened
 A2: 28 Institutions Strengthened
 A3: 1800 AF Trained

Cost Allocation: A1: 40%
 A2: 20%
 A3: 40%

Results: Cost per Unit of Output

Phase 1: A1: \$97,940 per Management Plan Implemented
 A2: \$ 1,468 per Km. Surveyed & Posted
 A3: \$11,741 per PG trained & equipped
 (equiv. to \$3914 per guard per year)

LOP: A1: \$167,833 per Management Plan Implemented
 A2: \$ 1,678 per Km. surveyed & posted
 A3: \$ 10,070 per PG trained & equipped

ECOTOURISM DEVELOPMENT

COSTS: Phase I: \$ 488.8
 LOP: \$1699.3

Primary Outputs

Phase 1: A1: 3 Ecotourism Evaluation & Plans
 A2: 3 Ecotour Community Models (inc. training)
 A3: 3 Interpretive Centers

LOP: A1: 6 Ecotourism Evaluation & Plans
 A2: 12 Ecotour Community Programs
 A3: 1800 Interpretive Centers

Cost Allocation: A1: 30%
 A2: 20%
 A3: 50%

Results: Cost per Unit of Output

Phase 1: A1: \$48,800 per Ecotour Evaluation & Plan
 A2: \$32,587 per Community Ecotour Program
 A3: \$81,466 per Interpretive Center Established

LOP: A1: \$84,965 per Ecotour Evaluation & Plan
 A2: \$28,322 per Community Ecotour Program
 A3: \$141,608 per Interpretive Center

IMPROVED LAND USE

COSTS: Phase I: \$ 983.7
 LOP: \$3324.9

Primary Outputs

A1: Models of Sustainable Resources Use (inc.
 demofarms
 A2: Buffer Zone Management 4000 ha;
 LOP: 12000 ha.
 A3: Nurseries established - 50; LOP: 450

Cost Allocation: A1: 30%
 A2: 70%
 A3: 20%

Results: Cost per Unit of Output

Phase 1: A1: \$ 5,045 per model
 A2: \$ 172 per ha. treated
 A3: \$ 656 per nursery established

LOP: A1: \$ 5,542 per model
 A2: \$ 194 per ha. treated
 A3: \$ 739 per nursery established

RESEARCH

COSTS: Phase I: \$ 983.7
 LOP: \$3324.9

Primary Outputs

A1: **Baseline Studies:** PI: 3, LOP: 6
 A2: **Ethnobotanical Studies:** PI: 4, LOP: 6
 A3: **Applied AG/Forestry Studies:** PI: 9, LOP: 27

Cost Allocation: A1: 15%
 A2: 15%
 A3: 30%
 A4: 15%
 A5: 25%

Results: Cost per Unit of Output

Phase 1: A1: \$51,365 per baseline study
 A2: \$38,524 per ethnobotanical study
 A3: \$34,243 per ag/forestry study
 A4: \$51,365 per socio-economic study
 A5: \$85,608 per monitoring system

LOP: A1: \$82,508 per baseline study
 A2: \$83,508 per ethnobotanical study
 A3: \$36,670 per ag/forestry study
 A4: \$55,005 per socio-economic study
 A5: \$137,513 per monitoring system

G. Social Soundness Analysis

This section presents a summary of the Social Soundness Analysis which is found in its entirety in Annex III.E of the PP.

1. Socio-cultural Description

To realize the objectives of SUBIR, it is fundamental to consider Ecuador's cultural, socioeconomic, and organizational diversity, since these influence the various perceptions of and relationships with the environment and the utilization of biological resources. The three protected areas and their buffer zones selected for the first phase of SUBIR are characterized by a great ecological, ethnic, cultural and socioeconomic diversity. The population, from an ethnic point of view, has been classified into three major groups: Indians, Afroecuadorians and Mestizos. Members of seven of the ten principal indigenous groups present in Ecuador live in the Phase I project areas: the Chachi, Awa, Embera and Sierra Quichuas are found in Cotacachi-Cayapas; the Cofan, Sierra and Amazonian Quichuas in Cayambe-Coca; and the Huaorani, Amazonian Quichuas and Shuar in Yasuni. Each one of these groups has its own language, cultural and lifestyle (see Annex II.E, Census of Project Area Population). Afroecuadorians are found to the west of Cotacachi-Cayapas, while Mestizos are found throughout all three project areas.

The indigenous population's political structure is articulated through ethnic organizations at local, regional, provincial, and national levels. Internally, these organizations maintain their traditional authority structures through grassroots organizations of communal character. Their function is to build consensus among their constituency that represents the common interest of their respective ethnic groups. The Afroecuadorian population, located exclusively near the Cotacachi-Cayapas Reserve, presents an organizational structure based on family nuclei, which come together into organizations of opportunity with specific purposes, such as gaining access to land, infrastructure, credit, or for mutually-beneficial marketing activities. The Mestizo population in the semi-tropical and tropical project areas is made up of relatively recent colonists (colonos), which are characterized by their heterogeneity due to the diversity of their origins (Sierra, Coast). They also differ in terms of residence time: those settlements having two or three decades of residence contrast with new settlers, in that the former are better adjusted to their environment and have developed tighter organizational structures.

2. Current Situation and Summary of the Problem

Two major problems arise from the Government's lack of recognition of the multi-cultural conformation of the country. The first lies in the policy of cultural homogenization of Ecuadorian society in order to reach economic development goals, which leads

to the loss of identity, traditional values and self-esteem within ethnic groups. Second, the imposition of a man/environment philosophy based on resource extraction and accumulation of wealth, is in direct conflict with traditional peoples' subsistence/co-existence logic which relies on knowledge of, and interrelationship with, ecological processes which determine specific roles for each community or ethnic group member. When indigenous groups have demonstrated their intent to defend their traditional rights, they have been seen as part of the "indigenous problem" and a threat to national interests. For instance, communal land tenure, which implies a broad territorial definition, is coherent and ecologically adequate from a social and natural resources management perspective, but is not perceived appropriate from the point of view of national policy.

Afroecuadorian and the indigenous groups are known for having socioeconomic and cultural traditions in harmony with the ecological balance of their environment. There has been a tendency for these traditions to break down due to the pressures of a growing population and the reorientation of their traditional resource management systems into the national economy. Outside forces (colonist, industry) are exerting pressures on their resources, leading to cultural change. Many of the ethnic groups are involved in a type of development that endangers their cultural patterns and traditional knowledge, and is redirecting their resource management systems to highly predatory and non-sustainable practices.

Poverty, and lack of basic social services and access to technical assistance, are common to all the groups involved with SUBIR. Historically, these groups have enjoyed little probability of improvement of living conditions. Socioeconomic distortions brought about by deforestation caused by the expansion of the agricultural frontier, the degradation of natural resources as a result of uncontrolled oil, mineral, and timber exploitation, and the shrimp industry, have origins in social and political factors, such as: 1) lack of access to long-term economic opportunities for the rural population, 2) the absence of a coherent natural resources policy, 3) exclusive emphasis on private investments and foreign exchange generation, 4) a land tenure structure that facilitates speculation, and 5) inadequate technical education to promote rational natural resource management.

3. SUBIR Response

For SUBIR, ethnic and ecological fragility go together. For this reason, the integrated resource development and conservation strategy proposed by the Project incorporates not only a technical response, but the consideration of the socioeconomic and ecological realities of each of the project areas (see Organizational Development and Research components). This strategy focuses on improving the economic conditions and quality of life of resident

populations, while conserving the natural resource base. In addition, the Project intends to strengthen existing organizations, promoting internal cohesion, self-esteem and development of members of the sociocultural groups found in the project areas.

In the three Phase I project areas, local organizations have demonstrated awareness of their current situation and needs, and have initiated their search for adequate solutions. However, their organizational capacity and economic and technical resources are extremely limited. In previous efforts, projects have been proposed mainly by external entities with little real participation of the intended beneficiaries or locally-represented organizations. Planning, decision making, and administration of activities have historically been conceived from a centralized GOE agency. Consequently, these projects have not resulted in building self-sufficiency of local organizations, nor in the direct transfer and sustainability of technical interventions.

Several of the groups envisioned for participation in the Project have experienced certain problems in trusting governmental as well as non-governmental organizations. For this reason, SUBIR proposes to work with organizations at the grassroots level to build confidence and rapport, and to increase their experience, knowledge, abilities and initiative in the context of conservationist development strategies. Local community groups will be both the beneficiaries and implementors of project activities. Priority interventions will be selected with full participation of these groups, avoiding historical problems of imposing external social and technical agendas. The decentralized and participatory approach to be employed by SUBIR will further strengthen local organizations so that, in the medium term, they can develop activities related to the sustainable use of biological resources in coordination with NGOs and the GOE. Further, the Regional Interorganizational Coordination Committees will serve as a mechanism for collaboration among community and ethnic groups in each project area, and as a forum for communication and resolution of resource-use conflicts between these groups, GOE, and private-sector organizations.

Prevailing laws and regulations (Ley de Comunas, Ley de Cooperativas) which define organizational structures, are bringing about a transformation of traditional authority (family, ritual, communal) to formal authority (president, cabildo, secretary). Many of the groups in SUBIR's project areas are searching for an equilibrium between these two structures. SUBIR will work with prevailing local organizations, building from their foundations and strengthening each organization based on members' felt needs, and the requirements to bring about self-sufficiency in implementation of project-sponsored activities.

This model permits activities to correspond with priority needs and socioeconomic and cultural differences of the inhabitants in

each project area. The SUBIR approach also fosters the development of adequate mechanisms to encourage the participation of social groups. In the case of women, for example, SUBIR will not cast their role solely from a gender dimension (woman/man responsibilities), but within the context of their roles in resource management. Diagnostic baseline surveys and socio-cultural research will document changes in attitudes and behavior, in order to reorient implementation strategies.

As envisioned, rural participative training is essential if the Project is to have the desired multiplier effect and sustainability:

1. Project accomplishments will serve as demonstrative examples of the benefits of adopting sustainable systems for natural resource management, thus increasing the number of families and communities implementing them.
2. By offering training activities, community groups will be more prepared to expand their own activities.
3. The conservation consciousness and sustainable natural resource management orientation acquired by the organizations will further influence other group activities and relationships with other organizations.
4. Training and consciousness-raising provided to GOE and NGO personnel will broaden their understanding of multicultural factors and improve the implementation of their activities.
5. Through the RICCs, SUBIR's radius of action should gradually increase, as these constitute the appropriate arena for defending different resource management interests and for joint decision-making among a range of resource users which historically have had little or no communication.

Many projects have been unsuccessful due in part to their lack of consideration of socio-cultural diversity, and also because grassroots organizations have not been adequately involved in administering activities. SUBIR intends to directly address these deficiencies as an initial step in its assistance strategy. The diagnostic surveys, subproject planning, selection of methodologies, administration of activities, and self-evaluation, can all assess organizational and self-sufficiencies. The methodology and approach proposed under SUBIR should assure the continuity of activities even after SUBIR has ended its assistance.

H. Environmental Assessment

This section summarizes the full SUBIR environmental assessment which is presented in Annex III.I to this PP. SUBIR will work in three protected areas during the first phase of implementation (1991-1994): Cayambe-Coca Ecological Reserve, the Cotacachi-Cayapas Ecological Reserve and Yasuni National Park, and the "zones of influence" (i.e. buffer zones) surrounding these reserves. The principal issues in these areas which are having negative environmental impacts are: (1) tropical forest destruction and degradation; (2) depletion of biological resources; (3) colonization of the protected areas; (4) lack of sustainable management strategies for primary and secondary tropical forests; and (5) lack of real protection for legally declared parks and reserves. The environmental assessment of the SUBIR Project considered three alternatives.

1. Alternative I: The Project as Proposed

SUBIR, as originally designed, would produce a beneficial effect on conservation and development of the natural resource base in Ecuador and would promote sustained use of biological resources in and around three critical areas during the Project's first phase. The Project would limit "use" of biological resources within parks, reserves and primary tropical forests to "low impact" research and ecotourism. In limited instances these activities would require physical intervention, such as the construction or improvement of guard stations, lodges for nature tourists and researchers, parking areas, or other structures; and the construction of hiking trails, the marking of reserve boundaries, and the establishment of research plots. These activities could have some adverse effects should these interventions provide uncontrolled access for colonists, loggers and poachers to previously remote sites in the park and reserves--particularly since the present protected areas' guards and administrators have not exercised their legal authority to halt such illegal activities within the reserves. Each of these physical interventions would require a basic environmental assessment of its site and design before the construction begins.

2. Alternative II: The Project with Amended Environmental Assessments during Implementation

Alternative II supports the proposed activities of the SUBIR Project with the following additions and deferments, most requiring deferred amendments to the Environmental Assessment, to mitigate possible negative environmental impacts of specific activities that will be planned and designed during Project implementation. Many of the listed Environmental Review and Environmental Assessment activities are required or recommended by U.S. laws and regulations governing programs funded by AID.

Improvement of Roads or Trails. SUBIR must defer the improvement of roads, trails and facilities for tourists, park administration and researchers until park and reserve guards and administrators have developed, and are implementing, with support of the local people, effective plans to control colonization, logging, hunting or other illegal activities within the protected areas. Consideration must be given to the possibility that improved roads or trails could improve access for illegal activities within the protected areas. These could lead to increased environmental degradation, including the destruction of rare or endangered species and general biological diversity, primary tropical forests, and ethnic groups. After the above deferment has been resolved, all improvement of trails or roads must follow the same requirements as any other type of construction, as discussed below.

Construction. For construction of any facilities (e.g., research or training center, guard station, tourist facility, agricultural building, plant nursery) SUBIR Consortium staff and/or contract specialists must determine possible impacts of construction with the preparation of an amendment to the SUBIR EA. Design and use requirements for impact mitigation must be included in the construction plans.

When specific areas for physical interventions (e.g., trail improvements, construction) are identified, a survey must be conducted by a professional archeologist to determine the presence and relative importance of artefacts or historical or cultural sites which may be impacted by Project activities (this information must be included in any environmental assessment).

Park/Reserve Boundary Marking. For marking boundaries of protected areas, which may include cutting trees and planting local species within the protected areas, an Environmental Review and EA will be required, comparing the benefits of this activity (designed to protect fragile ecosystems) against the negative environmental direct and indirect effects of removing and altering parts of the ecosystems. Consideration must be given to possible impacts of incurring a change in animal movement or migration patterns through the creation of a continuous-strip ecotone between natural forests and a uniformly planted belt of trees (i.e., "edge effect") and the possible increase in non-local species of plants or animals adapted to such human-disturbed areas.

Tourism. SUBIR must defer the development of tourism until site-specific activities are clearly identified and Environmental Reviews or Assessments are conducted which include the following considerations, with elimination or mitigation of negative impacts in design of tourism programs. The SUBIR Consortium staff anthropologist/sociologist must determine the probable impacts of increased tourist numbers and employment opportunities on the indigenous and rural populations (e.g. diseases, physical and

psychological displacement, destruction of cultural and social values, etc.). The SUBIR Consortium staff ecologist must estimate the visitor "carrying capacity" of the projected areas of visitor presence, considering such factors as animal movements and habits, and impacts on vegetation.

Forestry and Agriculture. If any activities involving timber extraction from primary forests are considered, the "Agency FY 91 Forestry Legislation Guidance" (State cable 103375, 2 April 1991) must be followed, per Section 533(C)(3) of the FY 91 Foreign Assistance Act and the amendment of this Section in the FY 91 "Dire Emergency Supplemental Appropriations Act." These restrictions require a separate Environmental Assessment which "(I) identifies potential impacts on biological diversity; (II) demonstrates that all timber extraction will be conducted according to an environmentally sound management system which maintains the ecological functions of the natural forest and minimizes impacts on biological diversity; and (III) demonstrates that the activity will contribute to reducing deforestation." It is unclear if these restrictions will apply beyond FY 91 funding, but official authorization/guidance must be sought for activities using subsequent fiscal-year funding.

Introduction of species not native to Ecuador, or not presently living in the area of planned subprojects, will not be allowed as part of any Project activities, including agroforestry, without GOE legal permission, and without an EA showing that future impacts of such introduction will be insignificant. As it is virtually impossible to predict such future impact, it is recommended that the Project not attempt any introductions of species not native to the country or not presently growing in the planned area of introduction. Implementation of trout culture or other aquaculture activities should be deferred until SUBIR staff and/or contracted specialists have inspected and reviewed the plans, particularly local and downstream impacts of discharge of spent culture water on other aquatic organisms. Exotic species cannot be introduced without an approved EA, as discussed above.

Pesticides. SUBIR must follow the requirements of the AID Environmental Procedures (22 CFR, Part 216.3), requiring written approval from the AID/LAC Bureau Environmental Officer before purchasing, using or recommending any specific pesticides. Integrated pest management methods will be used to the extent possible (including in training), minimizing the use of pesticides. It is noted here that CARE's Pesticide Policy is even more stringent than USAID requirements and SUBIR will abide by these.

Biological Resource Extraction. Before developing plans for extraction and utilization or sale of biological resources, SUBIR must determine which Ecuadorean, U.S. or other laws and treaties apply to the extraction, marketing or export of specific forest

products. Of particular relevance will be the CITES treaty, restricting the utilization of orchids, bromeliads, other plants, and animals or animal products, from wild sources.

Before implementing management plans for forested areas, for extraction of wood or any other forest products, in either primary or secondary forests, preliminary inventories (by professional plant and animal taxonomists) must be made of the flora and fauna present to determine the existence and distribution of rare or endangered resident or migratory species. As many of these areas are floristically and faunistically insufficiently known, voucher specimens are essential for the future determination of possibly undescribed rare or endangered species. This must also include information, to the extent possible, on the local and regional distribution of each species to be impacted by extraction and estimates of the maximum harvesting rate of products which may be possible for each target species. A subsequent environmental assessment must include requirements for impact mitigation in the management plans. This EA must include estimates, as appropriate, of present market demand, future demand, monitoring methods for determining harvest rates, reliable methods to reduce harvesting if reproduction/replenishment rates are being exceeded, and monitoring methods to assure that extractable products are not being taken illegally from protected areas.

Amendments to the EA will be required for any project activities or sub-projects if these involve significant alterations of ecosystem components or will have potentially adverse environmental consequences. These will include new programs proposed in agriculture, forestry, animal husbandry, construction, tourism or related activities that are not specifically covered in the SUBIR EA or its attachments. Future multiple sub-projects may be included within a single amended environmental assessment. Amended environmental assessments must be approved by USAID/Quito and the AID/LAC Bureau Environmental Officer.

3. Alternative III: A "No Action" Alternative

A decision not to implement SUBIR would continue the present patterns of deforestation, environmental degradation, loss of biological diversity and soil resources, increased pollution and siltation of streams and reduced water quality. Deterioration of the diversity of the biological resources of the two Ecological Reserves and the Yasuni National Park will continue if no action is taken, and the socioeconomic impoverishment of buffer zone inhabitants, and their encroachment upon these protected areas, would continue.

4. Environmental Assessment Recommendations

Alternative II is recommended as the preferred course of action. Adding the conditions described above will strengthen the ability of the Project to achieve its goal and purposes. It is also recommended that the SUBIR project contract short-term technical assistance as needed, to complement Consortium long-term staff, to conduct environmental assessments of new project interventions developed during implementation.

V. ADMINISTRATION OF PROJECT FUNDS, COST ESTIMATES, AND FINANCIAL PLAN

Through a Cooperative Agreement between the Consortium and USAID/Ecuador, grant funds will be channeled through the management and administrative structure described below. The SUBIR Consortium will finance project activities through a series of agreements and/or contracts with community organizations, and governmental and non-governmental organizations at the local, regional and national levels. Project activities and the performance of participating organizations will be effectively monitored by Consortium staff at all levels. USAID's Project Manager will provide oversight and guidance concerning Mission priorities, and in the coordination of SUBIR activities with other USAID-supported projects and programs. The Consortium will adhere to regulations required under the Handbook 13 Cooperative Agreement and standard provisions. The Consortium will develop an acceptable internal monitoring program for control over financial, administrative, and managerial aspects of project activities. The SUBIR central-office Core Staff will share the premises of the CARE/Ecuador office in Quito, as the Project's base of operations.

CARE will sign subcontracts with each of its consortium members upon signature of the Implementation Phase Cooperative Agreement with USAID/Ecuador. These subcontracts will spell out technical and managerial responsibilities, technical assistance inputs, complementary funding and fund-raising targets, and administrative obligations. These subcontracts will be used to fund operating expenses of the Consortium members--travel, per diem, training, staff technical assistance services, and for other direct-expense reimbursements, in accordance with annual work plans and budgets.

CARE, TNC, and WCI will supplement the resources made available by USAID/Ecuador with their existing technical skills, networks, and infrastructure, thus increasing the cost effectiveness and impact of the SUBIR effort. In addition, through CARE as Lead Implementing Organization (LIO), the Consortium builds on an administrative, personnel management, financial and logistical support structure that has been present in Ecuador since 1962. CARE has managed many millions of dollars in grants from USAID,

including OPG's and PL 480 programs in Ecuador, in support of activities in agriculture and natural resources, health, and nutrition and food distribution.

SUBIR will manage a Fund for Special Services (FSS) to provide limited logistical and operational funds through contracts to regionally-represented governmental and non-governmental organizations who already have personnel implementing activities in the area. SUBIR will enlist their services to provide training and technical assistance to local/community organizations in priority activities in their areas. Where regional organizations cannot meet technical assistance needs, SUBIR will seek agreements with other governmental, non-governmental, private sector and/or educational organizations, or individual consultants to provide the necessary support.

A. Project Costs and Funding Sources

The total costs of the 10-year Project are estimated at US\$20 million. USAID will provide grant financing to the Consortium in the total amount of US\$15 million. Approximately \$5 million will be provided through a unique combination of complementary funding mechanisms involving Consortium member contributions and in-country contributions (cash and in-kind) from counterpart contributions.

To reach the SUBIR objectives over the LOP, Consortium members will immediately initiate cooperative fund-raising campaigns in Ecuador and internationally. USAID funds will provide initial funding for project mobilization, core Consortium administrative and management costs, and seed funding for component activities. The Consortium anticipates securing funding from CARE/PROMUSTA, TNC/Parks in Peril/Debt Swap, and WCI/Ecociencia Research Program. The Consortium is programming the following complementary funds for the Phase 1 SUBIR effort, and will explore other alternative sources and potential donors, some of which are shown in Table V.0.

As a condition to receive SUBIR project funds, community organizations, governmental institutions, NGOs, educational institutions and private enterprises will be required to contribute counterpart resources valued at approximately 25% of total expenditures per a particular activity. In most cases, this will entail in-kind contributions, and will include such items as labor, locally-available materials, salaries of counterpart personnel, use/rental of infrastructure, transport and administrative support costs.

B. Financial Plan, Methods of Disbursement, and Obligation Schedule

Table V.1. presents the total project costs and funding sources

for the three-year Phase 1 and the 10-year LOP. More detailed budget breakdowns are provided in Annex II.B - Detailed Budget Estimates. Table V.2. presents a breakdown of projected annual project expenditures in foreign exchange (FX) and local currency (LC) by item, component and activity. Calculations do not include an inflation factor and no contingency inputs have been included. The Consortium intends to absorb reasonable inflation (e.g. 5% per annum) by increasing management efficiencies over time. Only salaries will be adjusted based on merit at an annual 6% increase.

Disbursement will be authorized based on letters of credit and the approval of annual work plans and budgets submitted to USAID. CARE will administer these funds following the terms of the Cooperative Agreement and Handbook 13 regulations, and standard provisions. The agreement is reimbursable for expenses incurred in accordance with USAID obligations. CARE will submit semi-annual financial reports to USAID concerning: flow of USAID funds to the Consortium; Consortium counterparts contributions and Consortium disbursements to participating local organizations, collaborators and contractors. USAID/Ecuador will obligate funds to the Project through the Cooperative Agreement based on budget projections of the Consortium, and depending on the availability of funds. Table V.3 below presents the planned obligations and expenditures by fiscal year of USAID funds.

Table V.3
PLANNED OBLIGATIONS AND EXPENDITURES BY FISCAL YEAR
 (in US\$ 000s)

	FY 91	FY 92	FY 93	FY 94	FY 95		
Initial Balance	0	1200	500	500	1200		
Obligations	3000	1000	1500	2500	1000		
Expenditures	1800	1700	1500	1800	2000		
Ending Balance	1200	500	500	1200	1000		
	FY 96	FY 97	FY 98	FY 99	FY 2000	FY 2001	
Initial Balance	1000	900	500	300	100		
Obligations	1500	1000	1200	1000	800		
Expenditures	1600	1400	1400	1200	900		
Ending Balance	900	500	300	100	0		

C. Administration of Project Funds

Administrative arrangements under the Cooperative Agreement, will be established at the US-based Consortium, national and

TABLE V.0
PROJECTED AND POTENTIAL FUNDING SOURCES FOR SUBIR PHASE I

DONOR/SOURCE	COMPONENT AND AREA FOCUS OF COLLABORATION	CONTRIBUTION (US \$)
<u>Tentatively Programmed for Phase I</u>		
* CARE/PROMUSTA	Improved Use of Land and Biological Resources (RECA, RECC)	245,000
* TNC/WWF/Fundación Natura Debt Swap	Mgmt of Protected Areas; Training (PNY, RECC, RECA)	349,000*
* USAID/MacArthur Foundation/TNC Parks in Peril	Mgmt of Protected Areas (PNY, RECA)	579,000*
* WCI/Ecociencia Research and Training Program	University-level Training in Applied Research Methods, Biology, Botany, Wildlife Management, etc. and Coordination of Research Programs (all areas)	35,000
(*Not all funds are oriented to SUBIR activities)		
<u>Potential Future Sources under Consideration</u>		
* World Bank Environment Mgmt. and Tech. Assistance Project	Research and Training (PNY, RECC, RECA)	N/A
* USAID/Enterprise for the Americas Initiative	Improved Land and Biol. Resource Use (RECC, RECA)	N/A
* Dupont/Conoco	Mgmt of Protected Areas; Research and Monitoring; Training and Org. Development (PNY)	N/A
* Latin America Scholar Partnership with American Universities (LASPAU)	Training, Research and Scholar Exchanges in Partnership with Ecuadorian Universities	N/A
* UNESCO	Mgmt of Protected Areas through Man and the Biosphere Programs (PNY, RECC)	N/A
* Consortium Fund-Raising	All Components; All areas	N/A
<hr/> PNY - Yasuni National Park RECC - Colacachi - Cayapas Ecological Reserve RECA - Cayambe - Coca Ecological Reserve N/A - Not Available		

TABLE V. 1.

SUBIR SUMMARY OF COSTS BY YEAR AND SOURCE
(000's of US\$)(1)

	First Phase Total					LOP Total						
	USAID	CONS. (2)	BENEF/ COLL (3)	FI (4)	LC	Total	USAID	CONS. (2)	BENEF/ COLL (3)	FI	LC	Total
1 Consortium Core Costs												
A. Project Technical Assist.	777.9	0.0	0.0	502.0	272.0	774.0	2188.8	0.0	0.0	1253.0	929.0	2182.0
B. Local Technical Assistance	388.6	0.0	0.0	11.0	379.0	390.0	1446.0	0.0	0.0	34.0	1416.0	1449.0
C. Materials & Equipment	310.0	0.0	0.0	219.0	91.0	510.0	808.5	0.0	0.0	517.5	291.0	808.0
Sub-Total	1475.9	0.0	0.0	732.0	742.0	1474.0	4443.3	0.0	0.0	1804.5	2636.0	4439.0
2. Field Activities												
A. Organizational Development												
- Technical Assistance	232.7	13.9	36.4	46.0	257.0	303.0	728.6	51.0	206.1	147.2	830.5	977.7
- Material and Equipment	100.2	10.6	15.1	11.0	123.0	134.0	469.9	74.1	60.2	48.6	555.6	604.2
B. Protected Areas Management												
- Technical Assistance	246.2	71.4	214.7	168.0	365.3	533.3	878.4	271.2	815.6	612.2	1354.0	1965.7
- Material and Equipment	126.9	46.6	58.8	43.0	209.2	252.2	478.2	347.8	307.0	192.7	940.3	1133.1
C. Ecotourism Development												
- Technical Assistance	72.6	62.5	19.6	30.0	124.7	154.7	257.4	229.4	72.1	106.8	452.1	558.9
- Material and Equipment	161.2	27.2	30.7	48.5	170.5	219.0	596.7	128.3	144.8	191.7	678.2	869.8
D. Improved Use of Land and Resources												
- Technical Assistance	347.2	57.8	172.7	84.0	493.7	577.7	1261.1	212.2	776.9	318.2	1932.1	2250.2
- Material and Equipment	212.7	138.2	15.4	92.0	274.7	366.7	769.9	499.0	137.2	351.9	1054.5	1406.4
E. Research and Monitoring												
- Technical Assistance	464.5	85.5	16.4	144.0	422.5	566.5	1501.0	360.4	21.7	473.1	1409.9	1883.1
- Material and Equipment	40.5	69.5	0.0	48.0	62.0	110.0	146.3	288.5	0.0	187.7	247.1	434.8
Sub-Total	2004.6	611.3	599.9	714.5	2502.6	3217.1	7879.5	2461.8	2541.6	2630.1	9454.3	12083.8
3. Audits/External Evaluations (USAID)	150.0	0.0	0.0	150.0	0.0	150.0	500.0	0.0	0.0	500.0	0.0	500.0
4. Local Admin. Support	509.5	0.0	0.0	384.6	124.9	509.5	1777.2	0.0	0.0	1488.2	369.0	1777.2
5. CARE-New York Overhead (EI)	360.0	0.0	0.0	360.0	0.0	360.0	1200.0	0.0	0.0	1200.0	0.0	1200.0
TOTALS	4500.0	611.3	599.9	2341.1	3369.5	5710.6	15000.0	2461.8	2541.6	7542.8	12459.3	20000.0

(1) Exchange rate in March (1991): US\$ 1 = 1,000 sucres)

(2) Consortium contributions in cash and in-kind (valorized)

(3) Beneficiaries/Collaborators' contributions in-kind (valorized US\$ from local currency)

(4) All Foreign Exchange expenses will be covered by USAID funds.

Note: Totals do not agree exactly due to rounding

TABLE V. 2.

SUMMARY OF COSTS BY YEAR AND SOURCE
(000's of US\$)(1)

	YEAR 1					YEAR 2					YEAR 3							
	USAID	CONS. BENEF/ (2)	COLL (3)	FX (4)	LC	Total	USAID	CONS. BENEF/ (2)	COLL (3)	FX	LC	Total	USAID	CONS. BENEF/ (2)	COLL (3)	FX	LC	Total
1. Consortium Core Costs																		
A. Project Technical Assist.	273.0	0.0	0.0	186.0	84.0	270.0	266.0	0.0	0.0	175.0	91.0	266.0	238.8	0.0	0.0	141.0	97.0	238.0
B. Local Technical Assistance	123.0	0.0	0.0	3.0	120.0	123.0	130.0	0.0	0.0	4.0	127.0	131.0	133.6	0.0	0.0	0.0	132.0	136.0
C. Materials & Equipment	200.0	0.0	0.0	204.0	36.0	200.0	33.0	0.0	0.0	7.0	28.0	33.0	33.0	0.0	0.0	8.0	27.0	33.0
Sub-Total	636.0	0.0	0.0	393.0	200.0	633.0	431.0	0.0	0.0	186.0	246.0	432.0	405.3	0.0	0.0	153.0	256.0	409.0
2. Field Activities																		
A. Organizational Development																		
- Technical Assistance	76.0	4.6	18.4	22.0	77.0	99.0	88.3	3.3	21.4	12.0	103.0	115.0	68.4	4.1	16.6	12.0	77.0	99.0
- Material and Equipment	28.4	3.3	4.3	4.3	33.3	38.0	42.6	7.9	6.4	4.3	52.3	57.0	29.2	3.4	4.4	2.0	37.0	39.0
B. Protected Areas Management																		
- Technical Assistance	73.9	21.4	64.4	30.0	109.9	159.9	98.4	28.3	85.0	48.0	145.3	213.0	73.9	21.4	64.4	30.0	109.9	159.9
- Material and Equipment	48.3	23.3	22.4	20.0	76.0	96.0	37.9	30.4	25.8	19.0	96.2	113.2	29.6	10.8	9.6	4.0	37.0	41.0
C. Ecotourism Development																		
- Technical Assistance	24.4	21.0	6.6	12.0	60.0	52.0	27.7	23.0	7.5	9.0	50.0	59.0	20.5	17.7	3.5	9.0	34.7	43.7
- Material and Equipment	64.8	10.9	12.3	26.9	62.0	88.0	85.7	14.4	16.3	19.3	97.0	116.3	19.7	1.8	2.0	3.0	11.3	14.3
D. Improved Use of Land and Resources																		
- Technical Assistance	110.6	18.4	33.0	34.0	150.0	184.0	132.3	22.1	63.9	23.0	195.5	220.3	104.1	17.3	31.8	23.0	148.2	173.2
- Material and Equipment	79.3	31.3	3.7	31.5	85.2	136.7	72.0	46.8	3.2	24.3	99.6	128.1	61.4	39.9	4.4	16.0	89.9	105.9
E. Research and Monitoring																		
- Technical Assistance	213.2	39.3	7.3	40.0	290.0	240.0	134.9	24.8	4.8	42.0	122.5	164.3	116.4	21.4	4.1	42.0	108.0	142.0
- Material and Equipment	17.7	30.3	0.0	29.0	19.0	48.0	18.2	31.3	0.0	18.0	31.3	49.5	4.6	7.9	0.0	1.0	11.3	12.3
Sub-Total	736.3	228.1	196.7	309.0	852.6	1161.6	758.3	235.4	240.2	241.3	993.3	1234.3	509.7	147.8	162.9	164.0	636.7	829.7
3. Audits/External Evaluations (USMIB)	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0	30.0
4. Local Admin. Support	178.0	0.0	0.0	158.6	28.0	178.0	164.9	0.0	0.0	137.2	29.7	164.9	164.8	0.0	0.0	133.3	31.3	164.8
5. CDE-New York Overhead (OZ)	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0
TOTALS	1720.3	228.1	196.7	1022.0	1120.6	2142.6	1326.2	235.4	240.2	734.7	1269.0	2003.2	1231.3	147.8	162.9	620.3	944.2	1384.3

(1) Exchange rate in March (1971): US\$ 1 = 1,000 sucres)

(2) Consortium contributions in cash and in-kind (valorized)

(3) Beneficiaries/Collaborators' contributions in-kind (valorized US\$ from local currency)

(4) All Foreign Exchange expenses will be covered by USAID funds.

Note: Totals do not agree exactly due to rounding off.

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TABLE V. Z.

SUBIR SUMMARY OF COSTS BY YEAR AND SOURCE
(000's of US\$)(1)

	YEAR 4					YEAR 5					YEAR 6							
	USAID	CONS. BENEF/ (2)	FI	LC	Total	USAID	CONS. BENEF/ (2)	FI	LC	Total	USAID	CONS. BENEF/ (2)	FI	LC	Total			
1 Consortium Core Costs																		
A. Project Technical assist.	246.0	0.0	0.0	146.0	100.0	246.0	175.0	0.0	0.0	89.0	85.0	174.0	183.0	0.0	0.0	96.0	87.0	183.0
B. Local Technical Assistance	139.0	0.0	0.0	4.0	133.0	138.0	241.0	0.0	6.0	6.0	236.0	242.0	190.0	0.0	0.0	3.0	177.0	190.0
C. Materials & Equipment	177.5	0.0	0.0	150.0	27.5	177.0	63.5	0.0	0.0	20.5	35.0	63.5	33.0	9.0	0.0	7.5	27.5	35.0
Sub-Total	562.5	0.0	0.0	300.0	262.5	561.0	479.5	0.0	0.0	123.5	356.0	479.5	398.0	0.0	0.0	106.5	291.5	398.0
2. Field Activities																		
A. Organizational Development																		
- Technical Assistance	66.6	5.3	21.4	14.0	79.3	93.3	66.6	5.3	21.4	14.0	79.3	93.3	66.6	5.3	21.4	14.0	79.3	93.3
- Material and Equipment	54.5	7.9	6.4	5.5	63.4	68.9	54.5	7.9	6.4	5.5	63.4	68.9	54.5	7.9	6.4	5.5	63.4	68.9
B. Protected Areas Management																		
- Technical Assistance	89.0	28.5	85.8	63.0	140.3	203.4	89.0	28.5	85.8	63.0	140.3	203.4	89.0	28.5	85.8	63.0	140.3	203.4
- Material and Equipment	45.8	40.2	35.5	20.6	100.8	121.4	45.8	40.2	35.5	20.6	100.8	121.4	45.8	40.2	35.5	20.6	100.8	121.4
C. Ecotourism Development																		
- Technical Assistance	26.2	23.8	7.5	10.9	46.6	57.5	26.2	23.8	7.5	10.9	46.6	57.5	26.2	23.8	7.5	10.9	46.6	57.5
- Material and Equipment	38.3	14.4	16.3	19.6	69.5	89.1	38.3	14.4	16.3	19.6	69.5	89.1	38.3	14.4	16.3	19.6	69.5	89.1
D. Improved Use of Land and Resources																		
- Technical Assistance	125.5	22.1	85.9	32.7	200.8	233.5	125.5	22.1	85.9	32.7	200.8	233.5	125.5	22.1	88.8	33.1	203.3	236.4
- Material and Equipment	77.0	51.5	17.4	36.5	109.4	145.9	77.0	51.5	17.4	36.5	109.5	145.9	77.0	51.5	17.4	36.5	109.5	145.9
E. Research and Monitoring																		
- Technical Assistance	141.6	39.3	0.0	43.4	136.2	181.6	141.6	39.3	0.0	43.4	136.2	181.6	141.6	39.3	0.0	43.4	136.2	181.6
- Material and Equipment	14.6	31.3	0.0	19.7	26.2	45.9	14.6	31.3	0.0	19.7	26.2	45.9	14.6	31.3	0.0	19.7	26.2	45.9
Sub-Total	699.1	264.4	276.9	268.0	972.4	1240.4	699.1	264.3	277.0	268.0	972.4	1240.4	699.1	264.3	279.9	268.4	974.9	1243.3
3. Audits/External Evaluations (USAID)	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0	30.0
4. Local Admin. Support	166.1	0.0	0.0	134.8	33.3	160.1	173.0	0.0	0.0	137.7	35.3	173.0	177.0	0.0	0.0	139.3	37.3	177.0
5. CBRE-New York Overhead (02)	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0
UNRIS	1999.7	264.4	276.9	872.8	1268.2	2139.5	1521.6	264.3	277.0	699.2	1363.7	2062.9	1446.1	264.3	279.9	684.4	1303.9	1988.3

(1) Exchange rate in March (1991): US\$ 1 = 1,000 sucres)

(2) Consortium contributions in cash and in-kind (valorized)

(3) Beneficiaries/Collaborators' contributions in-kind (valorized US\$ from local currency)

(4) All foreign Exchange expenses will be covered by USAID funds.

Note: Totals do not agree exactly due to rounding off.

TABLE V. 2.

SUMMARY OF COSTS BY YEAR AND SOURCE
(000's of US\$)(1)

	YEAR 7					YEAR 8					YEAR 9							
	USAID	CONS. (2)	BENEF/ COLL (3)	FI	LC	Total	USAID	CONS. (2)	BENEF/ COLL (3)	FI	LC	Total	USAID	CONS. (2)	BENEF/ COLL (3)	FI	LC	Total
1. Consortium Core Costs																		
A. Project Technical Assist.	100.0	0.0	0.0	90.0	90.0	180.0	199.0	0.0	0.0	99.0	91.0	193.0	204.0	0.0	0.0	107.0	98.0	205.0
B. Local Technical Assistance	500.0	0.0	0.0	3.0	177.0	180.0	170.0	0.0	0.0	3.0	176.0	179.0	70.0	0.0	0.0	2.0	68.0	70.0
C. Materials & Equipment	117.5	0.0	0.0	10.0	27.5	117.5	35.0	0.0	0.0	7.5	27.5	35.0	35.0	0.0	0.0	7.5	27.5	35.0
Sub-Total	683.5	0.0	0.0	191.0	294.5	683.5	407.0	0.0	0.0	109.5	297.5	407.0	311.0	0.0	0.0	116.5	193.5	310.0
2. Field Activities																		
A. Organizational Development																		
- Technical Assistance	80.3	5.5	21.4	17.2	97.7	115.0	64.6	5.3	21.4	14.0	79.3	93.3	64.6	5.3	21.4	14.0	79.3	93.3
- Material and Equipment	42.6	7.9	6.4	4.6	32.4	57.0	54.5	7.9	6.4	5.5	63.4	68.9	54.5	7.9	6.4	5.5	63.4	68.9
B. Protected Areas Management																		
- Technical Assistance	90.2	20.5	85.0	45.9	146.7	212.4	89.0	20.5	85.0	45.4	140.3	203.4	89.0	20.5	85.0	45.0	140.3	203.4
- Material and Equipment	76.6	40.2	35.5	25.9	126.3	152.2	45.0	40.2	35.5	20.6	100.8	121.4	45.0	40.2	35.5	20.6	100.8	121.4
C. Ecotourism Development																		
- Technical Assistance	27.7	25.0	7.5	11.2	47.8	99.0	26.2	23.8	7.5	10.9	46.6	97.5	26.2	23.8	7.5	10.9	46.6	97.5
- Material and Equipment	85.7	14.4	16.3	25.6	96.9	116.5	50.3	14.4	16.3	19.6	69.5	89.1	50.3	14.4	16.3	19.6	69.5	89.1
D. Improved Use of Land and Resources																		
- Technical Assistance	162.6	22.1	85.9	37.9	232.7	270.6	125.5	22.1	85.9	32.7	200.8	233.5	125.5	22.1	85.9	32.7	200.8	233.5
- Material and Equipment	95.2	51.5	17.4	41.0	123.1	164.1	77.0	51.5	17.4	36.5	109.5	145.9	77.0	51.5	17.4	36.5	109.5	145.9
E. Research and Monitoring																		
- Technical Assistance	106.9	39.3	0.0	56.7	170.2	226.9	141.6	39.3	0.0	45.4	136.2	181.6	141.6	39.3	0.0	45.4	136.2	181.6
- Material and Equipment	10.2	31.3	0.0	21.3	28.2	49.5	14.6	31.3	0.0	19.7	26.2	45.9	14.6	31.3	0.0	19.7	26.2	45.9
Sub-Total	602.1	264.3	277.0	307.4	1116.0	1423.4	699.1	264.3	277.0	260.0	972.4	1200.4	699.1	264.3	277.0	260.0	972.4	1200.4
3. Audits/External Evaluations (USMIB)	50.0	0.0	0.0	50.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	50.0
4. Local Admin. Support	101.2	0.0	0.0	141.5	39.7	181.2	104.6	0.0	0.0	142.5	42.1	184.6	109.3	0.0	0.0	144.7	44.6	189.3
5. CME-New York Overhead (BL)	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0	120.0	0.0	0.0	120.0	0.0	120.0
TOTALS	1710.0	264.3	277.0	609.9	1450.2	2260.1	1460.7	264.3	277.0	690.0	1312.0	2002.0	1369.0	264.3	277.0	699.2	1210.5	1909.7

(1) Exchange rate in March (1991: US\$ 1 = 1,000 sucres)

(2) Consortium contributions in cash and in-kind (valorized)

(3) Beneficiaries/Collaborators' contributions in-kind (valorized US\$ from local currency)

(4) All Foreign Exchange expenses will be covered by USAID funds.

Note: Totals do not agree exactly due to rounding off.

TABLE V. 2.

SUMMARY OF COSTS BY YEAR AND SOURCE
(000's of US\$)(1)

	YEAR 10					LOP Total						
	USAID	CONS.	BENEF/	FI	LC	Total	USAID	CONS.	BENEF/	FI	LC	Total
	(2)		COLL (3)				(2)		COLL (3)			
1. Consortium Core Costs												
A. Project Technical Assist.	219.0	0.0	0.0	116.0	103.0	219.0	2100.0	0.0	0.0	1253.0	929.0	2102.0
B. Local Technical Assistance	70.0	0.0	0.0	2.0	60.0	70.0	1446.0	0.0	0.0	34.0	1416.0	1449.0
C. Materials & Equipment	35.0	0.0	0.0	7.5	27.5	35.0	800.5	0.0	0.0	517.5	291.0	800.0
Sub-Total	324.0	0.0	0.0	125.5	190.5	324.0	4443.3	0.0	0.0	1004.5	2636.0	4439.0
2. Field Activities												
A. Organizational Development												
- Technical Assistance	66.6	5.3	21.4	14.0	79.3	95.3	720.6	51.0	206.1	147.2	830.5	977.7
- Material and Equipment	54.5	7.9	6.4	5.5	63.4	68.9	469.9	74.1	60.2	40.6	555.6	604.2
B. Protected Areas Management												
- Technical Assistance	89.0	28.5	85.8	63.0	140.3	203.4	870.4	271.2	815.6	612.2	1354.0	1965.7
- Material and Equipment	45.8	40.2	35.5	20.6	100.0	121.4	470.2	347.8	307.0	192.7	940.3	1133.1
C. Ecotourism Development												
- Technical Assistance	26.2	23.8	7.5	10.9	46.4	57.5	237.4	229.4	72.1	106.0	452.1	550.9
- Material and Equipment	50.3	14.4	16.3	19.6	69.5	89.1	596.7	120.3	144.0	191.7	670.2	869.0
D. Improved Use of Land and Resources												
- Technical Assistance	123.0	22.1	85.9	32.4	199.3	231.0	1261.1	212.2	776.9	310.2	1932.1	2250.2
- Material and Equipment	77.0	31.5	17.4	36.3	109.5	145.9	769.9	499.0	137.2	351.9	1054.5	1406.4
E. Research and Monitoring												
- Technical Assistance	141.6	39.3	0.0	45.4	136.2	181.6	1501.0	340.4	21.7	473.1	1009.9	1003.1
- Material and Equipment	14.6	31.3	0.0	19.7	26.2	45.9	144.3	200.5	0.0	107.7	247.1	434.0
Sub-Total	697.4	264.3	277.0	267.0	971.0	1230.7	7079.5	2461.0	2591.6	2630.1	9454.2	12003.0
3. Audits/External Evaluations (USAID)	50.0	0.0	0.0	50.0	0.0	50.0	500.0	0.0	0.0	300.0	0.0	500.0
4. Local Admin. Support	194.3	0.0	0.0	147.0	47.3	194.3	1777.2	0.0	0.0	1000.2	369.0	1777.2
5. CARE-New York Overhead (8%)	120.0	0.0	0.0	120.0	0.0	120.0	1200.0	0.0	0.0	1200.0	0.0	1200.0
TOTALS	1385.7	264.3	277.0	710.3	1216.8	1927.0	15000.0	2461.0	2541.6	2542.0	12359.2	20000.0

(1) Exchange rate in March (1991): US\$ 1 = 1,000 sucres)

(2) Consortium contributions in cash and in-kind (valorized)

(3) Beneficiaries/Collaborators' contributions in-kind (valorized US\$ from local currency)

(4) All foreign Exchange expenses will be covered by USAID funds.

Note: Totals do not agree exactly due to rounding off.

regional levels. CARE, as the LIO, will provide administrative support on behalf of the full Consortium. CARE/USA headquarters will be accountable overall for managing USAID/Ecuador funds and CARE's contributions towards SUBIR. In addition, the headquarters of each Consortium member will provide the necessary administrative support in financial accounting, personnel management, communications, etc. in accordance with their lead responsibilities for a particular project component. The CARE/Ecuador office will provide administrative support to the Project Manager and staff, capitalizing on the organization's administrative and support staff of over 30 people. CARE/Ecuador has broad experience in managing USAID grants according to Handbook 13, and will be accountable for expenditures at all levels of project implementation. The Consortium will also maintain an administrative assistant in each regional office for on-site accounting of field-level expenditures.

CARE's administrative and accounting systems have been certified by USAID, and conform to or exceed all requirements relevant to the administrative actions required under the project. CARE, TNC and WCI are all registered PVOs with AID, have received and administered various grants from the Agency, and are currently carrying out USAID-financed activities in Ecuador with a proven financial management record.

Based on its current USAID-certified systems, CARE will work with counterparts, collaborators, and USAID to develop adapted project administration procedures which will cover the following at both central and regional levels:

- * budget preparation guidelines and schedules;
- * salary schedules and annual/merit increases;
- * equipment and commodities procurement;
- * inventory control and marking;
- * maintenance, and operation of infrastructure and vehicles;
- * cash and check disbursement and transfers;
- * advances and liquidations;
- * books/ledgers (advance, expense, receipts);
- * Letters of Credit and USAID voucher system;
- * the minimum of acceptable accounting/administrative procedures for local organizations in order to have them subject to grant assistance;
- * agreements/subgrants with GOE and NGO

- * contracting of local/hire consultants and firms, including bid solicitations;
- * accounting procedures for the Fund for Special Services;
- * per diem, travel, rentals, etc;
- * periodic financial reports (semi-annual, annual);
- * projections, as needed, for drawdown of grant funds; and
- * annual audits.

1. Collaborative Agreements with Project Participants, Counterparts/Collaborators and Contractors

For technical assistance, research and training activities, the Project will obtain professional services from governmental, non-governmental organizations and individual consultants through sole-source and competitive bidding arrangements in conformance with USAID contracting guidelines and local laws. Agreements or contracts will be enjoined for technical assistance services, and for transfer of logistical and operational funds and commodities. As a condition of receiving SUBIR project funds, local community organizations, governmental institutions, NGOs, educational institutions and private enterprises will be required to contribute counterpart resources valued at approximately 25% of total expenditures per a particular activity. In most cases, this will entail in-kind contributions, and will include such items as: labor, locally-available materials, salaries of counterpart personnel, building rentals, transport, and administrative support costs.

The Consortium will sign collaborative agreements with these which will spell out the details of the type, quality, value and scheduling of project inputs by each of the parties executing these agreements. The agreements will also specify the outputs expected from each of the parties, in terms of products, services, reports, etc. and will assign responsibilities for each of these. Should one of the parties be unable or unwilling to perform or execute all or part of the terms specified under the agreement, meetings will be held to discuss the problem and redefine the terms, or rescind the agreement.

The use of SUBIR Project funds (USAID and Consortium) will be conditioned to the satisfactory performance of the collaborators under the terms of the agreements. In all cases, the Consortium will establish accounts with each collaborating organization at local, regional and/or national levels, as required, to ensure the timely administration of funds. Funds will not be passed through the Central Bank. The Consortium, in concert with USAID, will

approve specific administrative systems to be used with each participant and/or collaborator category (i.e. GOE, NGO, university, private enterprise, or local/community organizations). Mutual acceptance of these systems and their terms and procedures will also be a condition to participation in the Project.

2. Commodity Procurement

CARE as the LIO will undertake all local and offshore procurement for the Project on behalf of the Consortium. Expenditures made with USAID funds will comply to U.S. Government procurement regulations as stipulated in the Cooperative Agreement. The Procurement Department of CARE/NY will assist the Project missions in purchasing vehicles, equipment and/or materials that are either not available locally or are significantly less expensive to obtain in the U.S. The Procurement Department in the CARE/Ecuador mission will assist the Project Team, and local collaborators to procure materials and equipment, as needed. CARE/Ecuador has an agreement with the Government of Ecuador which provides for the duty-free importation of commodities.

Procurement activities will be governed by the CARE "Procurement Policy and Procedures Manual" which is used in projects throughout the World. These procedures have been adapted to Ecuadorian import regulations and local purchase practices. CARE has been procuring a wide range of equipment and commodities in Ecuador with USAID and other donor funds for 30 years. These procedures have proven efficient, even in periods of high inflation and changing GOE import and customs policies.

A summary procurement plan for Phase I equipment and commodities is presented in Table V.4. Categories are grouped under Consortium Core expenditures and under each component at the field level. Expenditures are estimated for each fiscal year. (Note: beyond Phase 1, budget estimates presented in Table V.2 are based on best judgement of project sequencing and extrapolation of first-phase procurement categories).

VI. PROJECT MANAGEMENT AND COORDINATION

A. The SUBIR Project Management Consortium

CARE/Ecuador, as LIO for the full Consortium, will sign an agreement with MAG/SUFOREN as principal national counterpart. CARE will then sign a Handbook 13 cooperative agreement with USAID/Ecuador. The Cooperative Agreement for implementation will initially be for the first three years of the Project, extendable, based on the performance of the LIO and other factors up to an additional seven years. As illustrated in Figure 2, CARE, MAG/SUFOREN, and USAID will form a Project Committee (PC) to provide overall administrative and managerial guidance. The PC membership will consist of MAG/SUFOREN's Chief of the Department of

TABLE V. 4
SUBIR PHASE I: PROJECT PROCUREMENT OF EQUIPMENT AND COMMODITIES BY FISCAL YEAR
 (Costs in US\$)

CATEGORY/ITEM	FY 92		FY 93		FY 94		Total
	FX	LC	FX	LC	FX	LC	
Core Consortium Procurement *							
4-wheel vehicles /S-	100000						100000
12-Passenger Bus (1)	25000						25000
Field Equipment	5000	5000	3000	5000	5000	5000	30000
Office Furniture/Equip.		18000					18000
Computers/Peripherals	10000						10000
Office Supplies	3000	3000	3000	-3000	3000	3000	18000
Radio Systems	25000						25000
Audiovisual Equipment	15000						15000
Photocopier	12000						12000
Publications Production/Purchase		10000		20000		20000	50000
Household Appliances	10000						10000
Office Rent and Utilities		4080		4080		4080	12240
Vehicle Oper/Maint.		29000		29000		28000	84000
Communications	2000	14100	1000	10100	1000	10100	38200
Subtotal	207000	82180	9000	70180	9000	70180	447540
Component Procurement (Field) **							
Organizational Development							
Audiovisual Equipment	2000	1000	2000	1000	2000	1000	9000
Publications Purchase & Production	2500	13500	2500	26500		18000	63000
Training Workshops		19000		25000		18000	62000
Subtotal	4500	33500	4500	52500	2000	37000	134000
Management of Protected Areas							
Field and A/V Equipment	10000	5000	13000	4200	3000	2000	37200
Park Infrastructure		57500		51500		23000	132000
Office Equipment		3000		3000		3000	9000
Promotion Materials/Publishing	1000	3500	1000	8500		3000	17000
Cartography Equipment	3000	2000	1000	1000	1000	1000	9000
Training Workshop/Seminar Costs		5000		29000		6000	40000
Vehicles/Boats	6000	1000	4000	1000			12000
Subtotal	20000	77000	19000	98200	4000	38000	256200
Ecotourism Development							
Field Equipment/Materials	6000	8000	7500	8000	3000	2500	31000
Interpretative Centers	10000	10000	12000	38000			70000
Audiovisual Equipment/Supplies	10000	5000	4000	6500			25500
Publications/Field Guides		18000		25000		7000	50000
Community Infrastructure		11500		10000		1000	22500
Training Workshops/Seminar Costs		10500		11500		2000	24000
Subtotal	26000	63000	19500	99000	3000	12500	223000

CATEGORY/ITEM	FY 92		FY 93		FY 94		Total
	FX	LC	FX	LC	FX	LC	
Improved Land/Resource Use							
Field Equipment	8500	10500	7500	10500	6000	11000	34000
Nursery and Plant Materials	9000	21600	9000	28600	9000	25100	102300
Tools and Supplies (Agric)	8000	7000	6000	7000	1000	5000	34000
Artisan/Processing Equip. & Supplies	1000	3000	2000	4000		2000	12000
Training Workshop/Seminar Costs		36800		43550		39800	120150
Extension/Demonstration Materials		3300		4000		4000	11300
Vehicles and Maintenance	25000	4000		4000		4000	37000
Subtotal	51500	86200	24500	101650	16000	90900	370750
Research and Monitoring							
Field Equipment	23000	4000	8000	4000	1000	1000	41000
Computer Systems & Supplies	5000	2000	4000	1000		1000	13000
Publications Purchase & Production	1000	4000	1000	6000		1000	13000
Laboratory Analyses		2000		2000		2000	6000
Training Workshop/Seminar Costs		2000		5000		3000	10000
Research Station/Infrastructure		5000	5000	10000			20000
Subtotal	29000	19000	18000	28000	1000	8000	103000
Total	338000	360880	94500	449530	35000	256580	1534490

* Procurement by CARE to support technical assistance and management operations of the Consortium at central and field offices.

** Procurement (primarily local) of equipment and commodities for direct use at field level by project participants and collaborators/contractors in project areas. Full detailed procurement plans for each subproject area are provided in Annex II.8.

FX = Foreign exchange expenditures
LC = local currency expenditure

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Natural Areas and Wildlife Management, USAID's Project Officer, and CARE's SUBIR Project Coordinator. The Project Committee will meet in monthly and carry out the following functions:

- * supervise the terms of the CARE/MAG Project Agreement and the CARE/USAID Cooperative Agreement;
- * provide guidance and oversight on project policies, strategies, implementation, and monitoring and evaluation;
- * approve annual work plans and budgets;
- * facilitate collaboration with other GOE institutions and USAID-supported projects;
- * resolve administrative and political impediments to successful project implementation at regional and national levels; and
- * approve terms of reference for project evaluations.

While overall supervisory responsibility for the cooperative agreement is based with Consortium members in the U.S., SUBIR will be managed operationally in Ecuador. The U.S.-based Management Consortium, consisting of CARE, TNC, and WCI, will provide oversight. CARE, as the LIO, will chair an internal Executive Committee consisting of one representative (and a designated alternate) from each of the Consortium members. CARE, TNC, and WCI have signed a Memorandum of Agreement outlining the terms of collaboration within the Consortium (see Annex II.A).

While CARE will have overall coordinating and administrative responsibility for project implementation, each Consortium member will take the technical lead over components related to their respective organization's capability. TNC will take the technical lead over the Management of Protected Areas and Ecotourism Development components. WCI will take the lead over the Research and Monitoring component and activities dealing with formal training of technical professionals. CARE will take the lead over the Improved Use of Land and Biological Resources in Buffer Zones, and the Organizational Development components. In concert with Consortium long-term staff, each member will assume lead responsibility for strategy development, selection of priority interventions, and quality control for their respective components. Overall integration of activities of each member organization will be the responsibility of the Project Coordinator and the Consortium's Executive Committee. In order to meet these obligations, the Executive Committee will meet at least two times annually. To reinforce the Project's commitment to local management, at least one of these meetings will be held in Ecuador.

Consortium members are also participating in other similar USAID-financed resource conservation projects in the region. CARE, TNC and Conservation International, in coordination with WCI and Caribbean Conservation Association are implementing (with co-funding of ROCAP/RENARM) the Central America Environmental Project (PACA) throughout Central America. CARE will be implementing the forest management component of the USAID/Guatemala funded "Maya Biosphere Reserve Management Project". The Consortium will coordinate the exchange of information concerning technical and managerial aspects of these projects with those of SUBIR. Also, SUBIR Executive Committee meetings will be scheduled to coincide with those of the other projects to collaborate on annual evaluations and plans relevant to Consortium members' activities.

The Project will be managed operationally in Ecuador by the Consortium's Central Office Core Staff based in Quito. The central office will be staffed with the following long-term personnel (terms of reference for key personnel are provided in Annex II D):

- * Natural Resource Planner (also acts as Project Coordinator)
- * Natural Areas Management Advisor
- * Anthropologist
- * Research Coordinator
- * Information Management Specialist
- * Administrator
- * Executive Secretary
- * Bookkeeper/Secretary
- * Driver/messenger

The professionals in the central office will have overall coordination responsibilities for the five principal project components at both national and regional levels, as well as for the planning, management, administration, monitoring, and evaluation of project-supported activities, including those carried under collaborative agreements and contracts. They will set the technical and managerial agendas for SUBIR along component lines and will be responsible for oversight and quality control. These technical professionals will also participate directly in technical assistance, training and research activities--especially in direct support to the Regional Coordinators according to project-area priorities. Responsibilities of the central-office Core Staff also include:

- * preparation of terms of reference, and evaluation of the work

performed by counterparts and contractors;

- * establishment and maintenance of the SUBIR Management Information System (MIS);
- * data generation and information exchanges with governmental and non-governmental organizations at national and international levels;
- * participation in seminars and workshops, and collaborations with other projects and organizations;
- * participation in policy analysis and dialogue at regional and national levels;
- * assistance in the preparation and review of regional work plans, and monitoring of project progress and the impact of project-promoted interventions; and
- * liaison with USAID and GOE officials concerning the coordination of project activities, and the preparation of required reports.

SUBIR's Project Coordinator will have the lead responsibility for the Consortium of supervising Core Staff, and liaising with USAID concerning contractual matters, deliverables and reporting under the SUBIR Cooperative Agreement. SUBIR will hire a full-time Regional Coordinator an Extension Coordinator, and an Administrative Assistant for each project area. These staff will facilitate project assistance to local organizations and the region as a whole, based on annual work plans developed according to each organization's activities and component strategies. The Regional Coordinators and staff will:

- * coordinate collaborators' and contractors' inputs of technical assistance and training to local organizations;
- * provide and/or orient technical assistance of SUBIR's central office Core Staff;
- * monitor and evaluate project-funded activities and account for expenditures;
- * act as secretary and moderator (the Regional Coordinator) for the Regional Interorganizational Coordinating Committee (RICC);
- * detect and "troubleshoot" problems as they arise;
- * act as advocate for the regional and/or local organizations in terms of administrative and policy matters; and

- * prepare annual work plans, coordinate SUBIR's monitoring program in the region, and prepare periodic reports.

SUBIR's Core Staff will maintain contact with Regional Coordinators through its high-frequency radio network--thus avoiding communications problems with SUBIR's field offices.

B. Internal Project Planning, Monitoring and Evaluation

SUBIR is intended as a 10-year project divided in three phases: three, three, and four years respectively. The present PP provides a summary implementation plan for the LOP, and a more detailed 3-year first-phase plan based on activities projected in the three pilot areas. A comprehensive first-year operational plan will be prepared by the Consortium during the Pre-Implementation Phase once USAID/Ecuador has approved the PP (Pre-Implementation is covered under the Design-phase Cooperative Agreement). The operational plan will be submitted as part of the Implementation-Phase Cooperative Agreement.

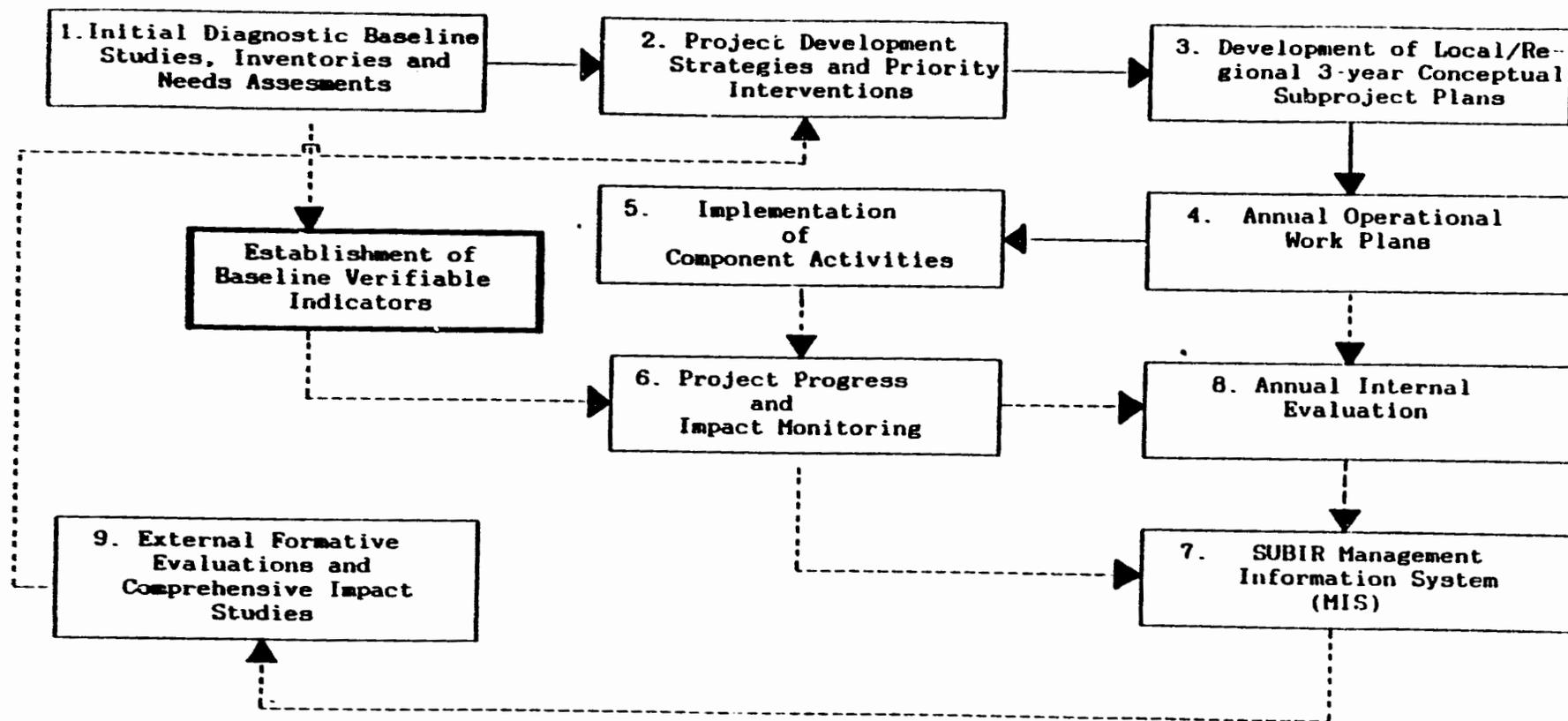
Due to the complex nature of the Project and the number of potential collaborators from both public and private sectors, SUBIR's implementation plan must be flexible and amendable based on feedback from the Project's continuous monitoring program, and the variable socioeconomic and political environment. Successful implementation will depend on the capability of the Consortium's Core Project Team to continually assess project progress and make adjustments as needed.

SUBIR will emphasize a "bottom-up" operational planning and monitoring approach. Once the overall strategy of the Project and the First-Phase Plan (3 years) are approved, emphasis will shift to the regional and local levels in order to refine the selection of technologies and community organizational strategies necessary to implement specific SUBIR activities. This approach involves the steps illustrated in Figure 4 and discussed in the following sections. Much of the experience gained through CARE/PROMUSTA will be adapted to SUBIR's planning, monitoring and evaluation activities.

1. Initial Diagnostic Baseline Studies, Inventories, and Needs Assessments at the Local/Regional Level

Due to time and personnel limitations, the Design Phase produced only a general overview of the socioeconomic and biological conditions present in the initial SUBIR Project sites. There exist numerous knowledge gaps concerning the status of resources and their utilization systems in protected areas and

FIGURE 4: SUBIR PLANNING, MONITORING AND EVALUATION PROCESS



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-----Information Flow and Feedback

their buffer zones. Consequently, SUBIR will coordinate a series of diagnostic baseline studies, resource inventories and needs assessments for each project area at the local/regional level (see Research and Monitoring Section). Data collected on resource utilization systems and socioeconomic characteristics will provide criteria necessary for selection of interventions, and will establish baseline verifiable indicators for monitoring the impact of the project activities over time (see section VI.B.4 below).

Methods used in baseline studies will avoid exhaustive and comprehensive socioeconomic surveys, focusing on sondeos for rapid assessment and case studies of selected areas using a customized area-frame methodology to collect verifiable indicator-type quantitative data. Sondeos carried out by baseline studies teams will rely on extensionists and key-informants/community members for pertinent information. SUBIR will incorporate representatives of local/community organizations and GOE institutions, and may contract regional and/or centrally-based NGOs and the private sector to participate in these studies.

2. Development of Local/Regional Three-Year Sub-Project Plans

Using baseline information provided through diagnostic studies local and regional organizations, with direct assistance from SUBIR specialists, will develop project strategies select, priority component interventions, and specify activity outputs in the form of Three-Year Conceptual Subproject Plans. These plans will outline general objectives and goals, implementation strategies and technical methods, delineate general project outreach areas, estimate human resource and logistical needs, describe project training needs (long-and short-term), and earmark project resources. The plans will be reviewed by the RICCs. The SUBIR Project Committee will reserve final approval of the plans and ensure equitable distribution of resources among project areas. The Consortium will be responsible for ensuring that these resources are made available to local and regional organizations in a timely manner in order to meet planned goals.

3. Annual Operational Workplans

Once administrative and management systems are in place at central and regional levels, annual regional work plans can be prepared based on the framework established in the Three-Year Plans. Consortium advisors will collaborate in the implementation of SUBIR's "bottom-up" planning and evaluation system that will facilitate planning from the community/local organization level up to regional and central levels. Goals for training and extension activities will be based on the needs and realities at the community level. This planning process will involve participation of representatives of local/community organizations, local and regional representatives of GOE and non-governmental organizations and the private sector. The Annual Work Plans will be used to

refine activity descriptions, assign direct responsibilities, determine specific logistical and technical needs, and schedule training events and indicate their intended participants. Regional plans will be consolidated at the central level, so that central office Core Staff and national-level organizations' inputs can be scheduled.

The Annual Plan is also the basis for developing budget needs and assigning a month-by-month and/or quarterly scheduling calendar for the timely initiation of each activity. CARE/PROMUSTA already employs this type of planning scheme, selected formats for which are provided in Annex III.G. The same type of formats will serve as the basis for monitoring the progress of SUBIR's outreach activities, as well as provide a quantitative basis for interpolation or extrapolation of the impact of project-promoted activities (see below). CARE/PROMUSTA formats will be adapted for SUBIR activities across the range of project components.

4. Monitoring, Evaluation, and Reporting

Effective systems of monitoring and reporting will ensure that information is fed back to project staff at all levels, and to counterparts, collaborators, and local level participants. Monitoring and evaluation will be carried out on two aspects: project progress and the impact of project interventions (see Figure 4). Reporting will include the periodic mode (semiannual, and annual reports) and intermittent mode (selected technical reports generated as information becomes available).

Project progress monitoring or project tracking is an integral part of the planning process and takes place on a periodic basis i.e. semiannually and annually. It is used to gauge the progress being made toward planning goals set out in annual and quarterly plans at the regional and national levels. At the end of each quarter, project divisions at all levels prepare an accounting of their activities during that quarter and assess any discrepancies between numerical outputs planned and those executed, and look for solutions to problems affecting project output. These are then called to the attention of SUBIR staff should the issue not be resolved at their level (e.g. the cancellation of a training course for farmers caused by the delay in provision of instructional materials from the central office). General reports can then be prepared at the regional and central level based on the integration of quarterly reports from the differing regions. Assessments can then be tallied and accumulated in the SUBIR MIS for quarterly semiannual, and annual reports. The SUBIR Project Coordinator and Regional Coordinators will have lead responsibility for this process.

Impact monitoring will be based on indicators developed during Diagnostic Baseline Studies, will be scheduled in annual work plans, and executed by assigned parties. Data will be analyzed in

order to gauge the effectiveness of interventions.

CARE/PROMUSTA already employs similar monitoring instruments (see Annex III.G) and many of these can be adapted or used as models for SUBIR. Data from these monitoring instruments will be collected and periodically tabulated through the SUBIR MIS for analysis to document the impact of Project activities. This documentation can be used as a basis for informing resource users about the effects of their own interventions, thereby reinforcing the extension process. This information will also be used to reorient the Project's assistance activities or modify the design of technical interventions and extension approaches. Monitoring results and documentation will be forwarded to GOE (MAG, CONADE, etc) and USAID and discussed formally with members of the RICCs and NICC.

At the end of a year's implementation of project activities, an annual internal evaluation seminar will be held at each regional office, followed by a Project-wide evaluation seminar in Quito. The event will precede the coming year's annual planning seminar (which is normally held in the two days following the evaluation seminar) and is intended as a feedback process for project participants, collaborators, and Consortium and USAID staff. These annual evaluations will include the following elements:

- * a comparison of the year's annual work plan (orientation, strategy and goals) to achievements;
- * presentation and discussion of technical assistance extension and training experiences specific to each technical component to analyze corresponding successes and failure;
- * analysis of the adaptability and acceptability of each intervention, from the viewpoint of beneficiaries and extensionists;
- * identification and discussion of political, managerial, administrative, and logistical obstacles that inhibit the timely provision of quality extension services to farm families;
- * identification of technical deficiencies and needs for training so that staff and extensionists can be better prepared to transfer appropriate technology; and
- * technical, administrative, and managerial recommendations leading to more efficient and successful operations in the coming year.

SUBIR staff will present quantitative summaries of project progress toward meeting goals, including reports on the results of research and impact monitoring activities (from the SUBIR MIS)

during that year. Discussions will lead to resolution of any obstacles encountered during the year in order to improve or reorient the coming year's outreach activities. Minutes will be taken and an evaluation report published and circulated to local/community organizations, counterparts, collaborators, and RICCs in each region. A project-wide report will be prepared and presented officially to CONADE, MAG and USAID, with copies distributed as appropriate, to other GOE and NGO organizations nationally.

5. The SUBIR Management Information System (MIS)

One of the principal weaknesses in the implementation of development projects is often the lack of a comprehensive and efficient system for managing information. The Consortium will develop an MIS culminating at the SUBIR central office for managing all informational data bases. The intermediate objectives of the SUBIR MIS are:

- * reduce data requirements to the minimum needed for efficient project management, administration and implementation, and cost-effectiveness;
- * make information appropriate and readily available to project participants, collaborators, managers, administrators, and technical professionals at all levels;
- * unify, to the greatest extent possible, specific manual formats and computer hardware and software configurations with GOE, USAID and other data users in Ecuador (universities, CONACYT, NGOs, research institutions); and
- * provide an efficient tool for research, planning, monitoring, evaluation, reporting and feedback at all levels.

In order to facilitate efficient operation of the MIS, SUBIR proposes to develop the following modules, each of which will be customized according to data requirements of project participants, counterparts, collaborators, and USAID:

Project Management Module. Templates will be developed to input regional and local organizations' project plans by activity-area subsets (i.e. reserve limits demarcated, soil conservation, training courses, forest under management, nursery production and outplantings, technical assistance services delivered). These will be set up using verifiable indicators (i.e. numerical goals) established for three-year and annual work plans, then updated regarding outputs by quarter. This module will be used by project managers for monitoring project progress toward intended benchmarks and goals.

Project Administration Module. Building on CARE's current

system, templates will be established for each subset of budget/expenditures, eg.: ledgers and vouchers, personnel/salaries, equipment and commodities purchases and inventories, physical plant and maintenance (office rentals and rehabilitation), fund for Special Services operations, vehicle pool, and expendables (combustibles, per diem, and training costs). This module will be used by project administrators to prepare budgets and control/monitor expenditures at the central and regional levels. The module will also generate periodic financial reports required by Consortium members and USAID.

Technical Information Monitoring Module. Information generated by baseline studies, research activities, and impact monitoring and evaluations, will be inputted on commercial data base management and statistical software. In addition, relevant quantitative information already existing on forest resource-use systems, cropping and conservation technologies, harvest production data, socioeconomic parameters of the target population, and results of research and validation trials carried out under SUBIR and other organizations (past and present) will be inputted to the system. This module will make invaluable technical information readily available to researchers and extensionists, and will provide a quantitative and qualitative basis for evaluating the impact of project interventions on a continuum. This same module can be used for the SUBIR Environmental Monitoring Program.

All MIS modules will be user-friendly, menu-driven, and based on microcomputers with large processing and storage capabilities to facilitate data interchange between institutions at central and regional levels. SUBIR will coordinate data assimilation, analysis and dissemination with collaborating GOE institutions, NGOs, universities and private-sector organizations. Close collaboration and data sharing is also intended with the Nature Conservancy-supported Conservation Data Center, currently in development at CONACYT.

SUBIR will also prepare topic-specific reports and data summaries from local, regional, national, and international organizations. Also, a semi-annual newsletter will be distributed at all levels to report on project innovations, subproject activities, and as a medium for public relations.

C. USAID Project Management and Substantial Involvement

The Agriculture, Natural Resources and Rural Development Office (ANRO) will have primary responsibility within the Mission for Project management. A U.S. direct-hire Project Officer will be responsible for oversight of project implementation, working directly with the SUBIR Project Coordinator, and the Consortium's administrative staff. The Project Officer will meet with staff of other Mission offices (Program and Project Development,

Controller, Contracts, etc) to seek guidance as needed during project implementation. As required, USAID will issue Cooperative Agreement Implementation Letters clarifying or furnishing additional information about matters stated in the Agreement. Such letters will provide guidelines to the implementation of the Project, but shall not modify the overall Agreement.

VII. IMPLEMENTATION PLAN

The SUBIR Project will be approved for 10 years with implementation in three phases of three, three, and four years respectively. This section provides a summary implementation plan for the life of the Project and more a detailed 3-year first-phase plan based on activities projected in the three pilot protected areas. A comprehensive first-year operational plan will be prepared by the Consortium during the Pre-Implementation Phase once USAID/Ecuador has approved the PP, to be submitted with the Implementation Phase Cooperative Agreement.

A. Phase I Implementation Plan

Implementation Plan for Phase 1 is presented in Figure 5. This plan is derived primarily from the area plans for the three pilot project areas -- Cotacachi-Cayapas Ecological Reserve, Cayambe-Coca Ecological Reserve, and Yasuni National Park, and their buffer zones -- which are presented in Annex III.A. These plans will be the basis for the Consortium's Cooperative Agreement with USAID/Ecuador for implementation of SUBIR Phase 1, which will begin in Fiscal Year 1992. The initial 3-year Phase I is intended to develop pilot activities for each of the Project's five components focusing on the three protected areas and their buffer zones. Lessons learned and models developed during this first phase will then be extended to other areas and their buffer zones in the latter two phases.

B. Life-of-Project Implementation Plan

Figure 6 presents an illustrative LOP Implementation Plan based on the design team's best projections of probable project sequencing. Formative evaluations are planned toward the end of Phases 1 and 2, which could reorient the LOP Plan. Any changes to the LOP Plan will be incorporated in follow-on plans for each of the subsequent Phases 2 and 3, and be included in cooperative agreement extensions.

VIII. AUDIT AND EVALUATION PLAN

Consortium staff will provide continuous monitoring and periodic internal auditing of funds administered to participants and collaborators. Any inappropriate use of funds could result in the immediate cancellation of support to a particular recipient, whether local community organization, collaborator or contractor at

the regional or national level.

While the Regional Inspector General audits grant agreements, non-federal auditors are used to time to time. CARE is budgeting US\$10,000 per year for independent, USAID-approved audits of project expenditures. (The general criteria for setting audit budgets specifies that agreements costing over \$2 million should have an allotment of \$20,000 per audit, every two years.) Audits will also involve field-level spot checks to verify output indicators in selected project areas.

The initial Cooperative Agreement for the implementation of SUBIR will be three years in length. The Agreement will be extended for another three years based on an external formative evaluation of the Project, a rating of the degree of success in achieving Project goals, the performance of the Consortium, and other factors. Extension of the Project and the Cooperative Agreement for the final four years will be contingent on a second formative evaluation of the success in achieving objectives and the approval of AID/Washington.

These two interim evaluations will be scheduled to occur six months before the two decisions concerning the extension of the Cooperative Agreement after approximately 2 1/2 and 5 1/2 years of implementation. The evaluation criteria, or benchmarks against which progress can be measured, will be jointly defined by USAID/Ecuador and the Consortium at the start of each phase of the Project. Benchmarks will be established for each component based on diagnostic assessments carried out as an initial step in each area (see details in Research section and Annex III.G). In order to provide a basis for these evaluations, information about indicators will be collected on a periodic basis during project implementation through SUBIR's monitoring program.

The external evaluations will be financed with funds budgeted under the Project and carried out by USAID staff and/or independently contracted specialists in collaboration as required with Project staff, and local government and NGO collaborators. SUBIR is budgeting \$40,000 per year for external technical assistance to be managed directly by the USAID Project Officer for periodic evaluations and consultations. Evaluations will be designed to: (1) measure progress towards the achievement of specific project objectives or benchmarks; (2) identify problems in execution and propose remedial actions; (3) recommend changes in the focus of activities and the allocation of resources among the various components; (4) evaluate the project management capability and the effectiveness of collaboration of the three organizations forming the SUBIR Consortium; (5) success in integrating the five components in each project area; and (6) measure the degree to which local, regional, and national organizations and agencies are collaborating in project activities, and the extent and sustainability of local community participation in implementation.

A final impact evaluation will be performed at the end of year nine of the Project to determine its overall success in achieving objectives. The evaluation will define the "lessons learned" in integrating the management of protected areas with sustainable development practices identified and implemented at the community level. The findings from this evaluation will provide recommendations to the participating communities and organizations on the continuation of activities after PACD.

FIGURE 5: SUBIR IMPLEMENTATION PLAN - PHASE 1

ACTIVITES	FY - 1992				FY - 1993				FY - 1994			
	1	2	3	4	1	2	3	4	1	2	3	4
PROJECT MANAGEMENT & ADMINISTRATION												
1. Sign Project Agreement between CARE and YAG/SUFOREN												
2. Negotiate/Sign Cooperative Agreement between CARE and USAID	X											
3. Prepare/Sign Subcontracts with Consortium Members	X											
4. Hire Central Office Staff	X											
5. Estab./Equip. Central Office, and Staff Orientation and Work Strategies	--											
6. Meeting with MAG/USAID/CARE Project Committee to discuss 1st. Year. Oper. Plan	X											
7. Estab. Accounting/Administrative Procedures: and with USAID/CONT	X											
8. Equipment & Commodities Procurement												
9. Establish Regional Offices - Hire Long-Term Staff - Rent/Equip. Offices												
10. Convene Meeting w/ Potential Collaborators to Discuss Contract Mechanisms	X	X				X						
11. Sign Agreements/Contracts w/ Beneficiaries: and Collaborators												
12. Prepare Annual Work Plans & Budgets (AIP)	X			X				X				X
13. Semi-Annual Planning and Monitoring Workshops (PIA) & Semi-Annual Report to USAID and BOE		X		X		X		X		X		X
14. Annual Internal Evaluation & Annual Report to USAID & BOE				X				X				X
15. Estab./Operate SUBIR Monitoring and Mgmt. Information System (MIS)		X										
16. USAID Liaison and Semi-Annual Review		X		X		X		X		X		X
17. MAG/CARE/USAID Project Committee Meetings	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
18. Consortium Exec. Committee Meetings	X	X		X		X		X		X		X

FIGURE 3.13

ACTIVITES	FY - 1992				FY - 1993				FY - 1994			
	1	2	3	4	1	2	3	4	1	2	3	4
B. Ethnobotanical and anthropological research on traditional resource use												
C. Applied research to improve and diversify agriculture and agroforestry												
1) Applied management systems												
2) Processing and commercialization												
D. Ecologically and economic important forest resource species and uses												
E. Socioeconomic research to evaluate land use conflicts												
1) Colonization and migration												
2) Comparative forest management systems												
F. Research on indicator species to determine habitat and indices of biodiversity												
G. Monitoring of baseline indicators and the impact of SUBIR activities												

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PHASE I: TRAINING PLAN BY THEME,
PARTICIPANT CATEGORY, AND SUBPROJECT AREA

COMPONENT/THEME	PARTICIPANT CATEGORY	FY 92			FY 93			FY 94			TOTAL PARTICIPANTS
		YBP	RECC	RECAT	YBP	RECC	RECAT	YBP	RECC	RECAT	
ORGANIZATIONAL DEVELOPMENT											
- Conservation Education/Awareness	Community Leaders	5		10	22	10	10				57
- Diagnostic Needs Assessments, Project Design, Planning, Monitoring & Evaluation	Community Leaders	22		20	10	16	20				88
	Counterpart Collabo.	10	10	10	8	12	10				60
- Basic Accounting/Adm. Skills	Comm. Organizations	5		5	22	5	5	5	5	5	57
- Conflict Resolution, Group Dynamics, Communication Techniques	Community Leaders	5	5	5	22	10	10				57
	Counterpart/Collabo.	10	5	5	5	5	5				30
- Project Management, Supervision, and Organizational Skills	Community Leaders	5	5	3	22	5	3				43
	Counterpart/Collabo.	10	10	10	8	10	20				68
- Regional Development, Legal Rights, Conflict Resolution, Proposal Preparation	RICC Members	5	5	5	15	15	15				60
- Conservation Education Training Concepts	Armed Forces Trainers Troops, Soldiers										35 600
- Extensionists' Development Training	Community Members	10	3		10	3		10	4		40
PRESERVE AREAS MANAGEMENT											
- Reserve Planning/Management Methods	WAC Superintendents, Conservation Officers	10	20	20	10	20	20				100
- Reserve Planning Workshop	WAC Reserve Personnel & Community Leaders	10	20	30	10	20	30				120
- Reserve Demarcation Techniques	WAC Reserve Personnel & IEDAC Personnel	10	10	10	10	10	10				60
- Reserve Conservation Management Practices; Ecology, Interpretation, Communication	WAC Reserve Personnel	10	40	20	10	40	20	10	40	20	210
- Infrastructure and Equipment Maintenance	WAC Reserve Personnel				10	40	20				70
- Community Environmental Monitoring Workshop	WAC Reserve Personnel Community Leaders & Collaborators				20	20	30	20	20	30	140
- Community/Reserve Relations Workshop	WAC Reserve Personnel Community Leaders & Collaborators				20	10	30	20	40	30	150
- Monitoring and Enforcement of Reserve Protection legal Mandates	WAC Reserve Personnel & Armed Forces				40	40	10	40	40	10	180

ECOTOURISM DEVELOPMENT											
- Ecotourism Evaluation/Inventory and Management Planning Techniques	ONG Reserve Personnel, CEVM/TEPROM, four Operators and Comm.										140
- Community Based Ecotourism Development	Selected Comm. Memb.	5									55
- Field Interpretation/Exhibit Techniques	ONG Reserve Personnel Collaborators, and Community Members										90
- Ecotourism Guide Techniques and Standards	four Operators/Hotel & Independent guides										100
- Promotional/Interpretative Media Development	CEVM, TEPROM, & Collaborator staff										45
- Ecotourism Promotional Inventional Seminars	CEVM, TEPROM, four/Hotel Operators										90
IMPROVED USE OF LOW END RESOURCES											
- Forest Resource Inventory/Management	Selected Community Members & Tech. Lead.	70	40	10	80	80	20	40	40	10	340
- Improved Forest Resource Extraction Methods	Selected Community Members & Tech. Lead.	20	40	10	80	80	20	40	40	10	340
- Agroforestry Techniques	Selected Community Members & Tech. Lead.	50	40	40	100	80	80	50	60	40	520
- Nursery Management	Selected Community Members & Tech. Lead.	10	10	20	30	30	60	20	20	30	230
- Silviculture Techniques	Selected Community Members & Tech. Lead.				20	20	20	20	20	20	120
- Soil Conservation and Management	Selected Community Members & Tech. Lead.				40	40	120	40	80	240	560
- Improved Agriculture Practices & IPM	Selected Community Members & Tech. Lead.	50	50	50	100	100	100	50	100	200	800
- Collection, Processing of Forest & Ag. Product	Selected Community Members & Tech. Lead.	10	20	5	100	300	50	50	200	50	785
- Artisanry Development	Selected Community Members & Tech. Lead.	10	10	20	60	60	120	20	20	40	360
- Trout Culture	Selected Community Members & Tech. Lead.		10	10		30	30		10	10	100
- Extension/Training Techniques	Selected Community Members & Tech. Lead.	6	10	20	6	10	40	6	10	40	140

RESEARCH AND MONITORING**

- Baseline Diagnostic Studies Development Workshop (Central Office)	Core Staff, Countersp. Collaborators				40
- Baseline Diagnostic Studies Development Workshop (Project Areas)	Counterparts/Collabo Core Staff, Community Orgs., Enumerators	30	30	30	90
- Ethnobotany, Cultural Knowledge Workshop	Core Staff, Countersp. Collaborators				15
- Forest Inventory and Taxonomy	Counterpart, Collab. and Field Assistants				15
- Agracultural Species/Crop Trials	Counterpart, Collab. and Field Assistants				12
- Ag/forest Resources Management, Extraction, Processing and Marketing	Counterpart, Collab.				20
- Socioeconomic and Land Tenure Analysis	Counterpart, Collab. and Field Assistants				12
- Wildlife Inventory and Management	Counterpart, Collab. and Field Assistants				8
- Field-level Monitoring Techniques	Counterpart, Collab. and Field Assistants				60
- Environmental Impact Assessment and Monitoring Methods	Counterpart, Collab. and Field Assistants				45
- Management Information Systems	Counterpart, Collab.				8

YOP - Yasun National Park Subproject Area
RECC - Cotacachi-Cayapas Subproject Area
RECAP - Cayambe-Coca Subproject Area

* Various Participants will repeat in second and/or third FY, as these become trainers of trainers and participate in these events; hence, totals represent number of participations. Also, participants will take several courses, resulting in multiple participations.

** Generally, training events under Research and Monitoring component are directed to technical professionals and are centrally or regionally based in coordination with universities and research institutions; and include classroom/theory and field level practical training. Field assistants receive in-service training from these professionals and are not counted in participant totals.

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ANNEXES

PID DAEC SUMMARY REVIEW

Summary:

The DAEC was held on December 14, 1989, and chaired by LAC/DR Ms. Elena Brineman. The PID was approved and the Mission may go forward with a Cooperative Agreement for the design of the project in the collaborative assistance mode. PP approval of the ten year US\$15.0 million project and authorization is delegated to the Mission but the project cannot be authorized initially for a period longer than six years. Specific guidance for the design of the project is detailed below.

Issue 1: Is it appropriate to authorize a ten year project by means of authorization at three separate intervals?

The SUBIR project is designed and approved for ten years, but will be authorized initially for 6 years. The Mission developed a staged project that requires achievement of specific objectives before amending the Project Cooperative Agreement for project phases II and III. Prior to the end of the six years, the Mission may request authority to continue the activity for an additional four years with the submission of appropriate documentation to AID/W for review.

Issue 2: Is the GOE committed to this activity?

The PP fully addresses the role and responsibilities of the GOE and an agreement will be signed between CARE and the GOE. The Department of Parks within the Subsecretariat for Forestry and Natural Resources will be the host government agency to assist the project during implementation.

Regarding policy constraints to reaching project objectives, the PP notes that the World Bank is finalizing an environmental management and technical assistance project that is intended to address policy constraints by enhancing GOE capacity to produce environmental policy analyses and strategies, and to improve the legislative framework around natural resources management. The PP is focused on field level activities because these "activities will complement the major work in the policy arena supported by AID and

the World Bank." During the PP review at the Mission, however, a decision was made that given the size of the SUBIR project, USAID/Ecuador funds might not become available outside of the project to support natural resource policy dialogue activities, and that therefore, such activities should be supported through cooperative agreements to Ecuadorian organizations engaged in policy analysis.

Issue 3: Given the flexibility in the proposed implementation plan is it appropriate to have the implementor design the project?

The final design of this project reflects both US and Ecuadorian interests. With regard to US and AID policies and strategies for addressing environmental problems in developing countries, the project is a remarkable fit. SUBIR addresses Sections 118 and 119 under the Foreign Assistance Act which includes conserving and managing tropical forests by supporting activities that offer employment and income alternatives to those who otherwise would cause destruction and loss of forests. The AID policy paper on environment and natural resources (PN-AAV-464, April, 1988), gives priority to protecting undisturbed areas, maintaining natural areas and managing buffer zones surrounding protected areas for sustainable resource yields. SUBIR takes this approach.

In accordance with the USAID/Ecuador natural resources strategy (1989), the project focuses solely on conservation of tropical forests and biodiversity as opposed to soil erosion or other environmental problems. The elements of USAID's strategy which are also elements of SUBIR include:

- 1) Continuing ongoing activities with emphasis on field research and demonstration activities.
- 2) Designing soil conservation activities that will address natural resource conservation and equity problems through field demonstrations.
- 3) Supporting the development of PVC projects which are compatible with our natural resource objectives.

With regard to Ecuadorian policies and strategies, as the PP notes, "Ecuador does not have a clearly defined, comprehensive strategy that will prevent the further degradation of the nation's natural resource base." Therefore, it is not possible to state whether the GOE's strategy is reflected in the project design. However, the Forest Action Plan for Ecuador (PAFE) 1991-1995 has conservation of biodiversity and forests components.

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Issue 4: Can the project be effectively implemented given the proposed implementation arrangements?

In the final design of the project, CARE is designated as lead implementing organization for the full consortium. As such, it will have overall coordinating and administrative responsibility for project implementation, while each consortium member will be responsible for specific components. Each member will assume responsibility for strategy development, selection of interventions and quality control for their respective components.

With regard to administration of the project, CARE will sign subcontracts with each of its consortium members. These will spell out technical and managerial responsibilities, financial inputs and administrative obligations of each member. CARE, as the lead implementing organization, will provide administrative support on behalf of the full consortium. CARE will be accountable for expenditures at all levels of project implementation.

An executive project implementation committee consisting of one representative each from USAID/Ecuador, the GOE, and CARE will provide oversight to approve workplans, set policies, and resolve any problems that might arise. This committee will facilitate collaboration with other GOE institutions and USAID-supported projects. However, strengthening of GOE institutions is not an objective of this project and therefore, the GOE will not have implementation responsibilities under the project as a whole. The PP now contains information about AID's responsibilities under the project.

With respect to the project advisory committee concept, the PP describes the functions of the Regional Inter-Organizational Coordinating Committees (RICC's) and a National Inter-Organizational Coordinating Committee (NICC), that will serve to "involve a wide range of private and public institutions/organizations in the project to promote coordination, as well as provide oversight and provide a forum for feedback from field activities."

Issue 5: Are the four project components adequately integrated to provide for a cohesive and implementable project?

The PP now clearly describes how the lead implementing organization will provide the means for coordinating among individual activities to reach project objectives. With regard to the interaction between project components, the PP clearly states that no component alone can achieve the project purpose, but that all of the components must be implemented together in order to achieve this. Since the first phase of the project consists of

pilot activities, and the project itself is experimental in nature, it is important to address as many constraints to the project purpose as possible limiting the scope geographically, in order to develop the most suitable resource management models.

Issue 6: Is the project sustainable?

The PP contains a thorough discussion of the Regional Inter-Organizational Coordinating Committees and the National Inter-Organizational Coordinating Committee as avenues for achieving sustainability of project outputs. Due to the interactive process of designing and testing interventions under the Project, it is not possible to set benchmarks for sustainability for each component at this time. However, as activities are developed, sustainability will be an important element. It will also be a critical criterion to select models developed and extended under the project.

Issue 7: The Mission will provide in the PP a fuller description of the beneficiaries and disaggregate them by gender, economic status, land tenure status, and ethnic origin.

The PP cannot contain a fuller description of the beneficiaries at this time because the first year of the project is dedicated to developing this type of information from the diagnostic studies.

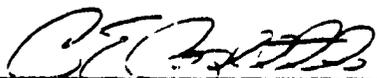
Issue 8: The Mission should identify areas to be covered by the project and describe the criteria for project site selection.

The PP identifies the areas to be covered and describes the criteria used in selecting these sites.

(ANNEX. IA)

Gray Amendment Certification

I hereby certify that the procurement plan for the Sustainable Use of Biological Resources Project (518-0069) was developed with full consideration of involving economically and socially disadvantaged enterprises, historically Black colleges/universities, and Private Voluntary Organizations controlled by individuals who are economically and socially disadvantaged (including women) to the maximum extent possible in providing required goods and services. The Project is not appropriate for minority or Gray Amendment contracting, since all contracts will be executed with local (Ecuadorian) organizations.



Charles Costello, Director

8-14-91

Date

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SC(2) - ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE?

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. Host Country Development Efforts (FAA Sec. 601(a)): Information and conclusions on whether assistance will encourage efforts of the country to:

- (a) increase the flow of international trade;
- (b) foster private initiative and competition;
- (c) encourage development and use of cooperatives, credit unions, and savings and loan associations;
- (d) discourage monopolistic practices;
- (e) improve technical efficiency of industry, agriculture, and commerce; and
- (f) strengthen free labor unions.

- a) Yes, through increasing knowledge about potential new tropical forest products to export;
- b) yes, by working with PVO's and NGO's;
- c) no;
- d) no;
- e) yes, at the small farmer level and;
- f) no.

2. U.S. Private Trade and Investment (FAA Sec. 601(b)): Information and conclusions on how assistance will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

This project will be managed by a consortium of US private non-profit organizations.

3. Congressional Notification

a. General requirement (FY 1991 Appropriations Act Secs. 52J and 59I; FAA Sec. 634A): If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the notification requirement has been waived because of substantial risk to human health or welfare)?

Yes.

b. Notice of new account obligation (FY 1991 Appropriations Act Sec. 514): If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and has such obligation been subject to regular notification procedures?

N/A

c. Cash transfers and nonproject sector assistance (FY 1991 Appropriations Act Sec. 575(h)(3)): If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic policy reforms to be promoted?

N/A

4. Engineering and Financial Plans (FAA Sec. 611(a)): Prior to an obligation in excess of \$500,000, will there be: (a) engineering, financial or other plans necessary to carry out the assistance; and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

a) Yes; b) Yes.

5. Legislative Action (FAA Sec. 611(a)(2)): If legislative action is required within recipient country with respect to an obligation in excess of \$500,000, what is the basis for a reasonable expectation that such action

N/A

will be completed in time to permit orderly accomplishment of the purpose of the assistance?

6. Water Resources (FAA Sec. 611(b); FY 1991 Appropriations Act Sec. 501): If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.) N/A

7. Cash Transfer and Sector Assistance (FY 1991 Appropriations Act Sec. 575(b)): Will cash transfer or nonproject sector assistance be maintained in a separate account and not commingled with other funds (unless such requirements are waived by Congressional notice for nonproject sector assistance)? N/A

8. Capital Assistance (FAA Sec. 611(a)): If project is capital assistance (a.g., construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively? N/A

9. Multiple Country Objectives (FAA Sec. 601(a)): Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions. FAA Sec. 601(a):
a) Yes, through increasing knowledge about potential new tropical forest products to export; b) yes, by working with PVO's and NGO's; c) no; d) no; e) yes, at the small farmer level; f) no.

10. U.S. Private Trade (FAA Sec. 601(b)): Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

FAA Sec. 601(b):

This project will be managed by a consortium of private non-profit organizations.

11. Local Currencies

a. Recipient Contributions (FAA Secs. 612(b), 616(h)): Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

This is not a bilateral project. However, the consortium of PVOs implementing the project will obtain counterpart funding from each local cooperating organization to which they transfer grant funds.

b. U.S.-Owned Currency (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No.

c. Separate Account (FY 1991 Appropriations Act Sec. 575). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:

N/A

(1) Has A.I.D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the CA or ISF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government? N/A

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes? N/A

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government? N/A

22. Trade Restrictions

a. Surplus Commodities (FY 1991 Appropriations Act Sec. 521(a)): If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? This project may result in assistance for commodity export, but if this occurs, it will be for new products which can only be produced in tropical forests.

b. Textiles (Lautenberg Amendment) (FY 1991 Appropriations Act Sec. 521(c)): Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced duties on textiles assembled abroad from No.

textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

13. Tropical Forests (FY 1991 Appropriations Act Sec. 511(c)(3)): Will funds be used for any program, project or activity which would (a) result in any significant loss of tropical forests, or (b) involve industrial timber extraction in primary tropical forest areas?

a) No.

b) No.

14. PVO Assistance

a. Auditing and registration (FY 1991 Appropriations Act Sec. 517): If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?

Yes.

b. Funding sources (FY 1991 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"): If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?

Yes.

15. Project Agreement Documentation (State Authorization Sec. 119 (as interpreted by conference report)): Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LIG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook J, Appendix 5G for agreements covered by this provision).

N/A

15. Metric System (Caribus Trade and Competitiveness Act of 1988 Sec. 8164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance activity use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

Yes.

17. Women in Development (FY 1991 Appropriations Act, Title II, under heading "Women in Development"): Will assistance be designed so that the percentage of women participants will be demonstrably increased?

Yes.

18. Regional and Multilateral Assistance (FAA Sec. 209): Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.

It is not susceptible to execution as part of a regional project because it is focused at the community level. Because it is a geographically focused pilot project during its initial phase multilateral execution would not yield benefits in terms of increased efficiency. This project will develop sustainable resource management models at the local level while other donors address resource policy and institutional reform at the national level.

19. Abortions (FY 1991 Appropriations Act, Title II, under heading "Population, 2A," and Sec. 525):

a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization? No.

b. Will any funds be used to lobby for abortion? No.

20. Cooperatives (FAA Sec. 111): Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life? The assistance will help develop community organizations, some of which may be cooperatives.

21. U.S.-Owned Foreign Currencies

a. Use of currencies (FAA Secs. 612(b), 636(h); FY 1991 Appropriations Act Secs. 507, 509): Describe steps taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. are utilized in lieu of dollars to meet the cost of contractual and other services. Ecuadorian currency is not owned by the US.

b. Release of currencies (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? No.

22. Procurement

a. Small business (FAA Sec. 602(a)): Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? All procurement will take place through the consortium under its regulations which have been approved by AID.

b. U.S. procurement (FAA Sec. 604(a)): Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him? Yes, except for local Ecuadorian purchases.

g. Marine insurance (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? N/A

d. Non-U.S. agricultural procurement (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.) Agricultural commodities will not be procured under this project.

e. Construction or engineering services (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.) No.

f. Cargo preference shipping (FAA Sec. 603): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates? No.

g. Technical assistance (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the No, technical assistance will be procured by the consortium and furnished by private firms, universities or government agencies, as appropriate in each case.

facilities and resources of other Federal agencies be utilized, when they are particularly suitable, non competitive with private enterprise, and made available without undue interference with domestic programs?

Yes.

h. U.S. air carriers (International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

Yes.

i. Termination for convenience of U.S. Government (FY 1991 Appropriations Act Sec. 504): If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

N/A.

j. Consulting services (FY 1991 Appropriations Act Sec. 524): If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)?

N/A.

k. Metric conversion (Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest

a) Yes, b) yes, c) yes.

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documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

1. Competitive Selection Yes.

Procedures (FAA Sec. 501(e)): Will the Assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

23. Construction

a. Capital project (FAA Sec. 501(d)): If capital (2.2.1, construction) project, will U.S. engineering and professional services be used? N/A.

b. Construction contract (FAA Sec. 511(c)): If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes.

c. Large projects, Congressional approval (FAA Sec. 620(k)): If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress? Yes.

24. U.S. Audit Rights (FAA Sec. 301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N/A.

25. Communist Assistance (FAA Sec. 620(h)): Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? Yes.

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25. Narcotics

a. Cash reimbursements (FAA Sec. 483): Will arrangements preclude use of financing to make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated?

Yes.

b. Assistance to narcotics traffickers (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use of financing to or through individuals or entities which we know or have reason to believe have either: (1) been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance?

USAID/Ecuador will follow AID/W guidance in applying Section 487 to recipients of FAA funds under the project.

26. Expropriation and Land Reform (FAA Sec. 620(g)): Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President?

Yes.

28. Police and Prisons (FAA Sec. 660): Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

Yes.

29. CIA Activities (FAA Sec. 662): Will assistance preclude use of financing for CIA activities?

Yes.

30. Motor Vehicles (FAA Sec. 636(i)): Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

Yes.

30. Military Personnel (FY 1991 Appropriations Act Sec. 502): Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes.

31. Payment of U.N. Assessments (FY 1991 Appropriations Act Sec. 503): Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? Yes.

32. Multilateral Organization Lending (FY 1991 Appropriations Act Sec. 506): Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes.

34. Export of Nuclear Resources (FY 1991 Appropriations Act Sec. 510): Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? Yes.

33. Repression of Population (FY 1991 Appropriations Act Sec. 511): Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes.

36. Publicity or Propaganda (FY 1991 Appropriations Act Sec. 515): Will assistance be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? No.

37. Marine Insurance (FY 1991 Appropriations Act Sec. 563): Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? Yes.

38. Exchange for Prohibited Act (FY 1991 Appropriations Act Sec. 569): Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law? No.

B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY

1. Agricultural Exports (Bumpers Amendment) (FY 1991 Appropriations Act Sec. 521(b), as interpreted by conference report for original enactment): If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities: (1) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (2) in support of research that is intended primarily to benefit U.S. producers? 1) No, 2) no.

2. Tied Aid Credits (FY 1992 Appropriations Act, Title II, under heading "Economic Support Fund"): Will O.A. funds be used for tied aid credits?

No.

3. Appropriate Technology (FAA Sec. 107): Is special emphasis placed on use of appropriate technology (defined as relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

Yes. Such technology will be both developed and disseminated.

4. Indigenous Needs and Resources (FAA Sec. 101(b)): Describe extent to which the activity recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

The project's activities will be designed and implemented by local residents of the targeted geographic areas. Included will be training of Ecuadorian scientists and other natural resources personnel. Institutional development of Ecuadorian PVO's will be supported. Strengthening of local citizen's organizations will contribute to skills necessary for participation in a democratic society.

5. Economic Development (FAA Sec. 101(a)): Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Yes, because natural resources are the base of the Ecuadorian economy, and new models must be developed to manage them if sustained growth is to continue. Also, new products will be developed and tourism will be increased.

6. Special Development Emphases (FAA Secs. 102(b), 113, 201(a)): Describe, extent to which activity will: (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries

This project will be implemented by US PVO's that have experience working at the local level. Activities such as ecotourism will produce economic opportunity for the rural poor. Labor-intensive production will be emphasized. b) This project will assist local community organizations and PVO's to work toward conservation of Ecuador's natural resources which are becoming stronger institutionally. The project will assist and strengthen Ecuadorian NGO's. d) All project activities will be designed to increase the participation and status of women.

and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

e) The project will further regional cooperative efforts by linking Ecuadorian NGO's with US NGO's and other regional NGO's.

N/A.

7. Recipient Country Contribution (FAA Secs. 110, 124(d)): Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

8. Benefit to Poor Majority (FAA Sec. 129(b)): Is the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or is it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?

The project attempts to do all of these, and will be monitored to ensure that the poor majority benefits through increased economic opportunity access to technology and increased participation.

9. Abortions (FAA Sec. 104(f); FY 1991 Appropriations Act, Title II, under heading "Population, CA," and Sec. 535):

a. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? No.

b. Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations? No.

c. Are any of the funds to be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization? No.

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services? N/A.

e. In awarding grants for natural family planning, will any applicants be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning? N/A.

f. Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? No.

g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization? No.

10. Contract Awards (TAA Sec. 502(e)): Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? Yes.

11. Disadvantaged Enterprises (FY 1991 Appropriations Act Sec. 567): What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)? None. The project will be implemented by a consortium of NGO's which are not controlled by economically or socially disadvantaged people. Funds will be spent in Ecuador. External technical assistance and training are not contemplated.

10. Biological Diversity (FAA Sec. 119(g)): Will the assistance: (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?

a) Yes, b) no, c) yes, and d) no.

11. Tropical Forests (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c)-(e) & (g)):

a. A.T.D. Regulation 16: Does the assistance comply with the environmental procedures set forth in A.T.D. Regulation 16?

Yes.

b. Conservation: Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources; (2) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (6) conserve forested watersheds and rehabilitate those which have been deforested; (7) support training, research, and other actions

1) Yes, 2) yes, 3) yes, 4) yes, 5) yes, 6) yes, and 7) yes.

which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (9) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests; (11) utilize the resources and abilities of all relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?

8) Yes, 9) yes, 10) yes, 11) N/A, 12) yes and 13) yes.

c. Forest degradation: Will assistance be used for: (1) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded

1) No., 2) no, 3) no, 4) no, 5) no and 6) no.

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forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

d. Sustainable forestry: If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry? Yes.

e. Environmental impact statements: Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment? Yes.

14. Energy (FY 1991 Appropriations Act Sec. 531(c)): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases? N/A.

15. Sub-Saharan Africa Assistance (FY 1991 Appropriations Act Sec. 562, adding a new FAA chapter 10 (FAA Sec. 496)): If assistance will come from the Sub-Saharan Africa DA account, is it: (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) to be used to promote sustained economic growth, encourage N/A.

private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector; (c) to be provided in a manner that takes into account, during the planning process, the local-level perspectives of the rural and urban poor, including women, through close consultation with African, United States and other PVCs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) to be implemented in a manner that requires local people, including women, to be closely consulted and involved, if the assistance has a local focus; (e) being used primarily to promote reform of critical sectoral economic policies, or to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities; and (f) to be provided in a manner that, if policy reforms are to be effected, contains provisions to protect vulnerable groups and the environment from possible negative consequences of the reforms?

25. Debt-for-Nature Exchange (FAA Sec. 453): If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management.

N/A.

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17. Decombination/Reobligation (FY 1991 Appropriations Act Sec. 515): If decomb/recomb authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same region as originally obligated, and have the House and Senate Appropriations Committees been properly notified?

Yes:

18. Loans

a. Repayment capacity (FAA Sec. 122(b)): Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest.

N/A.

b. Long-range plans (FAA Sec. 122(b)): Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities?

N/A.

c. Interest rate (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 1 percent per annum thereafter?

N/A.

d. Exports to United States (FAA Sec. 420(d)): If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest?

N/A.

19. Development Objectives (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from

1) This project will be implemented by US PVO's that have experienced working at the local level. Activities such as ecotourism will produce economic opportunity for the rural poor. Labor-intensive production will be emphasized.
2) This project will assist local community organizations and PVO's

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dities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions: (1) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (2) support the self-help efforts of developing countries; (3) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (3) initiate and encourage regional cooperation by developing countries?

20. Agriculture, Rural Development and Nutrition, and Agricultural Research (FAA Secs. 103 and 103A):

a. Rural poor and small farmers: If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

b. Nutrition: Describe extent N/A. to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the nutrition of

to work toward conservation of natural resources while becoming stronger institutionally. 3) The project will assist and strengthen Ecuadorian NGO's. 4) All project activities will be designed to increase the participation and status of women. 5) The project will further regional cooperative efforts by linking Ecuadorian NGO's with US NGO's with US NGO's and other regional NGO's.

This project will work at the local level, designing activities with local community groups and indigenous people's organizations. Activities will be focused on increasing agricultural production on marginal lands, and developing sustainable alternative income resources for the poor. All technology developed and disseminated under the project will be extensively tested and adapted to the local level.

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c. **Food security:** Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

N/A.

21. **Population and Health (FAA Secs. 104(b) and (c)):** If assistance is being made available for population or health activities, describe extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach.

N/A.

22. **Education and Human Resources Development (FAA Sec. 105):** If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, and strengthens management capability of institutions enabling the poor to participate in development; and (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and implementation of public and private development activities.

N/A.

23. **Energy, Private Voluntary Organizations, and Selected Development Activities (FAA Sec. 106):** If assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is:

N/A.

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment;

N/A.

b. concerned with technical cooperation and development, especially with U.S. private and voluntary, or regional and international development organizations;

The project will be implemented by a consortium of PVO's.

c. research into, and evaluation of, economic development processes and techniques;

N/A.

d. reconstruction after natural or manmade disaster and programs of disaster preparedness;

N/A.

e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance;

N/A.

f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development.

N/A.

3. CRITERIA APPLICABLE TO ECONOMIC SUPPORT FUNDS ONLY

1. Economic and Political Stability (FAA Sec. 511(a)): Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA? Yes. Economic and political stability in Ecuador will depend in the future on increasing the productivity of natural resources to serve a growing population. The project is wholly consistent with Part I of the FAA.

2. Military Purposes (FAA Sec. 501(a)): Will this assistance be used for military or paramilitary purposes? No.

3. Commodity Grants/Separate Accounts (FAA Sec. 509): If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? (For FY 1991, this provision is superseded by the separate account requirements of FY 1991 Appropriations Act Sec. 575(a), see Sec. 575(a)(3).) N/A.

4. Generation and Use of Local Currencies (FAA Sec. 511(d)): Will ISF funds made available for commodity import programs or other program assistance be used to generate local currencies? If so, will at least 90 percent of such local currencies be available to support activities consistent with the objectives of FAA sections 103 through 106? (For FY 1991, this provision is superseded by the separate account requirements of FY 1991 Appropriations Act Sec. 575(a), see Sec. 575(a)(5).) N/A.

5. Cash Transfer Requirements (FY 1991 Appropriations Act, Title II, under heading "Economic Support Fund," and Sec. 575(b)). If assistance is in the form of a cash transfer: N/A.

a. Separate account: Are all such cash payments to be maintained by the country in a separate account and not to be commingled with any other funds?

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b. Local currencies: Will all local currencies that may be generated with funds provided as a cash transfer to such a country also be deposited in a special account, and has A.I.D. entered into an agreement with that government setting forth the amount of the local currencies to be generated, the terms and conditions under which they are to be used, and the responsibilities of A.I.D. and that government to monitor and account for deposits and disbursements?

c. U.S. Government use of local currencies: Will all such local currencies also be used in accordance with FAA section 509, which requires such local currencies to be made available to the U.S. government as the U.S. determines necessary for the requirements of the U.S. Government, and which requires the remainder to be used for programs agreed to by the U.S. Government to carry out the purposes for which new funds authorized by the FAA would themselves be available?

d. Congressional notice: Has Congress received prior notification providing in detail how the funds will be used, including the U.S. interests that will be served by the assistance, and, as appropriate, the economic policy reforms that will be promoted by the cash transfer assistance?

PROJECT TITLE AND NUMBER: SUSTAINABLE RURAL ECONOMIC PROGRESS (SREP), No. 543-0007

ANNEX 1, Subpart 2: SERVICE PERFORMANCE GUIDE

OBJECTIVE STATEMENT	INDICATORS/VERIFIABLE INDICATORS	MODES OF VERIFICATION	RELEVANT ASSUMPTIONS
<p>OBJECTIVE 1: To contribute to the conservation and management of Ecuador's natural renewable resources for sustained economic development.</p>	<p>1) Conservation of Ecuador's biological resources has been improved at local and regional levels, and the nation as a whole; and</p> <p>2) Increased welfare and income of local populations from improved and alternative uses of biological resources.</p>	<ul style="list-style-type: none"> Environmental monitoring program at national and regional levels (eg. forest cover, dynamics, soil quality factors, wildlife populations). Monitoring of project impact using baseline diagnostic survey indicators. 	<ul style="list-style-type: none"> Pre-active commitment of GSE, EMBs, private-sector and local community organizations to sustainable development goals, including counterpart contributions. Baseline data developed on principal socioeconomic and biological resource impact indicators.
<p>OBJECTIVE 2: To identify, test, and develop ecologically and socially sustainable resource management outside in selected protected areas and their buffer zones to promote biodiversity and improve the economic well-being of local communities through their participation in the management of natural resources.</p>	<p>SUB-OBJECTIVE STATEMENT (10 YEARS):</p> <p>1. Capabilities up to 100 local community organizations, 20 Ecuadorian EMBs, and 8 public agencies responsible for resource management and conservation, agricultural extension, and community development will be strengthened by training and technical assistance, and committed to continuing SREP activities;</p> <p>up to six Regional Committees established as EMBs and functioning as coordinators of SREP-promoted activities, and as fora for resolution of local and regional resource-use conflicts; policy analysis and dialogue and resolution of resource-use conflicts at the national level supported in the establishment of National Committee.</p>	<ul style="list-style-type: none"> Capability surveys (Consultation and independent evaluations). Post-project evaluations of SREP-promoted activities after funding has been reduced or withdrawn. Periodic meetings held by Committees (minutes and resolutions). Resolutions adopted and acted upon. Improved coordination and collaboration among committee member organizations. Consultation reports and evaluations. 	<ul style="list-style-type: none"> Training and technology transfer are successful. Collaboration of GSE and EMBs with local organizations is continued; local organizations continue activities. GSE and EMBs and local/regional organizations maintain interest and see value in Committees. Committees obtain legal status under Ecuadorian Civil Code.
<p>2. Up to six protected areas under effective management, with appropriate plans, better-trained personnel, and improved facilities.</p>	<p>3. Resources enhanced in up to six protected areas and their buffer zones, with adequate infrastructure, increasing visitation; and increased income to local communities and private enterprises from tourist receipts.</p>	<ul style="list-style-type: none"> Local field-level visits; Consultation and EMB reports. Management capability assessments and independent evaluations. 	<ul style="list-style-type: none"> Memorandum of understanding signed between Consultation and EMB/SERPEN; SERPEN assigns necessary counterpart personnel and infrastructure. Plans approved and agile administrative procedures in place between Consultation and EMB. Stable or improving GSE policies concerning conservation of protected areas.
<p>3. Resources enhanced in up to six protected areas and their buffer zones, with adequate infrastructure, increasing visitation; and increased income to local communities and private enterprises from tourist receipts.</p>	<p>3. Resources enhanced in up to six protected areas and their buffer zones, with adequate infrastructure, increasing visitation; and increased income to local communities and private enterprises from tourist receipts.</p>	<ul style="list-style-type: none"> Local field visits, reports and evaluations Surveys of visitation rates, expenditures of tourists, and opinion questionnaires. 	<ul style="list-style-type: none"> Local committees and private enterprises take pre-active role and provide counterpart contributions/investments. Infrastructure and management improved in reserves and buffer zones.

ANNEX 1.D.

4. Land use in and around the six protected areas stabilized, and improved sustainable uses of biological resources practiced in 100 communities with agreement among 4,500 families from: national forest management, agroforestry, diversified agriculture, and processing and commercialization of biological resources.

• Consistent reports and evaluations.

• Monitoring of baseline socioeconomic, biological resources, and agriculture productivity indicators; marketing surveys.

• Independent evaluations.

• Committees are efficiently organized and local leaders/technicians trained.

• Interventions are economically viable and accepted by resource users.

• Stable or improving socioeconomic and natural resource policy environment.

• No natural disasters (El Niño, drought, etc).

5. Better understanding of the dynamics of biological resources, their utilization systems and economic value, in and around six protected areas; with improved capability of GSI, GNR, and regional and national education/research organizations to carry out applied research and citizen information in natural resource conservation programs.

• Information disseminated to local committees, protected areas managers, resource managers, scientists and technicians, and policy makers and planners.

• Research data and reports utilized (lists of recipients) and evaluation of their application and value.

• Research reviewed by outside scientists attend to quality and applicability.

• Greatly improved knowledge base and management information and dissemination systems.

• Capability surveys

• Full participation of GNR institutions, national and international NGOs, universities and research org., including counterpart contributions.

• Cooperation of local community organizations in facilitating research.

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GENERAL OBJECTIVES	SPECIFIC OPERATIONAL OBJECTIVES	MEANS OF IMPLEMENTATION	IMPORTANT ASSUMPTIONS
<p>1) Organizational, implementation, and management capabilities of national level community organizations, regionally-represented government institutions, regional and national NGOs, universities and private-sector organizations, strengthened to better carry out natural resource development and conservation activities.</p>	<ol style="list-style-type: none"> 1. NE community organizations strengthened, with increasing capability for problem diagnosis and solving, management administration of project-sponsored activities. 2. Organizational mechanisms created among critical mass (CM) of participating communities concerning sustainable management of biological resources. 3. Formation of up to 20 Broader Area Committees (BAC) and 5 CM institutions created to improve cooperation to community-level organizational development, and participating as collaborators in the provision of technical assistance through training and extension services to local committees. 4. Up to 1,000 members of Broader Area Forests treated in aspects of environmental education, community development, and the conservation of biological resources. 5. Up to six Regional Coordinating Committees established as regionally-based NGOs and coordinating project-sponsored activities with disseminating financial and technical assistance; and resolving policy interpretations and resource-use conflicts among member of local organizations at local and regional levels. 6. Policy analysis and dialogue, and resource-use conflicts resolution supported at national level with the establishment and operation of a National Coordinating Committee. 	<ul style="list-style-type: none"> • Capability surveys. • Reduced technical assistance from project. • CMBC monitoring program and periodic reports. • Internal evaluation. 	<ul style="list-style-type: none"> • Acceptance and full participation of community organizations. • Interest and adoption of project-sponsored interventions (see components below). • Full participation and support from counterparts and collaborators. • USAID/DFWPM and Broader Area Forests enter into agreement for mutual support of articles of Forestry Law; Broader Area Forests contribute funding for development of training modules. • Participating organizations see value, in and support formation of committees. • Committee receive legal recognition under civil law. • Stable or improving policy environment.
<p>2) Broader Area operational planning and management program instituted for protected areas within USAID/DFWPM, with involvement of local committees.</p>	<ol style="list-style-type: none"> 1. Operational management plans using "Use and Stewardship Reserve" concepts developed, adapted and implemented in a total of up to six areas, providing integrated natural resource management in each major ecosystem in Broader Area; infrastructure necessary for resource management and conservation installed and in use. 2. Reserve boundaries identified, surveyed and posted for use thus 20% in to areas of greatest land-use conflicts. 3. One hundred new reserve guards recruited, equipped and trained to manage each reserve. 4. Community-part protection and management relationship improved in and around up to six protected areas and direct community involvement in the management and environmental monitoring in each area. 5. A program established and functioning at the regional level to monitor and enforce legal mandates for protected areas and forest resources. 	<ul style="list-style-type: none"> • Field site visits. • Capability surveys. • Project impact monitoring of baseline indicators and Periodic Assessment reports. • Annual internal evaluations. • Independent evaluation. 	<ul style="list-style-type: none"> • Full collaboration of USAID/DFWPM and local committees. • Full collaboration of USAID/DFWPM and IBAC. • USAID/DFWPM maintain personnel on employee roles. • Local community organizations support tenets of reserve conservation. • USAID/DFWPM and Broader Area Forests agree on enforcement procedures (see article 64 Forestry Law) and sign agreement.

3) An ecosystem development program supporting community-based and private enterprise programs operational in and around select protected areas.

1. Improved knowledge of ecosystem resources in protected areas and buffer zones through basic inventories.
2. A country-wide ecosystem guide program established that provides standardized, state-of-the-art training and professional guidance with 150 local guides trained and gainfully employed.
3. Stable community-based ecosystem programs underway and self-sufficient.
4. Six ecosystem regional programs developed around the WWF project sites, providing local communities with direct economic benefits from increased tourism employment.
5. Increased income at local, regional and national levels from tourist receipts.

- Publication and distribution of natural history guides, maps, educational cards.
- Field site visits.
- Capacity surveys.
- Project impact monitoring of socioeconomic baseline indicators, and periodic Comaction reports.
- Independent evaluations.
- Tourism surveys (No. of visits; expenditures).
- Increased investment in tourism in the area.

- Comaction support provides the bulk of financial inputs, especially from private corporations (tour agencies, hoteliers, etc.)
- No catastrophic events (volcanoes, earthquakes, etc.) preclude tourism.

4) Extension program established and disseminating training and technical assistance in environmental agriculture, rational forest management, agroforestry, and in the processing and commercialization of alternative biological resource products.

1. 27 working models of community forestry, agroforestry, sustainable agriculture, and processing and commercialization of biological resources designed and in practice.
2. 4,500 families given direct technical assistance and practicing use or reuse of Project-generated interventions.
3. Increased family farm improved techniques and sale of produce.
4. 60 demonstration plots/forums established in Project buffer zones.
5. 400 community-level nurseries established with 1,250,000 seedlings supplied in Project buffer zones.
6. 12,000 hectares of buffer zone lands treated with community forestry, agroforestry and sustainable agriculture practices.

- Field site visits.
- Project impact monitoring of socioeconomic baseline indicators and periodic Comaction reports.
- 9,000 participants (including 2,000 women) trained in 200+ core technical interventions.
- Annual internal evaluations.
- Economic analysis.
- Independent evaluations.

- Interventions yield economic results; acceptance of interventions by local resource users.
- Successful transfer of technology through training.
- Collaboration of INIA and other regionally represented organizations.
- Stable or improving economic policy environment concerning the utilization and marketing of biological resource products.
- No catastrophic events (El Niño: floods, earthquakes, drought).
- Markets are developed or improved for biological resource products.

OBJECTIVE NUMBER	OBJECTIVE STATEMENT	EVIDENCE OF VERIFICATION	IMPORTANT ACHIEVEMENTS
5. A research and monitoring program established and operating in support of ongoing sustainable resource development activities.	<p>1. The knowledge base concerning the condition, dynamics and utilization patterns of biological resources across a range of ecosystems improved and is wider now in Ecuador.</p> <p>2. A system to collect and monitor project baseline socioeconomic and environmental impact indicators tested, proven and operational for application by GSE institutions and others.</p> <p>3. Traditional knowledge of as well as six indigenous cultures concerning biological resources - uses and uses, dynamics and in use by traditional sector of collection and research institutions; relevant resources identified for protection trials and management and marketing potential.</p> <p>4. Results of research on land-use/land-cover conflicts and opportunities published, with recommendations and supporting land-utilization policy analysis and dialogue activities at regional and national levels.</p> <p>5. Research on selected resource management practices, cropping sites, community promoting species, and ecological indicator species completed and results incorporated into project-supported forest management and agricultural diversification activities; economic valuation of existing natural forest and associated products estimated based on traditional use systems in selected areas within project area.</p> <p>6. Studies on the collection, processing and commercialization of 3 alternative biological resources completed, and recommendations incorporated into project training and extension activities.</p> <p>7. Applied research methodologies and capabilities improved in up to 20 governmental and non-governmental organizations.</p>	<p>• Data assessed by an increasing number of students, scientists, resource managers, private enterprises and local communities; species list and natural-history guides prepared for each of six project areas.</p> <p>• Project impact monitoring system and Management Information System (MIS) operational.</p> <p>• Baseline published and disseminated.</p> <p>• Baseline published and policy changes supported.</p> <p>• Baseline published, disseminated and in use at community level.</p> <p>• Baseline analysis.</p> <p>• Studies published, disseminated and in use by project participants.</p> <p>• Institutional capability surveys; increased output of organizations in resource activity.</p> <p>• Up to 200 professionals trained in field research methods.</p>	<p>• Support for research provided by national and international universities and research institutions.</p> <p>• Successful completion of diagnostic baseline studies phase; MIS MIS in place.</p> <p>• Project gives access to limited indigenous knowledge and licenses to distribute same for common good.</p> <p>• Collaboration with IISAC and policy analysis/dialogue interests (eg. Fundación IISAC, Fundación Natura).</p> <p>• Project community-level extension program operational and capable of disseminating new/improved technologies.</p> <p>• Full participation of counterparts and collaborators, including in-kind contributions and use of facilities.</p>

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ANNEX 1.8

INITIATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					MEANS OF VERIFICATION	ASSUMPTIONS
	LOP Costs (USD 000 +/- & Source(s))						
	OSRIB	Cons. (2)	OSRIB/ CBL (3)	FI (4)	LC	TOTAL	
HPMPS:							
1. Conversion Core Costs							
A. Central Technical Assistance	2188.8	0.0	0.0	1233.0	929.0	2182.0	
B. Local Technical Assistance	1486.0	0.0	0.0	34.0	1416.0	1426.0	
C. Materials & Equipment	895.3	0.0	0.0	317.3	291.0	858.3	
Subtotal	4570.1	0.0	0.0	1584.3	2636.0	4940.5	
2. Field Activities (D)							
A. Organizational Development							
- Technical Assistance	720.4	31.0	286.3	147.2	830.3	977.7	
- Material and Equipment	469.9	76.1	48.2	48.4	525.6	604.2	
B. Production Process Management							
- Technical Assistance	878.4	271.2	815.6	612.2	1334.0	1946.2	
- Material and Equipment	478.2	367.8	387.0	192.7	900.3	1153.0	
C. Extension Development							
- Technical Assistance	237.4	229.4	72.1	106.8	432.1	538.9	
- Material and Equipment	596.7	128.3	144.8	191.7	678.2	867.9	
- Technical Assistance	1261.0	212.2	776.9	318.2	1932.1	2230.1	
- Material and Equipment	769.9	493.8	137.2	351.9	1854.5	1986.4	
E. Research and Monitoring							
- Technical Assistance	1381.0	368.4	21.7	473.1	1489.9	1883.0	
- Material and Equipment	146.3	288.3	0.0	187.7	247.1	434.8	
Subtotal	1879.4	2061.9	2941.6	2638.1	9434.3	12884.4	
3. Studies and Evaluations	500.0	0.0	0.0	500.0	0.0	500.0	
4. Local Mkt. Support	1777.2	0.0	0.0	1488.2	369.0	1777.2	
4. DMRE (New York Protocol (E))	1200.0	0.0	0.0	1200.0	0.0	1200.0	
Totals	15886.0	2061.8	2941.6	7342.8	12439.3	28688.0	

FI = Foreign Exchange
 LC = Local Currency
 (1) Exchange rate in March 1991: USD 1 = 1,000 sucres
 (2) Conversion contributions in cash and in-kind (valorized)
 (3) Counterpart/Colaborator/Beneficiaries contribution in-kind (valorized USD from local currency)
 (4) (E) Foreign Exchange expenses will be covered by OSRIB funds
 (5) Training costs are included under Materials and Equipment lines

Note: Totals do not agree exactly due to rounding

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ANNEX II. A

CONSORTIUM MEMORANDUM OF UNDERSTANDING

**MEMORANDUM OF AGREEMENT
FOR THE COLLABORATIVE IMPLEMENTATION OF THE
SUSTAINABLE USES OF BIOLOGICAL RESOURCES (SUBIR) PROJECT
OF AID/EQUADOR**

Between

**CARE, THE NATURE CONSERVANCY AND
WILDLIFE CONSERVATION INTERNATIONAL**

Whereas, the Ecuador Mission of the U.S. Agency for International Development ("USAID/E"), is planning a Sustainable Uses of Biological Resources Project ("SUBIR"), and is seeking applications for assistance from non-governmental organizations with on-going programs in environment and natural resources management in Ecuador;

Whereas, CARE, The Nature Conservancy ("TNC"), and Wildlife Conservation International, a Division of the New York Zoological Society ("WCI") each have extensive and unique experience in the management of environmental and renewable natural resources projects in Ecuador, are each 501(c)(3) corporations and are registered PVOs with USAID, and have on-going programs in Ecuador that fully meet the objectives and purposes of the SUBIR Project;

Whereas, USAID/E has issued a Request For Applications (RFA 90-006) seeking applications from entities interested in participating in the design and implementation of a collaborative assistance natural resources project in Ecuador;

Whereas, the resources of the SUBIR Project would constitute a significant match to the scheduled program investments of CARE, TNC, WCI in Ecuador;

Now therefore, through this Memorandum of Agreement, CARE, TNC, and WCI ("the parties") will combine their extensive knowledge, experience, and working relationships in Ecuador for the purpose of preparing a joint application for the cooperative agreement solicited by USAID/E. If awarded, specific contracts will be developed by CARE as responsible party with TNC and WCI as subcontractors for the collaborative implementation of the cooperative agreement. To that end the three organizations agree as follows:

I. Nature of the Consortium

1.1 CARE, TNC and WCI agree that CARE will act as the lead implementing organization (LIO) in this consortium, and will serve as the responsible party and signator of the Cooperative Agreement with USAID/E. TNC and WCI will be subcontractors under that agreement.

1.2 Lead responsibility for the development and implementation of each of the technical components of the Cooperative Agreement will be allocated among the parties as follows:

CARE: Buffer Zone Management, Sustainable Development and Agroforestry, Policy

TNC: Biodiversity Conservation, Natural Areas Management and Training, NGO Institutional Development, Biological Information Management, Ecotourism

WCI: Research, Training, Biodiversity Conservation and Education, Ecotourism

1.3 Notwithstanding the above, each organization agrees to emphasize the joint collaborative nature of this endeavor, and to fully acknowledge the participation of the other parties to this agreement in the development and implementation of the technical components (as outlined in the proposal to USAID/E and in subsequent annual workplans). In addition, all parties agree to acknowledge the participation of all other parties in all subsequent publicity releases, public appearances, and reports or publications.

1.4 The consortium recognizes our responsible for the expected cash or in-kind counterpart match of up to 25% to the funds provided by USAID/E for the activities that it implements. General funding received through joint fund raising efforts will be allocated by the Executive Committee to project activities. Unrestricted funds received by one party to the consortium may be made available to match the activities of other parties by specific mutual agreement.

II. Project Implementation Principles

2.1 The implementation of the SUBIR Project cooperative agreement will be focused on geographic areas or managed conservation reserves and buffer zones that are representative of the differing ecological systems and development problems of Ecuador.

2.2 Local and national level activities that are not site specific will be related to the experience gained in field activities in the selected geographical areas to the extent practicable.

2.3 Implementation activities will concentrate on the development of the capability of local organizations and individuals, both public and private, to carry out project activities in environment and natural resource management.

2.4 Priority will be given to the development, testing and implementation of effective and sustainable conservation models. To achieve this, socioeconomic development and education activities with local communities living in and around protected areas is seen as essential.

2.5 Local non-governmental organizations and national technicians will have preference for contracts and grants awarded by the parties to implement all project components. Field activities will actively involve local populations in the management of reserves and sustainable development activities.

III. Project Management

3.1 An Executive Management Committee will be formed by the three parties for the purpose of providing overall direction to project planning, coordination, implementation, monitoring, and evaluation. Each party will appoint one staff member directly responsible for the implementation of the project as a delegate to the Committee, and one alternate delegate.

3.2 Decisions of the Committee will be made by consensus whenever possible, otherwise each party will have one (1) vote. An authorized representative of each of the three parties must be present for quorum.

3.3 With the full consultation and agreement of the other parties, CARE as the LIO will be responsible to:

- a) resolve substantive issues and questions dealing with the interpretation of this memorandum and the overall strategies and policies;
- b) maintain relationships with USAID/Ecuador;
- c) handle overall project administration and personnel issues, financial and match accounting and procurement services;
- d) oversee the preparation of overall workplans and

budgets, and monitoring and evaluating plans; and

- e) provide day-to-day supervision and guidance to the Chief of Party.

3.4 The Committee will meet as often as needed during the startup phase, and at least quarterly thereafter. The representative of CARE will call for the meeting and preside. Meetings will be held at a place and time mutually agreed upon, with two of the meetings each year in Ecuador. Written minutes will be kept of all Committee meetings and approved at the subsequent meeting.

3.5 The Consortium will establish a national Conservation Development Workgroup (CDW), that will allow relevant interested national and international organizations, both public and private, to exchange information pertaining to sustainable uses of biological resources. Once effectively established, the CDW will provide a mechanism for local participation in major project planning, implementation and evaluation.

IV. Project Administration

4.1 The regional coordinating and administrative office for the Project will be located in Quito, either in a suboffice or in the main CARE-Ecuador office.

4.2 The Consortium will select a full-time "Chief of Party" to coordinate the design, implementation and administration of the project. The Chief of Party will be hired by CARE, and will report to the Executive Committee of the Consortium for issues pertaining to SUBIR's overall direction, planning, budgeting and major subcontractual arrangements. For the day-to-day management of the project, the Chief of Party will report to the CARE/Ecuador Country Director, or a person designated by him/her. The Chief of Party's primary responsibility will be performing the duties of the SUBIR project, but will be expected to participate in CARE/Ecuador activities necessary for the successful implementation of the SUBIR project.

4.3 The Chief of Party will attend the meetings of the Executive Committee when necessary, and will be responsible for all relations with the USAID/E contract office on matters dealing with the administration of the Cooperative Agreement and financial reporting.

4.4 The Chief of Party will be responsible for the maintenance of the correspondence and records of the project. CARE will be responsible for completing the financial and administrative reporting required by USAID/E, with assistance from TNC and WCI.

4.5 Each party to the agreement will be responsible for the administration of those specific activities for which it has lead responsibility, as provided for in the contracts of CARE with TNC and WCI.

V. Financial Management

5.1 Each Consortium member is solely responsible and financially accountable for USAID/Ecuador funds and related matching funds received through subcontractual arrangements under the SUBIR project. CARE, as LIO, will receive and be financially accountable for the overall funds applicable to the project.

5.2 CARE will receive an overhead fee for the USAID/E funds received in accordance with its agreement with USAID/E. CARE will charge administrative costs directly related to the project on a direct cost basis.

5.3 TNC and WCI will receive an agreed-upon overhead fee, as recognized by USAID, and will be reimbursed for the direct costs associated with the implementation of SUBIR project activities.

5.4 All parties may count the direct costs of the participation of their staff members, and those of local cooperating institutions, as part of any in-kind or cash match.

VI. Programming

6.1 Whenever possible, annual work plans and budgets will be developed jointly with local private and public agencies for each project activity or geographic area. Annual plans and budgets will be approved by the Executive Committee.

6.2 The annual work plan will specify the organization responsible for implementation, the tasks of other parties, the local counterpart organization, and define verifiable outputs that are measurable progress indicators.

6.3 The budget prepared for each annual workplan will identify the source of financing, and identify the source and amount of matching funds and in-kind contributions that are required.

6.4. Once an annual work plan and budget is agreed upon, each party will be responsible for managing and implementing its agreed upon activities in a vigorous and timely manner. Delays

in implementation will be immediately brought to the attention of the Executive Committee.

6.5 Progress reports and financial statements will be completed promptly to assure that donors and USAID/E are fully informed on activities, and that additional funding is made available as needed.

VII. Performance Review and Evaluation

7.1 Project implementation will be reviewed on a regular basis at the meetings of the Executive Committee. Performance will be evaluated periodically on the basis of measurable standards developed during the project design and pre-implementation phase.

7.2 The three parties to this consortium, and local and national level organizations cooperating in project implementation, will participate in defining appropriate mechanisms to monitor and evaluate progress.

7.3 Status reports as required by the cooperative agreement will be prepared, reviewed by the Executive Committee, and submitted to USAID/E. Mid-term and final evaluations of the first five years of the proposed consortium will be conducted, in accordance with AID/Washington and USAID/E approval.

VIII. Additional Parties to this Agreement

8.1 The Executive Committee of the Consortium will establish operating agreements with other international organizations (profit and non-profit), local private voluntary organizations and government agencies as needed for the purposes of implementation of project activities.

8.2 The parties will seek assistance from and collaborative participation with other private voluntary organizations involved in international conservation and sustainable development projects in Ecuador, with relevant organizations such as Cultural Survival, Missouri Botanical Garden, New York Botanical Garden, and participating U.S. Government agencies such as the Peace Corps, Smithsonian Institution, the National Park Service, universities, and others.

IX. Terms of the Agreement

9.1 The term of this Memorandum of Agreement shall run from the date of signing until the end of the six-year Cooperative Agreement between USAID/E and CARE, TNC and WCI. This Memorandum of Agreement may be extended upon the mutual consent of the parties.

9.2 Any party to this Memorandum of Agreement, other than CARE, may withdraw from this consortium upon the completion of its specific responsibilities within the project. In the event that the Cooperative Agreement is not awarded by USAID/Ecuador, the Memorandum of Agreement will be null and void.

9.3 A written notice of the intent to withdraw will be submitted to the Executive Committee 90 days in advance of the effective date. The withdrawing organization will make a reasonable effort to complete all project activities undertaken on behalf of the consortium.

9.4 The terms and provisions of this Memorandum of Agreement may be amended by unanimous consent of the Executive Committee.

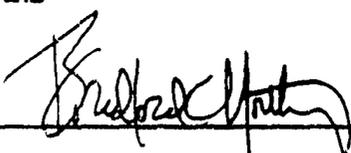
9.5 Upon signing a Cooperative Agreement with USAID/E, CARE will enter into sub-contracts with TNC and WCI that will stipulate the rights and obligations of each of the parties in the implementation of the Cooperative Agreement.



Rudolph von Bernuth
Vice President, Programs
CARE

Date

July 6, 1990



Bradford C. Northrup
Vice President, Latin America Division
The Nature Conservancy

Date

July 7, 1990



John G. Robinson
Director
Wildlife Conservation International
A Division of the New York Zoological Society

Date

July 5, 1990

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ANNEX II. B

DETAILED BUDGET ESTIMATES

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SUBIR PHASE I
YASUNI SUBPROJECT PROCUREMENT OF EQUIPMENT AND COMMODITIES BY FISCAL YEAR *
 (Costs in US\$)

CATEGORY/ITEM	FY 92		FY 93		FY 94		Total
	FX	LC	FX	LC	FX	LC	
Organisational Development							
Audiovisual Equipment	2000	1000	2000	1000	2000	1000	9000
Publications Purchase & Production		3000		4000		4000	11000
Training Workshops/Seminars		4000		8000		8000	20000
Subtotal	2000	8000	2000	13000	2000	13000	40000
Management of Protected Areas							
Field and A.V Equipment	10000	2000	8000	2000	3000	2000	27000
Park Infrastructure		20000		20000		20000	60000
Office Equipment		3000		3000		3000	9000
Promotion Materials		2500		2500		2000	7000
Cartography Equipment	3000	2000	1000	1000	1000	1000	9000
Training Workshops/Seminars		1000		2000		1000	4000
Subtotal	13000	30500	9000	30500	4000	29000	116000
Ecotourism Development							
Field Equipment/Materials	8000	8000	3500	8000	3000	2500	31000
Interpretative Centers	5000	5000	2000	8000			20000
Audiovisual Equipment/Supplies	3000	4500	4000	6000			22500
Publications/Field Guides		8000		8000			16000
Community Infrastructure		11500		10000		1000	22500
Training Workshops/Seminars		1000		2000		1000	4000
Subtotal	19000	38000	9500	42000	3000	4500	116000
Improved Land/Resource Use							
Field Equipment	1500	1500	1500	1500		3000	9000
Nursery and Plant Materials	1000	4000	1000	4000	1000	4000	15000
Tools and Supplies (Agric)	1000	3000	1000	3000	1000	3000	12000
Artisan/Processing Equip. & Supplies	1000	3000	2000	4000		2000	12000
Training Workshops/Seminars		4000		2000		1000	7000
Subtotal	4500	15500	5500	14500	2000	13000	55000
Research and Monitoring							
Field Equipment	18000	2000	6000	2000		1000	29000
Computer Systems & Supplies	5000	2000	4000	1000		1000	13000
Publications Purchase & Production	1000	1000	1000	1000		1000	5000
Laboratory Analyses		2000		2000		2000	6000
Training Workshops/Seminars		2000		5000		3000	10000
Subtotal	24000	9000	11000	11000	0	8000	63000
Total	62500	101000	37000	111000	11000	67500	390000

COTACACHI-CAYAPAS SUBPROJECT PROCUREMENT OF EQUIPMENT AND COMMODITIES BY FISCAL YEAR*

CATEGORY/ITEM	FY 92		FY 93		FY 94		Total
	FX	LC	FX	LC	FX	LC	
Organizational Development							
Training Workshop/Seminar Costs		10000		7000		5000	22000
Publications Purchase & Production		3000		5000		2000	10000
Subtotal	0	13000	0	12000	0	7000	32000
Management of Protected Areas							
Field and A/V Equipment		3000	5000	2200			10200
Reserve/Infrastructure		20000		21000		3000	44000
Vehicle/Boats	6000	1000	4000	1000			12000
Training Workshop/Seminar Costs		4000		10000		5000	19000
Subtotal	6000	28000	9000	34200	0	8000	85200
Ecotourism Development							
Interpretative Centers	5000	5000	5000	15000			30000
Publications/Field Guides				5000			5000
Training Workshops/Seminar Costs		2500		2500			5000
Subtotal	5000	7500	5000	22500	0	0	40000
Improved Land/Resource Use							
Field Equipment	1000	1000		1000			3000
Nursery and Plant Materials		2000		4000		500	6500
Tools and Supplies (Agric)	1000	1000	1000	1000			4000
Training Workshop/Seminars Costs		5000		10750		8000	23750
Subtotal	2000	9000	1000	16750	0	8500	37250
Research and Monitoring							
Field and A/V Equipment	2000		1000	1000	1000	1000	6000
Research Station Development			5000	5000			10000
Publications Purchase & Production		3000		5000			8000
Training Workshop/Seminars Costs		2000		3500		2500	8000
Subtotal	2000	5000	6000	14500	1000	3500	32000
Total	15000	62500	21000	99950	1000	27000	226450

* Procurement (primarily local) of equipment and commodities for direct use at field level by project participants and collaborators/contractors in project areas. Full detailed procurement plans for each subproject area are provided in Annex II.8.

FX : Foreign exchange expenditures
 LC : Local currency expenditure

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1989-1990
CAYANNE-COCA SUBPROJECT PROCUREMENT OF EQUIPMENT AND COMMODITIES BY FISCAL YEAR *
 (US\$ in 1981)

CATEGORY ITEM	FY 92		FY 93		FY 94		Total
	FX	LC	FX	LC	FX	LC	
Organizational Development							
Training Workshop/Seminar Costs		5000		10000		5000	20000
Publications Purchase & Production		5000		15000		10000	30000
Materials	2500	2500	2500	2500		2000	12000
Subtotal	2500	12500	2500	27500	0	17000	62000
Management of Protected Areas							
Materials	1000	1000	1000	1000		1000	5000
Training Workshop/Seminar Costs				17000			17000
Publications Productions				5000			5000
Reserve Infrastructure		17500		10500			28000
Subtotal	1000	18500	1000	33500	0	1000	55000
Ecotourism Development							
Interpretative Centers			5000	15000			20000
Publications/Field Guides		10000		12000		7000	29000
Training Workshops/Seminar Costs		7000		7000		1000	15000
Audiovisual Equipment	2000	500		500			3000
Subtotal	2000	17500	5000	34500	0	8000	67000
Improved Land/Resource Use							
Extension Materials and Equipment	6000	9000	6000	8000	6000	8000	42000
Nursery and Plant Materials	8000	15000	8000	20600	8000	20600	62000
Tools and Supplies (Agric)	6000	3000	4000	3000		2000	18000
Demonstration Plots and Activities		3300		4000		4000	11300
Training Workshop/Seminars Costs		30800		30800		30800	92400
Vehicles and Maintenance	25000	4000		4000		4000	37000
Subtotal	45000	64700	18000	70400	14000	69400	281500
Research and Monitoring							
Field and Research Equipment	3000	2000	1000	1000			7000
Infrastructure		5000		5000			10000
Training Workshop/Seminars Costs				5000		3000	8000
Subtotal	3000	7000	1000	11000	0	3000	25000
Total	53500	120200	27500	176900	14000	98400	490500

* Procurement (primarily local) of equipment and commodities for direct use at field level by project participants and collaborators/contractors in project areas. Full detailed procurement plans for each subproject area are provided in Annex II.9.

FX : Foreign exchange expenditure

LC : Local currency expenditure

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REPORT OF INDEPENDENT AUDITORS

The Audit Committee of the
Board of Directors
CARE USA

We have audited the financial statements and other financial information of CARE USA as of and for the year ended June 30, 1990, and have issued our report thereon dated September 21, 1990. We conducted our audit in accordance with generally accepted auditing standards and where applicable, the standards for financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States, and the provisions of OMB Circular A-110. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

Compliance with laws, regulations, contracts, grants, and binding policies and procedures applicable to CARE USA is the responsibility of CARE USA's management. As part of our audit, we performed tests of CARE USA's compliance with certain provisions of laws, regulations, contracts, grants, and binding policies and procedures. However, it should be noted that we performed those tests of compliance as part of obtaining reasonable assurance about whether the financial statements are free of material misstatement; our objective was not to provide an opinion on compliance with such provisions.

Our audit was limited to transactions and activity originating and accounted for from CARE New York Headquarters and the CARE missions located in Bangladesh, Uganda, India, Peru and Philippines.

The results of our tests indicate that with respect to contract activity at the locations identified above and for the contracts tested which are identified in the attached Schedule of Contracts Audited, CARE USA complied, in all material respects, with the provisions referred to in the second paragraph of this report. With respect to items not tested, nothing came to our attention that caused us to believe that CARE USA had not complied, in all material respects, with those provisions.

This report is intended for the information of the audit committee, management, and others within the organization and the United States Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the United States Agency for International Development, is a matter of public record.

Ernst + Young

September 21, 1990

NOTE: AID Certification of CARE administrative and procurement procedures and policies is on file at AID/PROCUREMENT/Wash. Contact Mr. James Deery.

SCHEDULE OF CONTRACTS AUDITED

CARE USA

Year Ended June 30, 1990

<u>Fund #</u>	<u>Contract/Project Name</u>	<u>Mission</u>
1023	Integrated Food For Work	Bangladesh
2076	Community Land Use Management Project	Ecuador
4518	West Nile Agricultural Rehabilitation	Uganda
4602	Land and Soil	Comoros
4948	Title II Emergency Commodities	Ethiopia

ANNEX II. C

**LIST OF DESIGN TEAM PERSONNEL AND
SUBIR DESIGN SCHEDULE**

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ANNEX C.1.3

LIST OF DESIGN TEAM PERSONNEL AND DESIGN AGENCIES

PERSONNEL AND AGENCIES ASSIGNED TO DESIGN WORK

DESIGN TEAM AND SUPPORT STAFF

	NAME	ASSIGNMENT	ORGANIZATION
<u>Core Design Team</u>			
PD	Paul Dulin	Chief of Party/Natural Resources Planner	CARE
RS	Ron Savage	Deputy Chief of Party/ Land Use Spec.	CARE
JB	Juan Black	Natural Areas Management Specialist	TNC
LN	Lisa Naughton	Human Ecologist/Investigation	WCI
NW	Natalia Wray	Anthropologist/Rural Sociologist	TNC
JM	Greg Miller	Ecologist/Nature Tourism Specialist	TNC
LS	Luis Suarez	Ecologist/Investigation	WCI
ME	María Augusta Espinoza	Anthropologist	CARE
WP	Walter Palacios	Botanist	CARE
<u>Field Design Team</u>			
- Field Team 1 <u>Reserva Natural del Parí</u>			
JM	Greg Miller*	Ecotourism/Parks Protection	TNC
PD	Paul Dulin	Land Use/Natural Resources Planner	CARE
LS	Luis Suarez	Ecologist/Investigation	WCI
ME	María Augusta Espinoza	Anthropologist	CARE
- Field Team 2 <u>Cotacachi-Carapas Ecology Reserve</u>			
TM	Therese de Vries	Ecotourism/Investigation	TNC
FR	Francisco Rosero	Forester	CARE
JM	Alan Moore*	Parks Management Specialist	TNC
NW	Natalia Wray	Anthropologist/Rural Sociologist	CARE
WP	Walter Palacios	Botanist	CARE
- Field Team 3 <u>Cayambe-Coca Ecology Reserve</u>			
JU	Jorge Uquillas	Rural Sociologist	CARE
LN	Lisa Naughton	Ecologist/Investigation	WCI
JB	Juan Black*	Natural Reserves Planner/Ecotourism	TNC
RS	Ron Savage	Land Use/Agroforestry	CARE
-Quito Team			
EC	Bruce Echarle	Emergency Policy Specialist	VRI
JR	Jose Romero	Natural Resource Economist	CARE
CR	Charles Russell	Environment Assessment Specialist	IRG
VS	Vladimir Serrano*	Legal Specialist	TNC

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NAME	ASSIGNMENT	ORGANIZATION	
<u>Mexico Team Support Group (Quito based)</u>			
MB	Marshall Burke	Agroecologist/Training Development	CARE
AV	Amy Vedder	Wildlife Ecologist/Research Coordinator	VCI
SS	Stuart Strahl	Wildlife Ecologist/Training and Research	VCI
AR	Alan Randall	Natural Resource/Management	TNC
RM	Ruth Morris	Training Development Specialist	TNC
<u>HOME OFFICE COORDINATION AND ADMINISTRATIVE SUPPORT</u>			
RV	Renko Vonk	Agriculture and Natural Resources Director	CARE
BrC	Brian Cavanagh	Grants Administrator	CARE
RB	Ron Burkard	CARE-Ecuador Country Director	CARE
XO	Ximena Ortis	CARE-Ecuador Administrative Coordinator	CARE
VP	Vladimiro Ponce	CARE-Ecuador Procurement Officer	CARE
AE	Alvaro Brazo	CARE-Ecuador Administrative Assistant	CARE
AC	Azuena Caiza	CARE-Ecuador Administrative Assistant/Sec	CARE
PA	Patricia Argüello	CARE-Ecuador Administrative Assistant/Sec	CARE
QM	Greg Miller	Ecuador Program Director	TNC
JR	John Robinson	Executive Director	VCI
JMK	John Michael Kramer	Natural Resource Program Manager	IRG
<u>USAID-Ecuador Liaison</u>			
RP	Ron Ruybal	Project Officer	
DF	David Flood	Ag. Economist/Project Design Spec.	
DA	Dave Alverson	Agriculture & Nat. Res. Officer	
HC	Howard Clark	Ecologist/Reg. Environment Officer	
DS	Douglas Southgate	RDO Natural Resources Economist	
PM	Fausto Maldonado	Agriculture/Nat. Res. Liaison	

(*Denotes Coordinator)

3. DESIGN-7. WP

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month ---	Oct.					Nov.				Dec.				Persons responsible
	1	2	3	4	5	1	2	3	4	1	2	3	4	
I PROJECT DESIGN MOBILIZATION	XXXXXXXXXX XXXXXXXXX XXXX													
A.1 Contacting all relevant parties to announce start & implementation plan of the SUBIR design effort:														
-- U.S. based design team members	x	x												RV,GM,LI
-- Ecuador based design team members	x	x												RS,JB
-- U.S. based collaborating agencies	x													RV,GM,LI
-- Ecuador based col. agencies	x	x	x	x										RS,JB,GM
-- Ecuador based resource persons								x	x	x	x			RS,JB
A.2 Draw up contracts for design and pre-implementation consultants and sub-contracts with consortium partners and sub-contractors.														
-- U.S. based consultants					xx				xx					RV,BrC,GM,JR
-- Ecuador based consultants					xxxxxxx									BrC,RB,JR,GM
-- U.S. based sub-contractors					xx				xx					RV,BrC
A.3 Prepare logistical arrangements such as vehicle rental, computer procurement and office space. Hire necessary support staff. Make hotel reservations.														
						xx	xxxxxxx		xxxx					RS,JB
A.4 Collection of literature, aerial photographs, maps and other information for design resource library.														
							xxxxxxx		xxxx					RS,JB,GM,LI
A.5 Prepare information packages and profiles on project areas.														
							xxxxxxx		xxxx					RS,JB,GM
A.6 Schedule and prepare presentations to design team with concerned parties.														
									xxxx		xxxx			RS,JB
A.7 Prepare detailed scopes of work for all team members.														
											xx	xx		PD,RS,JB
A.8 Biweekly progress briefings with USAID/Ecuador.	x	x				x	x			x			x	PD,RS,JB

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month ---	Jan.				Feb.				March					Persons responsible	
	1	2	3	4	1	2	3	4	1	2	3	4	5		
I1 AREA SELECTION AND CORE TEAM START UP PHASE.	XXXXXXXXXX														
A Core Design Team Start Up	XXXXXXXXXX													PD,RS,JB	
A.1 Introduction of core team members and overview project; team building.	xx														PD,RS,JB
A.2 Review and discussion of draft SUBIR logical framework.	xx														PD
A.3 Project Forum, Introduction to SUBIR	x														RS,JB
D Area selection	XXXXXXXXXX														
B.1 Review of info concerning potential project areas as presented by RS and JB.	x														RS,JB
B.2 Short listing of 5 potential areas for project intervention based on selection criteria.	x														Core Team
B.3 Visitation of areas and consultation with field based groups.		xxxx													Core Team,GoU
B.4 Consultation with Quito based organizations (incl. USAID).				x											Core Team
B.5 Final selection of project areas for project intervention.				x											Core Team

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month -->	Jan.				Feb.				March					Persons responsible	
	1	2	3	4	1	2	3	4	1	2	3	4	5		
III FIELD VISITS, LOCAL CONSULTATIONS, DATA COLLECTION, AND ANALYSIS.					xxxxxxx										
A Arrival and Orientation of Design Team Consultants					xx										PD, PS
A.1 Core team presentation and data review (incl. logframe)					x										Core Team
A.2 Team building and refinement of individual and collective scopes of work; assign field personnel to field teams (3) and Quito team.					x										PD, Core Team
A.3 Presentation by GOE and USAID to Design Team.					x										PD
A.4 Presentation of local NGOs and other interested parties and follow up visits.					x										RS, JB
B On-Site Data Collection, Studies and Consultations/Interviews; and Preliminary Analyses.									xxxxx						PD, RS, Core Team
B.1 Field trips to priority project areas by field teams.									xxxx						Field Teams 1,2,3
B.2 Consultations, interviews, data review by Quito team.									xxxx						Quito Team
B.3 Write up/preliminary analyses of field notes and data.														x	Field Teams and Quito Team
B.4 Discussion of data collection results, preliminary analyses and presentations by (3) field teams and Quito team.														x	Field Team and Quito Team Leaders.

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month ---	Jan.				Feb.				March					Persons responsible
	1	2	3	4	1	2	3	4	1	2	3	4	5	
C Component Roundtables to Elicit Input from Local Organizations.												x		RS, JB, BH
C.1 Protected areas management and bufferzone development.												x		RS, GM, TdV
C.2 Research.												x		SS, AV
C.3 Policy Analysis and Dialogue.												x		BC, VS
C.4 Training.												x		NB, JU, RN, SS

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month	Jan/Feb	March	April	Persons responsible
		1 2 3 4 5	1 2 3 4	
IV PREPARATION OF PROJECT PAPER AND ANNEXES.		XXXXXXXX	XXXX	
A Strategy Development for Project Elements/Components.		x		Core Team, Design Team
A.1 Development of annotated outline and Project Paper format.		x		PD,AR,Core Team
A.2 Assignment of individual writing responsibilities.		x		PD,AR,Core Team
A.3 Brief presentation of strategy/outline to USAID.		x		PD,AR,Core Team
B Preparation of First Draft of PP Sections and Annexes.		xxxx		PD,AR,Core Team
B.1 Project summary and recommendations.		x		PD,AR
B.2 Background and detailed description.		x		Core Team
B.3 Project analyses		xxxx		Core Team, Design Team, Design Team
a. Technical analysis		xxxx		
1) Protected area management and bufferzone development		xxxx		RS,GM,JB,PD, Design Team
ii) Research		xxxx		SS,AV,Design Team
iii) Policy analysis and dialogue		xxxx		BC,VS,Design Team
iv) Training		xxxx		RN,JU,Design Team
b. Financial analysis		xxxx		JS, AID PD & Economist
c. Economic analysis		xxxx		JS, AID Economist
d. Social analysis (including an analysis of how local women and indigenous populations participate and be affected by the project)		xxxx		LN,NW,JU
e. Policy analysis		xxxx		BC,VS
f. Administrative and institutional analysis		xxxx		PD,AR,RS,GM,JB
g. Environmental assessment		xxxx		CR,PD,JHK

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month ---	Jan/Feb	March					April				Persons responsible
		1	2	3	4	5	1	2	3	4	
B.4 Cost estimate and financial plan.			xx								PD,AR,PC,Core & Design Team.
B.5 Technical assistance plan.			xx								Core Team
B.6 Training Plan.			xx								RN,AM,JU
B.7 Monitoring system/evaluation plan.			xxxx								PD,AR,Core Team
D.8 Implementation arrangements.			xxx								PD,AR
B.9 Life of project implementation plan.				xxxx							PD,AR,Core,Design
B.10 Implementation plan for the first two years.				xxxx							PD, Core, Design Teams.
B.11 Specific objectives for the first two stages of the project.				xxxx							PD,AR,Core Team
B.12 Final logical framework.			x								PD,AR,Core Team
B.13 Annexes including detailed project activity descriptions and budgets (see B.3.a-g above).				xxxx							Design Team
C Presentation of Project Design and Draft Project Paper to USAID.					x						Core Team
D Draft Review and Preparation of Final Project Paper.				xxx	xxxx						USAID PO, PD RV,BrC
D.1 USAID draft review and comment period.				xxx	xx						USAID PO
D.2 Refinement, editing and revision of Project Paper.							xxx				PD,NW,JB,RS
D.3 Presentation of final FP and official acceptance of First Cooperative Agreement deliverables.										x	RR,PD,USAID PO
D.4 END OF DESIGN PHASE										x	

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month --->	April				May				June					Persons responsible	
	1	2	3	4	1	2	3	4	1	2	3	4	5		
V PRE-IMPLEMENTATION ACTIVITIES					X	X	X	X	X	X	X	X	X	X	
A Clearance and Approval of PP by USAID/Ecuador.					X	X	X	X							USAID PD
B Formalize Institutional Arrangements with CARE-Ecuador, TNC and WCI.					X	X	X	X	X						PD, RB, GM, LN, RV
B.2 Prepare detailed preliminary CARE budgets for CARE FY92.						X	X								PD, RS, RC
B.2 Arrange office space, infrastructure and logistics.					X	X	X	X	X						PD, RB, AE
B.3 Discuss/coordinate collaboration with other CARE, TNC and WCI projects.						X	X	X							PD, RB, JB, LN, CP
B.4 Prepare scopes of work and begin recruitment of project support staff.								X	X	X					PD, XD
D.5 Create SUBIR informational database and establish resource library.					X	X	X	X	X						CP, JB
B.6 Arrange commodity procurement (local and international)					X	X	X	X	X						PD, MM
C Initiate recruitment of Long- and Short-Term SUBIR Project Personnel.					X	X	X	X	X						
C.1 Prepare scopes of work and recruit candidates.					X	X	X	X	X						RV, GM, LN, PD
C.2 Select individuals and discuss preliminary scheduling and arrangements.								X	X	X					RV, GM, LN, PD

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES (SUBIR)

Implementation Plan for Project Design and Pre-Implementation Phases

Week starting in given month --->	April				May				June					Persons responsible					
	1	2	3	4	1	2	3	4	1	2	3	4	5						
D Follow-Up with Future Collaborating Organizations.	x	x	x	x	x	x	x	x						NW, JB					
D.1 Consultations/discussions with individuals and organizations (Quito).	x	x	x	x	x	x	x	x						NW, JB					
D.2 Follow up field trips and visits to regional and local organizations.			x	x										NW, JB, PD					
D.3 Development of preliminary local sub contracting and small grants fund mechanisms.							x	x						RS, RB					
E Prepare Cooperative Agreement for Implementation Phase.							x	x	x	x				PD, NW, JB, RV, GM, LN, RB, BrC					
E.1 Discussion of Format and Scheduling with USAID/Ecuador.							x							PD					
E.2 Preparation of draft C.A. and presentation to USAID.							x	x	x	x				PD, NW, JB, RV, GM, LN, RB, BrC					
E.3 Comment/response period and C.A. refinement.									x	x				USAID PD, PD					
E.4 Cooperative Agreement Signing Ceremony											x			USAID & CARE Directors.					
F BEGIN IMPLEMENTATION OF SUBIR.													x	x	x	x	x	x	XXXXXX

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ANNEX II. D

TECHNICAL ASSISTANCE PLAN

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ANNEX II. D
TECHNICAL ASSISTANCE PLAN
SUBIR Phase I

This annex provides lists of the expected technical assistance requirements during SUBIR's Phase I. The first table presents a listing of the long-term Core Staff positions budgeted for fiscal years 92, 93 and 94. The terms of reference for the principal technical positions are provided after this table.

The following three tables present lists of projected Phase I technical assistance needs in each of the subproject areas (Cotacachi-Cayapas, Cayambe-Coca, and Yasuni) by component. Level of effort estimates are provided for each technical area for fiscal years 92, 93 and 94. The tables also provide funding estimates for these technical assistance inputs which have been incorporated in Phase I budgets.

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SUBIR PHASE I
TECHNICAL ASSISTANCE PLAN: CONSORTIUM LONG TERM CORE STAFF
 (Level of Effort in Person-Months)

		FY92	FY93	FY94	TOTAL
Central Office-based Personnel					
Nature Resources Planner/Coordinator **	F	12	12	12	36
Natural Areas Mgmt Specialist	N	12	12	12	36
Anthropologist	N	12	12	12	36
Research Coordinator **	F	12	12	12	36
Administrator	N	12	12	12	36
Information Mgmt. Specialist	N	12	12	12	36
Executive Secretary	N	12	12	12	36
Secretary/Bookkeeper	N	12	12	12	36
Driver/Messenger	N	12	12	12	36
Subtotal		108	108	108	324
Regional Office-based Personnel					
Regional Coordinators (3)	N	36	36	36	108
Extension Coordinators (3)	N	36	36	36	108
Administrative Assistants (3)	N	36	36	36	108
Subtotal		108	108	108	324
Total		216	216	216	648

- * N = Ecuadorian personnel
- F = Extranational personnel

** The Project Coordinator will be an extranational for FYs 92'95; and Ecuadorian thereafter. The Research Coordinator will be an extranational for FYs 92'93, and a national thereafter.

D: SUBIR\PHASE1.WK1

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE
NATURAL RESOURCES PLANNER/PROJECT COORDINATOR

1. The Natural Resources Planner will serve as Project Coordinator for the Management Consortium and will have overall operational responsibility for management of Project activities in Ecuador. S/he will also take the lead in coordinating the *Improved Use of Land and Biological Resources Component*. The Advisor will report directly to the CARE/Ecuador Country Director, and will coordinate with the Consortium's U.S.-based Executive Committee. The Advisor will be fully fluent in Spanish and English.
2. As Project Coordinator, s/he will liaise with GOE, NGO, private-sector, and educational/research organizations in the development of collaborations on proposed project activities and will facilitate these inputs into the Project.
3. Supervise the implementation of the Consortium/USAID SUBIR Cooperative Agreement, exercise control of quality, and ensure that project administration is carried out according to the terms and regulations specified therein; coordinate the management of Project resources in close collaboration with USAID's Project Officer; participate, as required, in periodic USAID meetings concerning strategic planning, semi-annual reviews, and coordination with other Agenda activities.
4. Supervise administrative and financial management tasks through the SUBIR Project Administrator and the CARE country mission (disbursement of funds, accounting, financial reporting, procurement, etc).
5. Take the overall lead in strategic, annual and continual project planning, administration, monitoring, evaluation and reporting systems, and in day-to-day management of project implementation.
6. Supervise SUBIR staff at Central and regional levels, including aspects of their work plans, responsibilities, control of the quality of their work, and in personnel management issues.
7. Maintain continuous contact with the U.S.-based Management Consortium's Executive Committee, and maintain its members fully-informed of Project progress; coordinate member organization's inputs in Ecuador; assist in the preparation of agenda for the Executive Committee's periodic meetings; and collaborate in fund-raising operations in Ecuador and abroad.
8. Supervise SUBIR Regional Coordinators and assist them in

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planning and managing the implementation of activities in their project areas; collaborate in the establishment of the Regional Interorganizational Coordinating Committees (RICC) in each project area and liaise with RICC members as necessary to achieve their participation in the Project.

9. Participate as secretary to the National Interorganizational Coordinating Committee (NICC), prepare its agenda, provide its members with information and insight as to SUBIR objectives and activities, and follow up with its members concerning collaborations in SUBIR activities.
10. As Natural Resources Planner, take the lead in activities under the Improved Uses of Land and Biological Resources Component, with the following responsibilities:
 - * Coordinate aspects of geographic and agroecological information collection/generation, including maps and remote sensing-based products.
 - * Participate with other staff at central and regional levels in aspects of planning, management, monitoring and evaluation as pertains to this component including coordination of component activities in work plans with SUBIR Regional Coordinators.
 - * Prepare terms of reference and scopes of work for collaborators and contractors who will participate in component activities at regional and national levels; and review, evaluate and maintain the quality of tasks performed by these.
11. Participate, as appropriate, in the organization and delivery of seminars, workshops, and training events in Ecuador and other countries, in aspects of project management and coordination, and improved uses of land and biological resources.
12. Together with other SUBIR staff and USAID, manage public relations with local, regional, national and international organizations.
13. Prepare semi-annual and annual reports on project progress, management/administrative actions, the impact of project activities, and accounting of expenditures.
14. The duties under this position will require travel throughout the project outreach area and other regions of the country; approximately 25% of the Advisor's levels of effort will be dedicated to field activities.

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE NATURAL AREAS MANAGEMENT ADVISOR

1. The Advisor will be responsible for the overall coordination and quality control of SUBIR *Protected Areas Management and Ecotourism Components*. S/he will be stationed in Quito and be directly responsible to the SUBIR Project Coordinator. The Advisor is expected to possess fluent Spanish language capability and a working knowledge of English.
2. The Advisor will participate, in concert with other SUBIR staff at national and regional levels, in aspects of Project planning, management, monitoring, evaluation, administration, and the provision of technical assistance as pertains to his/her component--including coordination of component activities in work plans with SUBIR Regional Coordinators.
3. S/he will participate in protected areas diagnostic surveys and ecotourism inventories to be carried out in connection with Project mobilization in selected Project areas.
4. S/he will have the responsibility to prepare terms of reference and scopes of work for GOE and NGO collaborators and contractors who will participate in component activities at both regional and national levels; and will supervise, review, evaluate and maintain the quality of the tasks performed by these.
5. Take the lead in assisting MAG/Department for Administration of Natural Areas and Wildlife in the revision and/or development of management plans for selected protected areas under "Man and the Biosphere Reserve" planning concepts; and provide guidance in the implementation of annual operational work plans.
6. Coordinate SUBIR activities in the development of ecotourism programs and infrastructure including those to be developed as community-based models and those involving private-sector tourism guides agencies and hoteliers.
7. Participate in the organization and delivery of seminars, the workshops, and training events in Ecuador and, as required, in other countries in aspects dealing with assigned components.
8. Liaise with USAID, GOE, NGO, educational/research and private-sector organizations in the coordination of activities corresponding to the Protected Areas Management and Ecotourism Components, and in collaborations with other projects and organizations in Ecuador; especially in terms of complementary funding arrangements on component activities in or adjacent to protect areas (e.g. Debt Swap, Parks-in-Peril, FEPROTUR, IUCN,

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including; terms of reference, work plans and schedules, control of work quality, and annual personnel evaluation.

10. Maintain principal liaison with USAID/Project Officer and Controller concerning the financial/accounting aspects of the Cooperative Agreement.

11. Maintain principal liaison with CARE/Ecuador's Finance Manager and CARE/NY's Grants Coordinator concerning financial and accounting aspects of USAID and CARE funds, and subcontracts with The Nature Conservancy, Wildlife Conservation International, and others as required.

12. Provide training and backstopping of Regional Administrative Assistants, and monitor the quality of their work in accordance with overall CARE and Project administrative and accounting procedures; this activity will require periodic visits to field offices. Also, the Administrator may be called on to participate in administrative capability assessments of SUBIR counterparts, collaborators, and local organizations; and may be required to provide training and assistance to these in order to improve their systems.

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE
RESEARCH COORDINATOR

1. The Advisor will be responsible for the overall coordination and quality control of the SUBIR *Research and Monitoring Component*. S/he will be stationed in Quito and be directly responsible to the SUBIR Project Coordinator. The Advisor is expected to be fluent in English and to possess a minimum Spanish language capability rating of ES/SR 3.0, as this will be the working language.
2. The Advisor will participate, in concert with other SUBIR staff at national and regional levels, in aspects of Project planning, management, monitoring, evaluation and administration as pertains to his/her component--including coordination of component activities in work plans with SUBIR Regional Coordinators.
3. S/he will participate in diagnostic surveys and rapid assessments to be carried out in connection with Project mobilization in selected Project areas.
4. S/he will have the responsibility to prepare terms of reference and scopes of work for collaborators and contractors who will participate in research and monitoring activities at both regional and national levels; and will supervise, review, evaluate and maintain the quality of the tasks performed by these.
5. Take the lead in coordinating research/monitoring methods, data management, and analysis for that information generated; maintain information exchanges with pertinent scientific and development organizations in Ecuador and internationally--especially with other Consortium-member initiatives, e.g. the TNC-supported CDC with CONACUTE, Fundación Natura, the WCI Ecodevelopa Research and Training Program, and the PACA Project in Central America.
6. Coordinate the professional-level training activities envisioned under SUBIR, especially those involving regional and national universities in Ecuador; and in coordination with universities and research and training institutions in the U.S. and other countries.
7. Participate in the organization and delivery of seminars, workshops and training events in Ecuador and, as required, in other countries.
8. Liaise with USAID, GOE, and other organizations in the coordination of activities corresponding to the Research and Monitoring Component and in collaborations with other projects and

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8. Liaise with USAID, GOE, and other organizations in the coordination of activities corresponding to organizational development and community-based training, and in collaborations with other projects and organizations in Ecuador.

9. Prepare periodic progress reports and documentation on component methods and results, diagnostic and baseline surveys, training curricula and modules, and monitoring program results as required; prepare assessments on the achievements in organizational strengthening through capability surveys of participating groups.

10. The position will require travel throughout the project outreach areas and other regions in the country; it is expected that approximately 40% of the Advisor's time will be dedicated to activities in the field.

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE
ANTHROPOLOGIST

1. The Advisor will be responsible for the overall coordination and quality control of the SUBIR Organizational Development Component. S/he will be stationed in Quito and be directly responsible to the SUBIR Project Coordinator. The Advisor is expected to possess fluent Spanish language capability and a working knowledge of English.
2. The Advisor will participate, in concert with other SUBIR staff at national and regional levels, in aspects of Project planning, management, monitoring, evaluation, administration, and the provision of technical assistance as pertains to his/her component--including coordination of component activities in work plans with SUBIR Regional Coordinators.
3. S/he will participate in the design and implementation of diagnostic surveys and rapid assessments to be carried out in connection with Project mobilization in selected Project areas, especially in terms of the organizational capabilities, and socioeconomic and ethno-cultural aspects of potential beneficiaries and implementors.
4. S/he will have the responsibility to prepare terms of reference and scopes of work for collaborators and contractors who will participate in organizational development and community-level training activities at both local and regional levels; and will supervise, review, evaluate and maintain the quality of the tasks performed by these.
5. Take the lead in coordinating project assistance to the strengthening of local community-level (grassroots) organizations, and their advocacy organizations at the regional level (i.e. segundo grado), including such aspects as social promotion and communications methods, group dynamics and organizational strategies, selection and formation of local leaders and technical trainers, community-based conservation education, women in rural development and inter-organizational relationships.
6. Collaborate in activities involving socio-anthropological research and monitoring, including aspects of cataloguing and preservation of indigenous knowledge and cultural history, and concerning the impacts of SUBIR interventions on cultural traditions and current socioeconomic realities.
7. Participate in the organization and delivery of seminars, workshops, and training events in Ecuador and, as required, in other countries.

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UNESCO, Conservation International, WWF, etc)

9. Monitor component activities and prepare periodic progress reports and documentation on management plans and strategies, field-level outputs, the impact of project interventions, and activities and inputs of SUBIR collaborators in component implementation.

10. The position will require travel throughout the project outreach areas and other regions in the country; it is expected that approximately 40% of the Advisor's time will be dedicated to activities in the field.

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SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE
MANAGEMENT INFORMATION SPECIALIST

1. The specialist will have overall responsibility for the establishment and operation of the *SUBIR Management Information System (MIS)*. S/he will be directly responsible to the Project Coordinator but will coordinate daily activities with other SUBIR staff in accordance with their information management needs. The Specialist is expected to possess broad capability in the operation of computer hardware and software applications.

2. Prepare an assessment of information management needs at all project levels, including those for: project planning and evaluation; diagnostic surveys and the SUBIR monitoring program; component specific activities (especially Research and Monitoring); and financial/accounting/reporting systems.

3. Based on the assessment, prepare a program for MIS development, specific hardware and software configurations, and design systems and programs (including fourth-generation custom programs) for each respective MIS module in coordination with relevant staff and consultants, if required. It is expected that at least three principal MIS modules will be developed:

- 1) *Project Management Module.* Templates will be developed to input regional and local organizations's project plans by activity-area subsets (i.e. reserve limits demarcated, soil conservation, training courses, forest under management, nursery production and outplantings, technical assistance services delivered). These will be set up using verifiable indicators (i.e. numerical goals) established for annual work plans, then updated regarding outputs by quarter. This module will be used by project managers for monitoring project progress toward intended benchmarks and goals.
- 2) *Project Administration Module.* Building on CARE's current systems, templates will be established for each subset of budget/expenditures, eg.: ledgers and vouchers, and inventories, physical plant and maintenance (office rentals and rehabilitation), Fund for Special Services operations, vehicle pool, and expendables (combustibles, per diem, and training costs). This module will be used by project administrators to prepare budgets and control/monitor expenditures at the central and regional levels. The module will also generate periodic financial reports required by Consortium members, USAID and GOE.
- 3) *Technical Information Monitoring Module.* Information

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organizations in Ecuador.

9. Collaborate with the Consortium's Management Information Specialist in the development and operation of the SUBIR MIS. in aspects of data management programs development, analyses and output/reporting formats--especially in terms of the diagnostic surveys and rapid assessments (see No. 3 above).

10. Prepare periodic progress reports and documentation on research methods and results, diagnostic and baseline surveys, training curricula and modules, and monitoring program results as required.

11. The position will require travel throughout the project outreach areas and other regions in the country; it is expected that approximately 40% of the Advisor's time will be dedicated to activities in the field.

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generated by baseline studies, research activities, and follow-up impact monitoring and evaluations, will be inputted on commercial data base management and statistical software. In addition, relevant quantitative information already existing on forest resource-use systems, cropping and conservation technologies, harvest production data, socioeconomic parameters of the target population, and results of research and validation trials carried out under SUBIR and other organizations (past and present) will be inputted to the system. This module will make invaluable technical information readily available to researchers and extensionists, and will provide a quantitative and qualitative basis for evaluating the impact of project interventions on a continuum. This same module can be used for the SUBIR Environmental Monitoring Program.

4. The MIS Specialist will coordinate his/her daily activities with the SUBIR Administrator, Core Staff and technical specialists, and CARE/Ecuador's Systems Analyst, and will support their information management needs, including activities of: training in computer/software use; input and analysis of data; preparation of data summaries and reports (including financial/accounting data); and in the inventory, maintenance and troubleshooting/debugging of computer hardware and software programs.

5. Assist project staff and consultants in desktop publishing of extension materials, technical reports and public-relations materials.

6. As required, provide assistance to SUBIR counterparts and collaborators in the development and/or improvement of their management information systems: this may include capability/needs assessments, technical assistance, and/or the provision of training.

SUSTAINABLE USES FOR BIOLOGICAL RESOURCES PROJECT (SUBIR)

TERMS OF REFERENCE
PROJECT ADMINISTRATOR

1. The Project Administrator will be responsible for the development and management of *SUBIR Administrative and Accounting Systems*. These systems will be developed in accordance with existing CARE/Ecuador procedures, and standards and regulations contained in the USAID Cooperative Agreement. The Administrator will be directly responsible to the Project Coordinator but will work in close coordination with CARE/Ecuador Administrative Coordinator and Finance Manager.

2. Act as principal liaison with project counterparts, collaborators, contractors and vendors concerning aspects of budgets, advances/liquidations, receivables/payables, and assurance of their adequate administrative accounting of project funds through the Fund for Special Services.

3. In coordination with CARE's Procurement Manager, maintain overall control of procurement and inventory of project equipment, commodities, furniture, supplies, etc. and prepare periodic reports as required for CARE and USAID.

4. Supervise the maintenance and daily operation of physical plant (office, equipment, warehouses) and vehicles.

5. Maintain control of letters of credit (USAID), books, ledgers, vouchers, cash and check disbursements and transfers, and bank accounts in coordination with CARE's financial office, and prepare semi-annual and annual financial reports as required.

6. In coordination with the Project Coordinator and CARE Administrative Coordinator, participate in the preparation of bid/solicitation documents, collaborative agreements and contracts; and the review, selection and contracting of organizations, firms, and consultants who will provide services under the Project.

7. In accordance with CARE and USAID procedures, and in concert with other Project staff and CARE administrative personnel, prepare annual project budgets (AIP) and maintain continuous updates and revisions as required.

8. Instruct and supervise the Bookkeeper/Secretary as the Administrator's direct assistant in daily accounting and financial activities, including the development of his/her terms of reference, work plans and schedules, control of work quality, and annual personnel evaluation.

9. Supervise the Driver/Messenger in his/her activities,

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TECHNICAL ASSISTANCE PLAN FOR INDIAN WILDERNESS
(Level of Effort in Person-Months)

Short and Medium-Term Personnel (Contract, Consultants, Consultants)

	Origin	FY80	FY81	FY82	TOTAL	1980-81	1981-82	TOTAL
- Organizational Development								
Socio-Anthropologist	A	2	2	2	6	20400	20400	40800
Environmental Educator	A	2	2	2	6	20400	20400	40800
Community Org. Promoter Spec.	F/A	2	2	2	6	24000	21600	45600
Administrative/Accounting Spec.	F/A	2	2	2	6	10000	10800	20800
Promotional/Instructional								
Materials Design Spec.	A	2	2	2	6	9000	9000	18000
Graphic Artist	A	2	2	2	6	18000	18000	36000
Social Promoter (Local)	F	20	20	20	60	24000	24000	48000
Subtotal		34	38	34	106	141000	141000	282000
- Management of Protected Areas								
Parks Mgmt. Specialist	F	2	2	2	6	36000		36000
Forester	F/A	2	2	2	6	12000	7200	19200
Cartographer/Surveyor	M	5	5	5	15	27000	27000	54000
Extension Spec.	F/A	3	3	3	9	12000	12000	24000
Sociologist/Anthropologist	A	2	2	2	6	7200	7200	14400
Archaeologist	A	2	2	2	6	7200	7200	14400
Environmental Engineer	F	2	2	2	6	18000		18000
Ranger/Landmg Spec.	F	2	2	2	6	12000	7200	19200
Public Educator							2000	2000
Field Interns (students)	F	20	20	20	60	21600	21600	43200
Field Assistants (Local)	F	60	60	60	180	21600	21600	43200
Subtotal		117	127	117	361	92000	140400	232400
- Ecotourism Development:								
Ecotourism Specialist	F/A	4	2	2	8	12000	7200	19200
Parks/Natural Areas Spec.	M	2	1	0	3	5400		5400
Sociologist	M	4	1	0	5	9000		9000
Architect	M	2	1	0	3	5000		5000
Tourism Promotion Spec.	F	2	2	2	6	9000		9000
Construction workers (Interp. Center)	F	20	20	20	60	24000		24000
Subtotal		34	26	24	84	120000	29400	149400
- Improved Use of Land/Resources								
Forester	F/A	2	2	2	6	12000	7200	19200
Socioeconomist	A	2	2	2	6	7200	7200	14400
Herpetologist	F	2	2	2	6	10800	10800	21600
Nature Specialist	F	2	2	2	6	7200	7200	14400
Archaeologist	F	2	2	2	6	5400	5400	10800
Ag. Extension Specialist	F/A	2	2	2	6	12000	10800	22800
Processing/Marketing Specialist	F/A	2	2	2	6	6000	9000	15000
Artisan Development Spec.	F/A	4	2	2	8	12000	9000	21000
Extensionist/Assistance (Local)	A	20	20	20	60	21600	21600	43200
Subtotal		37	38	38	113	141000	141000	282000

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	Origin **	FY92	FY93	FY94	TOTAL	Costs (US\$)		
						FX	LC	TOTAL
- Research and monitoring								
Socio Anthropologist	F/A	1	1	1	3			
Ecologist	F/A	1	1	1	3			
Botanist	F/A	1	1	1	3	18000	9000	27000
Ecologist	F/A	1	1	1	3	6000	9000	15000
Forester	F/A	1	1	1	3	12000	9000	21000
Agronomist	F/A	1	1	1	3	12000	9000	21000
Environment Monitoring Spec.	F	1	1	1	3	18000		18000
Agricultural Reform Specialist	M	1	1	1	3		10800	10800
Ethnobiologist	F/A	1	1	1	3	12000	9000	21000
Nat. Resource Economist	F/A	1	1	1	3	6000	9000	15000
Remote Sensing Specialist	F/A	1	1	1	3	24000	11000	35000
Chemist	F	1	1	1	3		3000	3000
Legal Specialist	F	1	1	1	3		3000	3000
Researcher/Student/Students	F/A	1	1	1	3		3000	3000
Field Worker	F	1	1	1	3		3000	3000
Subtotal		90	141	126	359	108000	128000	236000
Total		382	565	572	1519	294000	559200	853200

Technical assistance will be provided in the majority through collaborative agreements and/or contracts with local, national, private-sector, and/or educational/research organizations. The Government will provide technical assistance through personnel of each member's staff and/or individual consultants. In many cases, collaborating organizations will assign their staff personnel, local and national, to project activities. Levels of effort estimates are based on projected needs for technical expertise and extension services; accordingly, these needs may be covered by domestic, international, recruitment, or temporary assignments of personnel.

- * M = Ecuadorian personnel
- F = Extranational personnel

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SUBIR PHASE I
TECHNICAL ASSISTANCE PLAN FOR COTACACHI-CAYAPAS SUBPROJECT
 (Level of Effort in Person-months)

Short and Medium-Term Personnel: Consultants, Collaborators, Contractors*

	Originator	FY90	FY91	FY92	Total	Cost		Total
						F)	LC	
Organizational Development								
Administration/Accounting Spec	F/N	1	1	1	3	6000	3600	9600
Anthropologist/Sociologist	N	4	2	2	8		14400	14400
Resource Management Specialist	N	1	1	1	3		9000	9000
Multidisciplinary Materials Specialist	F	1	1	1	3		5400	5400
Community Organization Specialist	F	1	1	1	3	6000		6000
Teacher Educator	F	1	1	1	3		10800	10800
Social Promoters (local)	N	12	18	18	48		5040	5040
SUBTOTAL		22	25	25	68	12000	48240	60240
Management of Protected Areas								
Park Management Specialist	F/N	1	1	1	3	6000	3420	11400
Biological Reserve Specialist	F	1	1	1	3	14400		14400
Architect	N	1	1	1	3		9000	9000
Remote Sensing Specialist	N	1	1	1	3		5400	5400
Environmental Engineer	F	1	1	1	3	18000		18000
Cartographer	N	3	2	1	6		2160	2160
Anthropologist/Sociologist	N	1	2	1	4		7200	7200
Summer Ints.	F	3	3	3	9		1800	1800
Park Guards	N	20	50	50	120		21600	21600
Field Interns (students)	N	12	12	12	36		12960	12960
Field Assistants (local)	N	30	60	60	150		18000	18000
SUBTOTAL		80	140	127	347	48000	93640	101640
Ecotourism Development								
Ecotourism Specialist	F/N	1	1	1	3	6000	7200	13200
Interpretative Trail Specialist	N	1	1	1	3		1800	1800
Architect	F	1	1	1	3		7200	7200
Biologist Specialist	N	1	1	1	3		5400	5400
Construction Workers (local)	N	15	15	6	36		3240	3240
Field Interns (students)	N	4	4	4	12		2880	2880
SUBTOTAL		23	29	25	48	6000	27720	33720

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	Origins*	FY92	FY93	FY94	Total	Cost		Total
						FY	LC	
Improved Use of Land/Resources								
Forester	N	2	1	1	4		7200	7200
Agroforester	F/N	2	1	2	5	6000	10800	16800
Agronomist	N	1	2	2	5		9000	9000
Sociologist/Anthropologist	N	1	1	1	3		5400	5400
Botanist	N	1	1	1	3		3600	3600
Cartographer	N	1	1	1	3		1800	1800
Artisanry Development Specialist	N	1	1	1	3		2160	2160
Processing/Marketing Specialist	F/N	2	1	1	4	6000	5400	11400
Assistance Cdi. Tec. Guaining	N	24	48	48	120		43200	43200
Field Assistants (students)	N	10	10	10	30		12960	12960
Extension Assistants (local)	N	60	60	60	180		21600	21600
Extension Assistants (local)	N	60	60	60	180		21600	21600
SUBTOTAL		175	226	225	626	12000	154080	166080
Research and Monitoring								
Ecologist	N	4	4	4	12		21600	21600
Forester	N	2	2	1	5		12600	12600
Natural Resource Economist	F	1	1	1	3	18000		18000
Sociologist	N	1	1	1	3		12600	12600
Anthropologist	N	1	1	1	3		12600	12600
Anthropologist/Sociologist	N	6	4	2	12		21600	21600
Land Tenure Spec	N	1	1	1	3		7200	7200
Agronomist	N	1	1	1	3		10800	10800
Research Assistants (students)	N	26	34	24	84		30240	30240
Field Assistants (local)	N	30	60	60	150		18000	18000
SUBTOTAL		79	115	98	292	18000	147240	165240
TOTAL		363	535	485	1383	46900	460120	556920

* Technical assistance will be provided in the majority through collaborative agreements and/or contracts with GDE, NGO, private sector, and/or educational/research organizations. The Consortium will provide assistance through personnel of each member's staff and/or individual consultants. In many cases, collaborating organizations will assign their staff personnel (GDE, NGO) full-time to project activities. Level of effort estimates are based on projected needs for technical expertise and extension services; accordingly, these needs may be covered by short-term, intermittent, medium-term or long-term assignments of personnel.

** N = Ecuadorian personnel.
F = Extranational personnel

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SUBPHASE I
TECHNICAL ASSISTANCE PLAN FOR CAYANBE-COCA SUBPROJECT
 Level of Effort in Person-Months

Short and Medium-Term Personnel (Consortium, Collaborators, Contractors)*

	Origin**	FY92	FY93	FY94	Total	Cost		Total
						Fx	LC	
Organization Development								
Trainer/Educator	N	2	2	2	6		10800	10800
Community Organization Specialist	N	2	2	2	6		10800	10800
Materials Design Specialist	N	2	4	4	10		18000	18000
Administrative/Accounting Spec	N	2	2	2	6		9000	9000
SUBTOTAL		8	10	10	36		48600	48600
Management of Protected Areas								
Parks Management Specialist	F/N	2	2	2	6	12000	7200	19200
Biosphere Reserve Specialist	F	1	1	1	3	18000		18000
Cartographer	N	2	2		4		9000	9000
Hydrology Engineer	N	1	1		2		5400	5400
Geographer	F	1	1		2		5400	5400
Soil Scientist/Anthropologist	F	1	1		2		5400	5400
Biologist	N	1	2		3		5400	5400
Trainer/Educator	N	2	2	2	6		10800	10800
Field Interns (students)	N	30	60	150	240		56160	56160
Field Assistants (local)	N	60	120	120	300		36000	36000
SUBTOTAL		107	187	281	480	20000	140760	170760
Ecotourism Development								
Ecotourism Management specialist	N	1	2	2	5		9000	9000
Ecotourism Promotion Specialist	N	1	1	1	3		5400	5400
Exhibits Specialist	F/N		3	3	6	12000	5400	17400
Interpretive Trail Specialist	N		2		2		5400	5400
Archaeologist	N	1	1		2		3600	3600
Field Interns (students)	N		15	15	30		10800	10800
Field Assistants (local)	N	30	60	60	150		18000	18000
SUBTOTAL		32	81	81	194	12000	37600	49600
Improved Use of Land/Resources								
Food Culture Specialist	N	3	3	3	9		16200	16200
Agricultural Processing Specialist	N	3	3	3	9		16200	16200
Handicrafts and Artisanry Spec.	N	3	3	3	9		16200	16200
Agroforester	F/N	2	3	3	8	6000	10800	16800
Soil Scientist	N	2	1	1	4		7200	7200

	Origin**	FY92	FY93	FY94	Total	Cost		Total
						FX	LC	
Nursery Specialist	M	1	1	1	3		5400	
Horticulture Specialist	M	2	2	0	4		7200	
Processing/Marketing Specialist	F	1	1	1	3	18000		18000
Trainer/Educator	M	2	2	2	6		10800	10800
Sociologist/Anthropologist	M	2	2	2	6		10800	10800
Agronomist	M	6	12	12	30		10800	10800
Field Extensionists	M	2	2	2	6		32400	32400
Field Assistants (students)	M	18	36	36	90		32400	32400
Field Assistants (local)	M	120	240	240	600		72000	72000
SUBTOTAL		167	311	308	786	24000	218400	252600

Research and Monitoring

Agronomist	M	2	2	2	6		10800	10800
Nature Resource Economist	F	1	1	1	3	18000		18000
Ecologist	M	4	4	4	12		21600	21600
Zoologist	M	4	4	4	12		21600	21600
Botanist	M	6	6	6	18		32400	32400
Ethnobotanist	M	3	3		6		10800	10800
Anthropologist	M	2	2	1	5		9000	9000
Archaeologist	M	1	2		3		5400	5400
Agroforester	M	1	2		3		5400	5400
Land Tenure Spec	M	1	1	1	3		5400	5400
Forester	M	3	3	3	9		16200	16200
Research Assistants (students)	M	18	18	18	54		19440	19440
Field Assistants (local)	M	30	60	60	150		18000	18000
SUBTOTAL		76	108	100	284	18000	176040	194040

TOTAL **390** **711** **779** **1748** **84000** **671400** **735600**

* Technical assistance will be provided in the majority through collaborative agreements and/or contracts with GOE, NGO, private sector, and/or educational/research organizations. The Consortium will provide assistance through personnel of each member's staff and/or individual consultants. In many cases, collaborating organizations will assign their staff personnel (GOE, NGO) full-time to project activities. Level of effort estimates are based on projected needs for technical expertise and extension services; accordingly, these needs may be covered by short-term, intermittent medium-term or long-term assignments of personnel.

** M = Ecuadorian personnel
F = Extranational personnel

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ANNEX II. E

**MAPS, DATA SUMMARIES, AND
ORGANIZATIONAL PROFILES**

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ANNEX II.E

MAPS, DATA SUMMARIES, AND ORGANIZATIONAL PROFILES

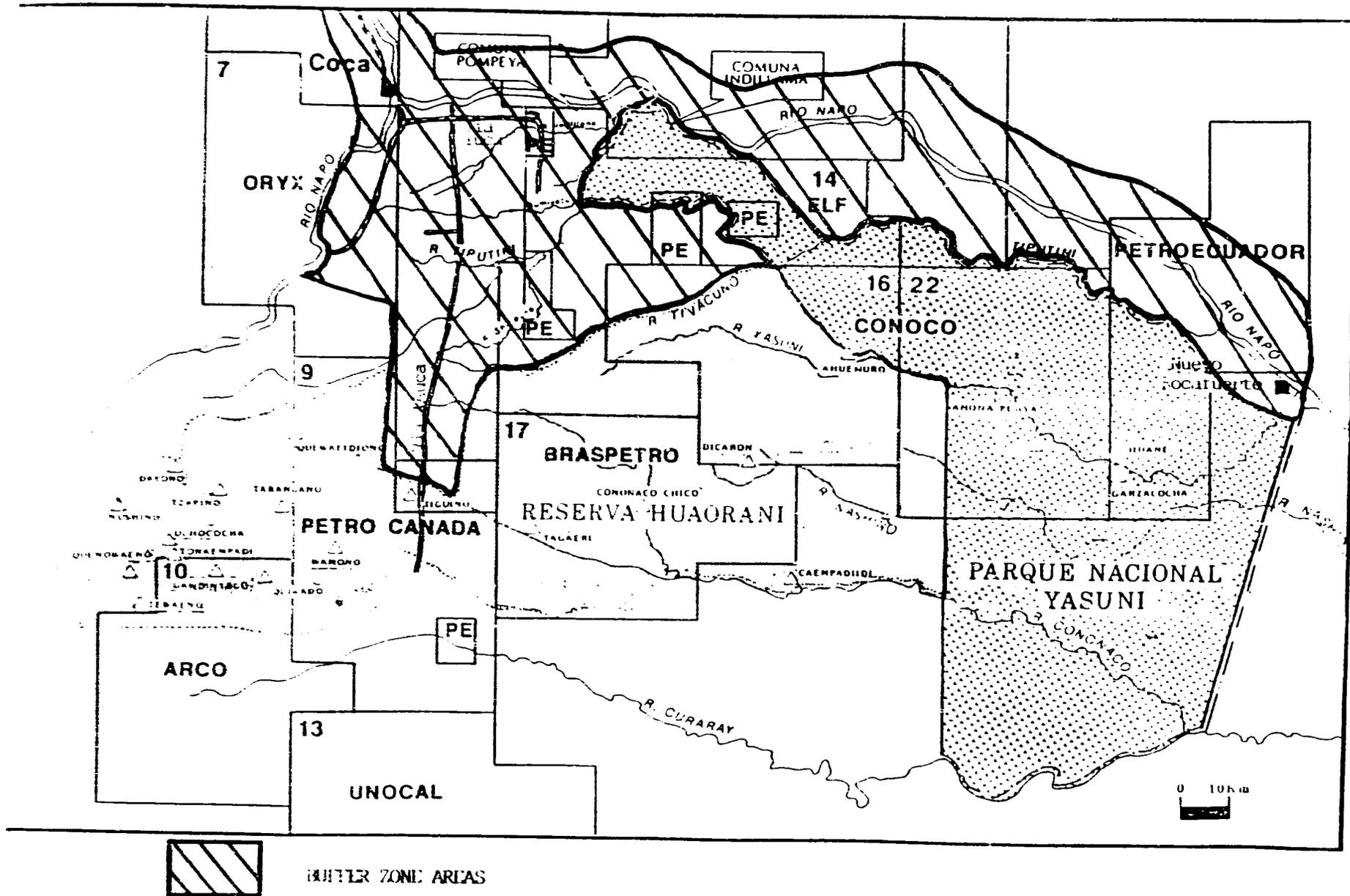
This annex includes supporting information which provides more detail on SUBIR Phase I subproject areas.

- * A map is presented for subproject areas--Cotacachi-Cayapas, Cayambe-Coca, and Yasuni-- including the limits of the protected areas and tentative buffer zones (zones of influence).
- * A table presents the most recent census data available for subproject areas by *canton*, and gives the location indigenous groups.
- * The following table provides profiles of (selected and/or potential) collaborators and implementors/beneficiaries in SUBIR activities. Each organization is listed along with their area of collaboration by subproject area.

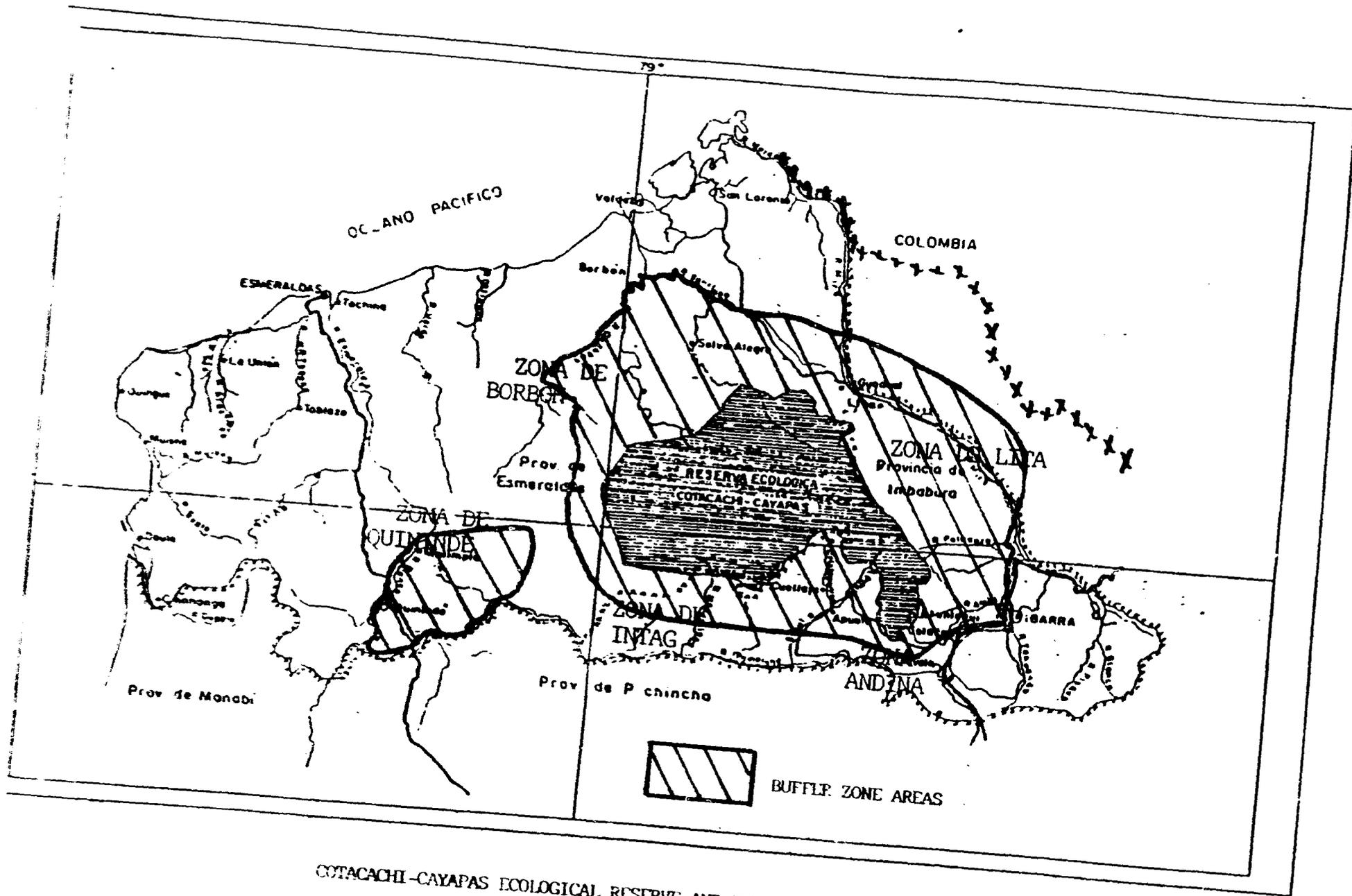
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SUBIR PEACE I: YASUNI NATIONAL PARK AND BUFFER ZONE

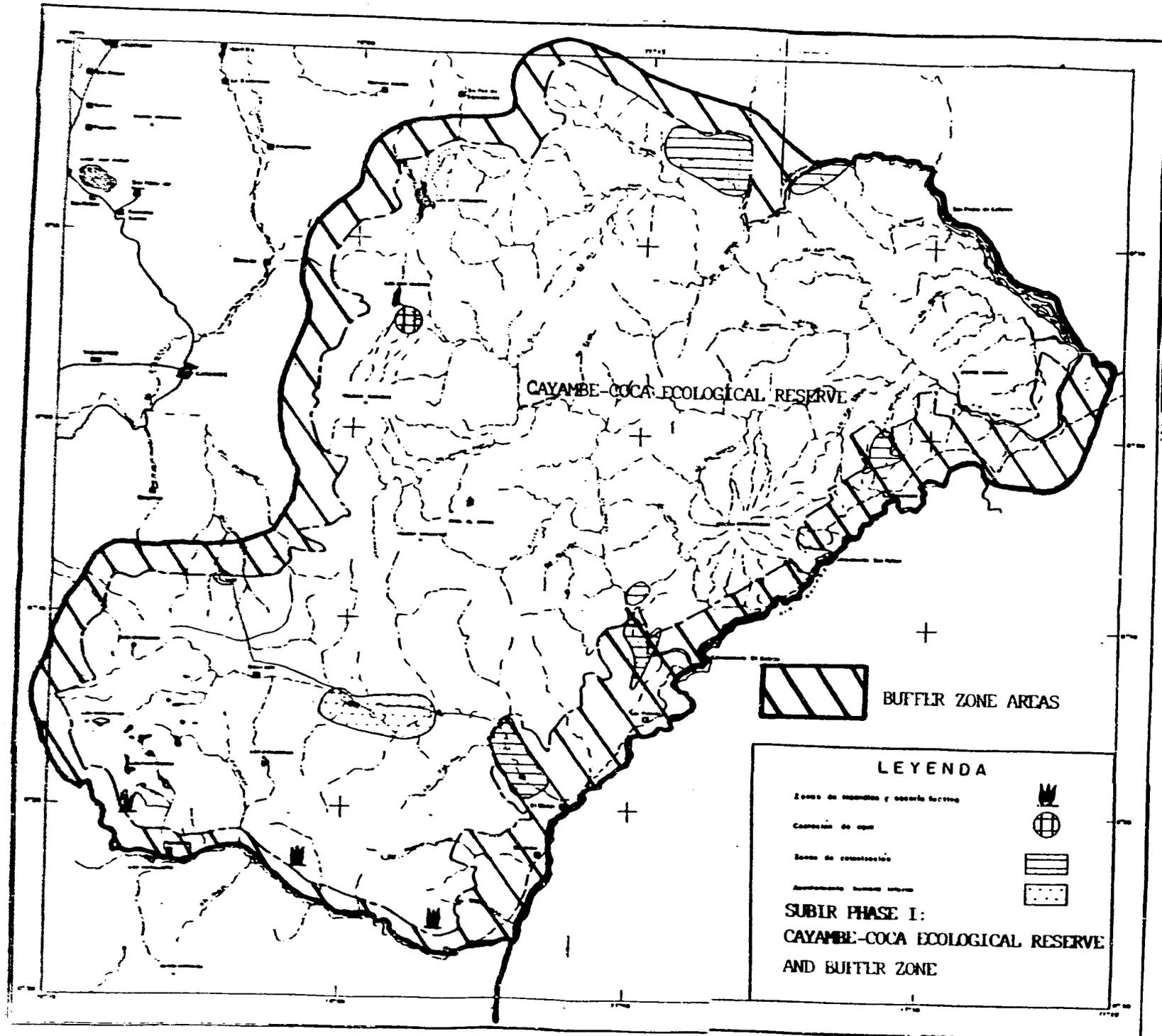


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COTACACHI-CAYAPAS ECOLOGICAL RESERVE AND BUFFER ZONE

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 BUFFER ZONE AREAS

LEYENDA

Zonas de inundación y acorralco forestal	
Cuerpos de agua	
Áreas de construcción	
Asentamientos humanos actuales	

**SUBIR PHASE I:
CAYAMBE-COCA ECOLOGICAL RESERVE
AND BUFFER ZONE**

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Census of SUBIR Project Area Population by Gender and Ethnic Group
 Provisional Data: Census 1991

CANTON TOTAL	Urban Area			Rural Area			
	URBAN + RURAL	Total Pop.	Male	Female	Total Pop.	Male	Female
COTACACHI-CAYAPAS RESERVE							
Esmeraldas Province							
Canton Elay Alfaro							
					4,276	2,226	2,050
					1,777	952	825
					1,243	624	619
					1,314	710	604
					2,159	1,135	1,024
Canton San Lorenzo							
		11,199	5,500	5,699			
					494	490	412
					1,045	515	530
					107	100	107
					475	259	216
					107	104	100
					301	345	286
					926	471	449
Manabí Province							
Canton Guano							
					1,133	610	523
					1,400	701	699
Canton Cotacachi							
		5,046	2,366	2,680			
					2,566	1,436	1,130
					2,480	1,05	887
Canton Píquiu							
					1,540	853	687
TOTAL	42,400	17,244	8,366	8,878	25,156	13,283	11,873

CAYANBE-BOGA RESERVE	GRAND TOTAL		Urban Area		Rural Area			
	URBAN	RURAL	Total Pop.	Male	Female	Total Pop.	Male	Female
Iacabamba Province								
Canton Bonanza (M)								
Mariano Acosta (Q)						2,386	1,159	1,227
Sigüesama (Q)						2,217	1,141	1,076
Pichincha Province								
Canton Quito								
El Quinche (Q-M)						6,775	3,361	3,414
Pifo (Q)						6,402	3,202	3,200
Canton Cavanche								
Cayambe (Q-M)			16,946	8,240	8,706			
Canganua (Q)						3,308	1,879	1,429
Chimbo (Q)						3,724	1,822	1,902
Napó Province								
Canton El Chaco								
El Chaco (M)			1,699	399	300			
Gonzalo Diaz Pineda (M)						396	262	134
Linares (M)						190	31	35
Oyacachi (Q)						235	195	190
Santa Rosa (M)						730	304	426
Sardinas (M)						507	269	238
Canton Quijos								
Baños (M)			797	407	390			
Cosanga (M)						434	250	174
Cuyuja (M)						408	224	134
Papallacta (M)						312	301	211
San Francisco Borja (M)						1,422	751	669
Sucumbios Province								
Canton Gonzalo Pizarro								
Cumbalqui (M-Of)			782	408	374			
El Revencador (M)						1,306	714	592
Gonzalo Pizarro						1,280	685	595
Puerto Libre (Q)						342	193	149
TOTAL	61,822	20,224	20,224	9,954	10,270	41,598	21,014	20,584

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YACUJI NATIONAL PARK	GRAND TOTAL		Urban Area		Rural Area			
	URBAN	RURAL	Total Pop.	Male	Female	Total Pop.	Male	Female
Sucumbios Province								
Canton Shushufindi								
						2,482	1,724	758
						231	130	101
Yapo Province								
Canton Orrellana								
			7,305	4,140	3,165			
						7,397	4,036	3,361
						4,472	2,542	1,930
Canton Guarico								
			387	212	175			
						1,112	701	411
						171	102	69
Canton Nova de las Bachas								
						1,173	705	468
						1,391	1,025	666
						200		
TOTAL								
			23,359	13,190	10,169	20,569	11,197	9,372

(AF) - Afrocuaatoriano

- Ch - Chachi
- Q - Quichuas
- Ch - Chachi

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SUB-IP PHASE 1: PROFILES OF POTENTIAL COLLABORATORS IN PROJECT ACTIVITIES

ORGANIZATIONS	POTENTIAL COLLABORATION	PROJECT AREAS		
		YNP	RECAJ	RECC
1. LOCAL COMMUNITY AND ADVOCACY ORGANIZATIONS				
Asociación Purisocoma	Ecotourism community project.		X	
Asociación de Trabajadores Autonomos 9 de Octubre, Sapallo Grande	Agroforestry management; Organizational and extension training; Tropical agriculture development.			X
Asociación Terra, Patate	Development of recreation facilities and courses.		X	
Comunidad Cuellaje	Development of community organizations; Socio-economic consciousness raising; agroforestry.			X
Comunidad Santa Lucia de Bermejo	Development of community organizations; Socio-economic consciousness raising; Land defense and adjudication; ecotourism.		X	
Comunidad San Miguel	Development of community organizations; Socio-economic consciousness raising; Land defense and adjudication; ecotourism.			X
CONAIE - Confederación de Nacionalidades Indígenas del Ecuador	Strengthening of indigenous organizations Bilingual Education. Participant in dialogue between indigenous groups, NGOs and GOE;	X	X	X
CONFENIAE - Confederación de Nacionalidades Indígenas de la Amazonia Ecuatoriana	Maintenance of indigenous organizations, cultural traditions and lands; educational programs and fulfill agricultural projects in the Amazon.	X	X	
Comuna Rio Santiago-Cayapas	Timber and forest management; local and regional marketing of wood and tagua; Tropical agriculture development and fairs development.			X
Comuna Jurídica Cayacachi	Forest management and artisanry; Organizational development; Enforcement of traditional marketing system.		X	
Comuna Añangu	Development of a community-based tourism operation	X		
Colegio Técnico Agropecuario Quinindé	Agricultural, agroforestry and forestry extension. Technical training to local communities.			X

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ORGANIZATIONS	POTENTIAL COLLABORATION	PROJECT AREAS		
		YNP	RECAT	RECC
FCUMAE -Federación De Comunidades Union de nativos de la Amazonia Ecuatoriana	Development of community organizations; Socio-economic consciousness raising; Land defense and adjudication; Natural resources management, agroforestry artisanry and tourism program facilitation.	X		
Federación Chachi	Organizational and ecological consciousness raising. Development of economic, artisanry and timber projects.			X
Federación de Centros Shuar-Achuar	Development and diffusion of educative materials. Training of trainers in organizational strengthening and project administration; agroforestry practices.	X		
Fundación Comunal para el Desarrollo de la Zona Norte de Esmeraldas	Social and organizational strengthening; Training in economic activities; forest management and micro industry.			X
ONAE - Organización de la Nacionalidad Huasteca de la Amazonia Ecuatoriana	Social and organizational development activities; land and reserve advocacy, and boundary demarcation.	X		
OII - Organización Indígena de Limoncón	Development of community organizations; Socio-economic consciousness raising; Land defense and adjudication; Natural resources management; agroforestry artisanry and tourism program facilitation.	X		
Pichincha Pichanimu	Development of organizational strengthening, bilingual and activities.			X
Pre-Comuna Sto. Domingo de Onzole	Socio organizational activities; communal forest resources management; economic projects.			X
USAC - Unión de Campesinos Agricultores Ecuatoriana	Secure land tenancy; Organizational strengthening and consciousness-raising; Soil conservation, nurseries in agroforestry and horticulture.			

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ORGANIZATIONS	POTENTIAL COLLABORATION	PROJECT AREAS		
		YNP	RECA	RECC
2. ECUADORIAN NON-GOVERNMENTAL ORGANIZATIONS				
ANEPI, Asociación Nacional de Empresarios de la Pequeña Industria Maderera	Training and technical assistance Small-scale forest industry.	X		X
COPMADERA - Corporación Maderera	Research and training in forest and timber management, and marketing.	X		X
CECECO-Centro Ecuatoriano para el Desarrollo de la Comunidad	Training and nonformal education to the popular sectors; Socio-cultural and economic diagnoses; Small community projects in community organization, and marketing activities.			
CAAP - Centro Andino de Acción Popular	Training and research in order to improve forestry and soil conservation activities		Y	
CEPP - Centro de Educación y Promoción Popular	Development of didactic materials and curricula in environmental education	X	X	Y
CEPE/PROMUSTA - Proyecto Manejo de Uso Sostenible de las Tierras Andinas	Training and orientation in improved agriculture, soil conservation and agroforestry; Training and orientation in extension methodologies.			X
CEHAPIA - Centro de la Pequeña Industria Artesanal	Training in artisanry techniques and development of markets.	Y	X	
CEISA, Centro de Investigación de Desarrollo Socio Ambiental	Organizational development; Ripaie management; Agroforestry and marketing activities.	Y		X
COMUNICEC - Sistemas de Investigación y Desarrollo Comunitario	Radic-rural appraisal; Organizational development; Publishing educational materials.			
CEISE, Corporación Ecuatoriana de Investigación y Servicios Comunitarios	Human resources development and organizational training.	X	Y	Y
CESA - Central Ecuatoriana de Servicios Agrícolas	Organization strengthening; Pasture and crop management.			
CECIME, Centro de Documentación e Investigación sobre los Movimientos Sociales en Ecuador	Strengthening of indigenous organizations; socio-economic consciousness raising and research; artisanry program fabrication.		Y	
ECOCIENCIA - Fundación Ecuatoriana de Estudios Ecológicos	Research and training to professionals and students in field biology and ethnology; natural resources management.	Y	Y	X

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ORGANIZATIONS	POTENTIAL COLLABORATION	PROJECT AREAS		
		YHP	RECY	RECC
EPN, Escuela Politécnica Nacional.	Research on extractive species; food technology, and processing techniques	X		X
FUNDEAL - Fundación para el Desarrollo Alternativo	Training and organizational strengthening; Socio-cultural and economic diagnosis/surveys; Participatory appraisal in rural activities.	X		X
FUNDAGRO - Fundación para la Investigación Agropecuaria	Research and training in selected annual and perennial crops, cattle and pasture management, and marketing		X	X
FERR - Fondo Ecuatoriano de Población Progresista	Agroforestry, conservation and soil rehabilitation, local produce marketing.	X		
Fundación Artesana	Development of management plans, scientific diagnose and interorganizational cooperation, local organization training.		X	
FEPROTUP - Federación Ecuatoriana de Promoción Turística	Ecotourism inventories and investment plans; Promotion of tourism attractions and facilities within the natural areas; Training to natural guides; Publishing of touristic information	X	X	X
Fundación IDEA	Farming systems and resource management research; Policy analysis and dialogue; Case studies of land tenure arrangements.			X
F.F. Fundación Natura	Environmental consciousness-raising education and training; Policy analysis and dialogue between NGOs and GOE; Development of environmental educational materials.			
Fundación Natur Sabra	Ecological research; Research station management.	X		X
FUNCSO, Facultad Latinoamericana de Ciencias Sociales	Professional and specialized training in social sciences; Research on natural resources management and policies.	X	X	X
Fundación Forestal, Durán	Training in reforestation techniques and nursery management			X
FUNDECO - Fundación para el Desarrollo Ecológico	Community level technical assistance and training services.	X		
Fundación Andes	Research and training on native species management; research on improvement and processing of chontaduro.		X	
FUNDEPA - Fundación para el Desarrollo de Recursos Humanos	Organizational Development and technical extension services.	X		

ORGANIZATIONS	POTENTIAL COLLABORATION	PROJECT AREAS		
		TNP	REGAY	RECC
ATI-PROFORS - Proyecto forestal de Sucumbios	Agroforestry and silvopastoral practices. Nurseries and silviculture techniques.	X	X	
Herbario Nacional	Botanical research, and seed germination identification and maintenance of collections	X	X	X
Instituto Tecnológico Raúl Prebisch	Training for tourism and nature guides; develop instructional materials.	X	X	
La Sopea	Development of artisanal techniques and potential markets			
Mision Capuchina, Hermanos Franciscos de Orellana	Facilities, garden and nutrition programs; socio-organizational activities; archeological historical and cultural interpretation; bilingual education and publishing of didactic material.			
Sociedad Entomologica Ecuatoriana	Invertebrate studies and maintenance of collections.	X	X	
Instituto Científico de Ecuador	Ethnobiological research; Training of students and professionals in field research methods; Research station management.			
Universidad Técnica Luis Vargas Torres	Forest inventories and training of students in resource management.			X
Universidad Tecnológica del Norte - Ibarra	Community and natural resource diagnostic studies, forest inventories, training of students in resource management.			
UTE - Universidad Tecnológica Ecuinoccial	Tourism studies and inventories. Training of local guides	X	X	X

ORGANIZATIONS	POTENTIAL COLLABORATORS	PROJECT AREAS		
		YNP	RECAT	RECC
3. GOVERNMENTAL ORGANIZATIONS				
Alicaldía de Nuevo Rocafuerte	Interorganizational coordination; analysis of laws; environmental education; waste disposal; pollution control; and community infrastructure and services.	X		
DIRSEN - Centro de Levantamientos Integrados de Recursos por Sensores Remotos	Resources inventories and monitoring through remote sensing; Environmental monitoring; Assessment of colonization frontiers.	X	X	X
IEFIP - Corporación Ecuatoriana de Turismo	Tourist Law reinforcement; Training and licensing tourist and natural guides; development of tourist facilities and interpretation centers.	X	X	X
OP-MBS - Desarrollo Rural Integral Ministerio de Bienestar Social	Local organization strengthening; Training and extension methodology; regional planning		X	X
INAC - Dirección Nacional de Valores y Catastros	Land titling and valuation.	X	X	X
Colaboración - Armas Focales	Conservation education and consciousness-raising; Control of wildlife traffic and illegal timber extraction; Reforestation activities.	X	X	X
EMAP-Q - Empresa Municipal de Agua Potable Quito	Watersheds protection and management.			
INORAE - Instituto de Colonización de la Región Amazónica Ecuatoriana	Technical analysis of the colonization program; Agroforestry and silvopastoral practices.	X	X	X
IERAC - Instituto Ecuatoriano de Reforma Agraria y Colonización	Execution of Reforma Agraria programs and projects; Reversion and expropriation of parcels; administrative procedures for land acquisition; Protected areas delimitation and boundary marking; Training on Reforma Agrarian Law and rights.	X	X	X
INIAF - Instituto Nacional de Investigaciones Agropecuarias	Research and training on cattle, pastures and crops management.	X	X	X
Municipalidad de Francisco de Orellana - Loja	Interorganizational coordination; analysis of laws; environmental education; waste disposal; pollution control; and community infrastructure and services.	X		

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ORGANIZATION	POTENTIAL COLLABORATION	PROJECT AREAS		
		YNP	RECAJ	RECC
MEM - Ministerio de Energía y Minas	Enforcement of the environmental sound (natural) and petroleum development practices.	X	Y	X
Ministerio de Industrias, Comercio Integración y Pesca	Biological research and training in conservationist fishing practices.	X	X	X
Municipio de Guajes	Interorganizational coordination; Analyses of laws; Environmental education; Waste disposal and Pollution control; Community infrastructure and services.		X	
Municipio de Francisco de Orellana - Coda	Interorganizational coordination; Analyses of laws; Environmental education; waste disposal and Pollution control; Community infrastructure and services.			
Municipio de Tena	Interorganizational coordination; Analyses of local laws; Environmental education; waste disposal and Pollution control; Community infrastructure and services.			
MEC, Ministerio de Educación y Cultura Direccion Nacional de Educación Bilingüe.	Bilingual education; Didactic tools and instructional materials; curricula analysis.			
PETROECUADOR, unidades de Protección Ambiental	Rational oil exploitation and environmental management. Colonization control around oil fields; Environmental monitoring; Community infrastructure development.	X	X	
PRONAREG	Potential Land Use Studies.	X	X	X
SECAF, Servicio Ecuatoriano de Capacitación Profesional	Training in: accounting, business administration, service-sector employment and wood working.	X	X	X
UTEPA-Unidad Técnica del Plan Awa, Federación Awa	Development of Awa-Cotacachi Cayapas Ecosphere Reserve; Land use improvements in buffer zone and training in agroforestry; nutrition programs.			X

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ORGANIZATIONS	POTENTIAL COLLABORATORS	PROJECT AREAS		
		YHP	RECAV	RECC
4. INTERNATIONAL ORGANIZATIONS				
Cultural Survival	Maintenance and/or rescue of cultural knowledge and traditions; Socio-cultural research; organizational development advocacy, and interorganizational facilitation.	X	X	
CRS - Catholic Relief Services	Land adjudication negotiations; Economic projects.	X	X	X
Continental Oil Company-COMOCO/DUPONT	Environmental management in oil fields; Community infrastructure development and finance; management of protected areas; finance of research station.	X		
Ecological Trading Company	Training and Technical Assistance in community forest management and timber marketing.	X		X
FAO - Food and Agricultural Organizations of the United Nations	Communal forestry and agroforestry development; Conservation education materials modules for Armed Forces; Develop promotional and training materials and audiovisuals; cooperative training events.		X	X
KfW - Kreditanstalt für Wiederaufbau	Potential biological resources management.	X		
LASPAU - Latin America Scholars Partnership with American Universities	Professional advance education and research programs.	X	X	X
LIGHTHAWK, The Wings of Conservation	Aerial reconnaissance to monitor the boundaries of reserves and parks, colonization frontiers, timber activities, petroleum extraction activities and detection of environmental contamination.	X	X	X
Missouri Botanical Garden	Botanical research species identification and collection maintenance; Training in conservation biology, botanical research methods; forest inventories at the community level.	X	X	X
New York Botanical Garden	Ethnobotanical research; specimen identification and maintenance; Research on extractive activities.	X	X	X

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ORGANIZATION	POTENTIAL COLLABORATION	PROJECT AREA		
		TWP	RECA	RECC
ITS, Organization for Tropical Studies	Collaborative program, research and scientific training.	X	X	X
Peace Corps	Technical Extension Support in all components activities.	X	X	X
Smithsonian Institute	Development of biological resources research center program.	X	X	X
WWF - World Wildlife Fund	Co-financing of natural areas planning and protection ; Institutional development; Debt swap; Interorganizational cooperation.	X	X	
WRI - World Resources Institute	Methodologies and training in rapid rural appraisal; Case studies of common property management.	X	X	X

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PROTECTED AREAS MANAGEMENT: PRESCRIBED ACTIVITIES FOR
PHASE I PROJECT AREAS

ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
COTACACHI-CAYAPAS ECOLOGICAL RESERVE		
1. PROTECTED AREA MANAGEMENT PLANS		
<ul style="list-style-type: none"> - Developing a methodology for plan evaluation - Prepare a new master plan - Creation and Planning of Biosphere Reserve for Cotacachi-Cayapas/Am 	<p>SUFOREN, RECC authorities/ SUFOREN, RECC authorities and local communities/UTEPA</p>	<p>ECOCIENCIA MAD/UNESCO</p>
2. RENOVATION AND INFRASTRUCTURE DEVELOPMENT		
<ul style="list-style-type: none"> - Identification of critical sites - Revised boundary determination via Ministerial decree - Clearing of boundary line (50Km) - Construction of one guard post - Construction of 10 refuges - Acquisition of audiovisual and other didactic materials 	<p>RECC authorities/Local Communities SUFOREN RECC authorities and local communities Reserve personnel Reserve personnel and scientists RECC authorities and visitors</p>	<p>IERAC, CLIRSEN IERAC</p>
3. ORIENTATION AND TRAINING OF RESERVE PERSONNEL		
<ul style="list-style-type: none"> - Training workshop/seminars - Production of audiovisual material - Publication of training materials 	<p>Reserve personnel/FN Reserve personnel/FN Reserve personnel/FN</p>	<p>FEPROTOUR CETUR</p>
4. ESTABLISHMENT OF COMMUNITY-BASED ENVIRONMENTAL MONITORING NETWORK		
<ul style="list-style-type: none"> - Orientation of local and regional groups - Constitution of community-based environmental monitoring network - Establishment of early warning communication network 	<p>Local communities/SUFOREN RECC authorities, Local Communities Local communities/RECC authorities</p>	<p>CEISE F. NATURA Fundación Comunal para el Desarrollo de la Zona Norte de Esmeraldas, Iglesia Católica CIBESA</p>

ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
CAYMBE-COCA ECOLOGICAL RESERVE		
1. PROTECTED AREA MANAGEMENT PLANS		
- Evaluation of existing master plan and develop a new management plan	SIFOREN, RECAV authorities, visitors/FUNAM, ECOCIENCIA	ENAP-Q, IERAC, CETUR, FEPROTUR, PUCE, Local ecological groups
- Contract field extensionists to work with the surrounding communities	RECAV authorities and local communities/ PROMUSTA	
- Workshop to prepare a management plan for water uses within the Reserve	Local communities, surrounding towns and the city of Quito/ENAP-Q	PROMUSTA, FUNAM, INERMI, INECEL
- Workshop to prepare a plan for grassing in the paramos	Local communities and RECAV authorities/ PROMUSTA	INIAP
2. DEMARCATION AND INFRASTRUCTURE DEVELOPMENT		
- Identification of critical sites and clearing and signalize of boundary line	RECAV authorities, local communities/ SIFOREN, IERAC	
- Construction of 5 refuges	Reserve personnel and scientists/ local communities	
3. ORIENTATION AND TRAINING OF RESERVE PERSONNEL		
- Workshop/seminars for Reserve personnel	RECAV personnel/SIFOREN and FM	CECIA, ECOCIENCIA, FUNAM
- Production of audiovisual materials	RECAV personnel/FM	TV program producers, CECIA, ECOCIENCIA
- Publication of training materials	RECAV personnel/FM	CECIA, ECOCIENCIA
4. ESTABLISHMENT OF COMMUNITY-BASED ENVIRONMENTAL MONITORING NETWORK		
- Organization of local ecological groups	Local communities and RECAV/FUNAM	COMUNIDEC and Pichincha Riccharioni
- Constitution of community-based environmental monitoring network	Local communities and RECAV authorities/FUNAM	COMUNIDEC and Pichincha Riccharioni
- Establishment of early warning communication network	Local communities and RECAV authorities	

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
YASUNI NATIONAL PARK		
1. PROTECTED AREA MANAGEMENT PLANS - Evaluate the existing management plan - Development and Implementation of Yasuni Biosphere Reserve Master Plan	YNP authorities, FCUNAE/ SIFOREN	WWF, Oil Companies, PETROECUADOR ECOCIENCIA, MRI
2. DEMARCATION AND INFRASTRUCTURE DEVELOPMENT - Survey and demarcate critical boundaries	YNP authorities, SIFOREN/FCUNAE	IERAC, INCRAE, CONFENATE, UCAO, Fuerzas Armadas, OMAE
3. ORIENTATION AND TRAINING OF PARK PERSONNEL - Recruit, train and equip park rangers and community extensionists	Park personnel, SIFOREN/FN	ECOCIENCIA, PUCE, FEPROTUR WWF, CI
4. ESTABLISHMENT OF COMMUNITY-BASED ENVIRONMENTAL MONITORING NETWORK - Workshop/seminars to organize local communities - Establishment of ecological groups - Establishment of a monitoring network between community representatives - Establishment of early warning communication network	ECOCIENCIA, PUCE, FN, FCUNAE/UCAO Local communities, YPN authorities and Local communities YPN authorities, local communities	Misión Capuchina Fuerzas Armadas INCRAE MAG-COCA, PETROECUADOR MAG-Coca, PETROECUADOR

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ECOTOURISM DEVELOPMENT: ACTIVITIES PRESCRIBED FOR
PHASE I PROJECT AREAS

ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
<p>-----</p> <p>COTACACHI-CAYAPAS SUBPROJECT AREAS</p> <p>-----</p>		
<p>1. ECOTOURISM INVENTORY AND EVALUATION</p> <ul style="list-style-type: none"> - Detailed examination of the RECC's tourism potential - Categorize and prioritize tourism attractions 	<p>RECC authorities, tourism operators, visitors and local community/FEPROTUR RECC authorities/FEPROTUR</p>	<p>CETUR, MTEPA, ECOCIENCIA, Universidad Técnica del Norte, Universidad Técnica Luis Vargas Torres/UTE</p>
<p>2. DEVELOPMENT OF COMMUNITY-BASED PROGRAMS</p> <ul style="list-style-type: none"> - Development of a Community Ecotourism Center in San Miguel - Workshop/seminars to organize local people 	<p>Local community, tourism operators, visitors and RECC authorities Federación Chachi, Black communities</p>	<p>CETUR, FEPROTUR, Missouri Botanical Garden CIQESA/FUNDEAL</p>
<p>3. ECOTOURISM INFRASTRUCTURE DEVELOPMENT AND SUPPORT</p> <ul style="list-style-type: none"> - Construction of Interpretative Trails and Sites - Construction of Interpretative Center in Cascocha - Publication of Maps and Site Guides - Publication of Natural History Guidebooks including Lists/Descriptions of Flora and Fauna 	<p>SUFOREN/FEPROTUR RECC authorities, local communities/FEPROTUR, SUFOREN FM/ECOCIENCIA, CECIA FM/ECOCIENCIA, CECIA</p>	<p>CETUR CETUR IGN Missouri and New York Botanical Garden, CDC-COMACYT</p>
<p>4. ORIENTATION AND TRAINING FOR GUIDES, HOTELIERS AND AGENCIES</p> <ul style="list-style-type: none"> - Workshop/seminars - Conference and Slideshows 	<p>Local communities, RECC authorities, Tourism operators/CEISE, PUCE OR ITRP</p>	<p>CETUR, FEPROTUR UTE/CEISE, SECAP</p>
<p>5. ECOTOURISM PROMOTION CAMPAIGNS</p> <ul style="list-style-type: none"> - Publication of posters and leaflets - Video spots for TV - Slideshow and conferences 	<p>SUFOREN, RECC, local communities, Tourism operators, FEPROTUR</p>	<p>CETUR, TV Channels and Newspapers</p>

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
CAYANBE-CDCA SUBPROJECT AREA		
1. ECOTOURISM INVENTORY AND EVALUATION - Inventory, categorize and prioritize tourism attractions - Publication of a tourism plan	SUIFOREN, RECAJ authorities, Tourism operators, Local communities/ FEPROTUR SUIFOREN, RECAJ authorities, tourism operators and local communities/FEPROTUR	CETUR, FUNAN, ECOCIENCIA, PUCE, Instituto Tecnológico Raúl Prebich, UTE CETUR, Instituto Geográfico Militar
2. DEVELOPMENT OF COMMUNITY-BASED PROGRAMS - Workshop/seminars to organize local people - Development of a community Ecotourism Center in Papallacta	Local people, Tourism operators, RECAJ authorities/FUNAN Local communities/FUNAN	CETUR, FEPROTUR, VIAJES ORION CETUR, FEPROTUR, Viajes Orion
3. ECOTOURISM INFRASTRUCTURE DEVELOPMENT AND SUPPORT - Construction of Interpretative Trails and Sites - Construction of Interpretative Center - Publication of Maps and Site Guides - Publication of Natural History Guidebooks including Lists/Descriptions of Flora and Fauna	SUIFOREN, Local Communities, Tourism operators, RECAJ authorities/FEPROTUR Local communities/FUNAN RECAJ authorities/FEPROTUR FUNAN, ECOCIENCIA, CECIA	CETUR, IGN, FN, ECOCIENCIA Tourism operators, FEPROTUR, CETUR FEPROTUR
4. ORIENTATION AND TRAINING FOR GUIDES, HOTELIERS AND AGENCIES - Workshop/seminars - Conference and slideshow - Courses for Naturalist and Auxiliary guides	Local Communities/FN, FEPROTUR Tourism operators/FUNAN, FN, FEPROTUR RECAJ authorities/ MAG and CETUR	CETUR, PUCE CETUR, PUCE ECOCIENCIA, UTE, FUNAN
5. ECOTOURISM PROMOTION CAMPAIGNS - Publication of posters and leaflets - Video spots for TV - Slideshows and conference	SUIFOREN, RECAJ, The whole country, Tourism companies The whole country/FEPROTUR	CETUR TV Channels and Newspaper

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
	YASUNI SUBPROJECT AREA	
1. ECOTOURISM INVENTORY AND EVALUATION - Ecotourism evaluation and program design for the YDR	SIFOREN, YNP and YDR authorities, Tourism operators, FCUNAE, Fed. Shuar/FEPROTUR	CETUR, ECOCIENCIA, UTE Neotropic Tours, Nuevo Mundo
2. DEVELOPMENT OF COMMUNITY-BASED PROGRAMS - Development and implementation of a Ecotourism program in Añangu	Comuna Añangu/FEPROTUR	FCUNAE, CETUR, FUNDEAL, Herbario Nacional SECAP, B. Indígena de Limoncocha
3. ECOTOURISM INFRASTRUCTURE DEVELOPMENT AND SUPPORT - Construction of Interpretative Trails and Sites - Construction of Interpretative Center in Coca - Publication of Maps and Site Guides - Publication of Natural History Guidebooks including Lists/Descriptions of Flora and Fauna	SIFOREN, Local Tourism operators, YPN authorities Local communities/FEPROTUR Tourism operators, local communities/FEPROTUR FN, ECOCIENCIA, CECIA FN, ECOCIENCIA, CECIA	CETUR, Municipio de Francisco de Orellana CETUR, Municipio de Francisco de Orellana Museo de Ciencias Naturales, Missouri Botanical Garden, Fundación Jatun Sacha
4. ORIENTATION AND TRAINING FOR GUIDES, MOTELIERS AND AGENCIES - Workshop/seminars - Cours for Auxiliary and Naturalist Guides	YNP personnel, Local communities/FN SIFOREN/CETUR, UTE	CETUR, ECOCIENCIA, FEPROTUR, CONFENATE Herbario Nacional, SECAP
5. ECOTOURISM PROMOTION CAMPAIGNS - Publication of natural history materials - Production of slides sets - Publication of posters - Publication of tourist map and rules	Tourism operators, Local communities, YNP authorities/FEPROTUR	CETUR, ECOCIENCIA, Misión Capuchina

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IMPROVED USE OF LAND AND BIOLOGICAL RESOURCES IN BUFFER ZONES:
ACTIVITIES PRESCRIBED FOR PHASE I PROJECT AREAS

ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
COTACACHI-CAYAPAS SUB-PROJECT AREA		
1. COMMUNITY FOREST MANAGEMENT PLANS		
- Forestry Reserve Management for the Comuna Rio Santiago-Cayapas and Chachi indian lands	Black communities and Chachi indians	GTZ, FAO, Fundación Forestal Durini, Fundación Comunal para el Desarrollo de la Zona Norte de Esmeraldas.
- Establish agroforestry nurseries in Comuna Rio Santiago-Cayapas, Canandé and Cuellaje/Intag	Black, mestizo, and Chachi communities, FETAME/CIBESA	Ecological Trading Company, MRI
- Support to Colegio Técnico Agropecuario Quisindé	Colegio Técnico Agropecuario Quisindé	
- Management of valuable timber	Local communities, Timber industry/CORMADERA	Fundación Forestal Durini, MRI.
2. INTENSIFICATION AND DIVERSIFICATION OF LAND USE		
- Management and Soil Conservation	Cuellaje community/ PROMUSTA	CAAP, FEPP
- Model Land Use Plan for Canandé-Quisindé	Local communities/Colegio Téc. de Quisindé	Cuerpo de Paz, INIAP
- Training workshop/seminars	Local communities/CAAP	CIBESA
3. FELDT PROJECTS IN COLLECTION, PROCESSING AND COMMERCIALIZATION OF BIOLOGICAL RESOURCES		
- Development of native artisnary	Chachi, Emberá and Black Communities/CIBESA/CENAPIA	IADAP, Museo de Artesanías del Ministerio del Trabajo.
- Management of artisanal species	Local communities/CIBESA	MRI
- Establishing of a gathering Center	Local Communities	FEPP
- Workshop/seminars	Local Communities/CENAPIA	SECAP, CIBESA
- Artisanry promotion to a national level	Local communities/CENAPIA	La Bodega, IADAP, Museo de Artesanías del Ministerio del Trabajo

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
CAYANBE CDCA SUB-PROJECT AREA		
<p>1. COMMUNITY FOREST MANAGEMENT PLANS</p> <ul style="list-style-type: none"> - Establish agroforestry nurseries - Management of secondary forest - Conservation and selective extraction in primary forest. 	<p>Local communities. SIFOREN, INCRAE/PRONUSTA Local communities. SIFOREN, INCRAE/PRONUSTA Local communities.</p>	<p>GTZ, FUNAN, FM FAO, Peace Corp. Pichincha Provincial Council, CAAP, FEPP, INCRAE</p>
<p>2. INTENSIFICATION AND DIVERSIFICATION OF LAND USE</p> <ul style="list-style-type: none"> - Soil conservation and rehabilitation - Low-input sustainable agriculture - Improved management of surface water - Crop diversification - Small animal husbandry 	<p>Local communities/PRONUSTA Local communities/PRONUSTA Local communities/PRONUSTA Local communities/PRONUSTA</p>	<p>FUNAN, FAO, Peace Corps, CAAP, INERHI, FEPP, INCRAE</p>
<p>3. PILOT PROJECTS IN COLLECTION, PROCESSING AND COMMERCIALIZATION OF BIOLOGICAL RESOURCES</p> <ul style="list-style-type: none"> - Collection, management, processing and marketing of biological resources - Wood-working 	<p>Local communities/PRONUSTA Local communities/PRONUSTA</p>	<p>ORI, IDEA, FUNDACION ANDES ANEPIH, SECAP</p>

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
	YASUNI SUB-PROJECT AREA	
1. COMMUNITY FOREST MANAGEMENT PLANS - Inventory of Forest Resources - Communal and family Forest management plan - Community Agroforestry Nurseries - Agroforestry	Local Communities (Indians and mestizos) SIFORIL, Misión Capuchina	FAD, UNF, PROFORS, GTZ, FEPP, CIBESA
2. INTENSIFICATION AND DIVERSIFICATION OF LAND USE - Introduction of alternative perennial and annual crops - Improved agricultural practices	FOMME, UCAD, Fed. Shear	INIAP, FEPP, CIBESA, PROFORS, GTZ
3. PILOT PROJECTS IN COLLECTION, PROCESSING AND COMMERCIALIZATION OF BIOLOGICAL RESOURCES 1. Processing and Commercialization of products from chontaduro (Cassipou)	FOMME/UCAD	FEPP, CEDECO, CIBESA, FUNDACION ANDES, FEPP, CEDECO

RESEARCH AND MONITORING: ACTIVITIES PRESCRIBED FOR
PHASE I PROJECT AREAS

ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
<p>COYACACHI-CAYAPAS ECOLOGICAL RESERVE</p>		
<p>1. BASELINE SURVEYS AND INVENTORIES</p> <ul style="list-style-type: none"> - Socio-economic evaluation - Selective inventories to support ecotourism and ecological research activity 	<p>Local communities Communities from Santiago-Cayapas and Cristal-Lita-Placer Areas ECOCIENCIA</p>	<p>COMUNIBEC/FUNDEAL Norte de Esmeraldas FEPROTUR, CETUR, ECOCIENCIA, Missouri Botanical Garden</p>
<p>2. ETHNOBOTANICAL RESEARCH</p> <ul style="list-style-type: none"> - Traditional uses, management practices and biological resources demand between Chachi and Black communities 	<p>Local communities/Fed. Chachi, COICE</p>	<p>Cultural Survival, URI, CI, FUNDEAL</p>
<p>3. APPLIED RESEARCH TO IMPROVE AGRICULTURE AND FORESTRY PRACTICES</p> <ul style="list-style-type: none"> - Forestry and Agriculture practice - Processing and marketing of biological resources - Economic and ecological valuable species research 	<p>Local communities/CORAMBENA Local Communities/CIBESA Local Communities and SUFBREN/URI</p>	<p>Fund. Comunal para el Desarrollo de la Zona Norte de Esmeraldas CI, URI, F. IDEA Ecological Trading Comp. Organization for Tropical Studies/Univ. Técnica Luis Vargas Torres</p>
<p>4. SOCIOECONOMIC RESEARCH ON LAND TENURE/LAND USE CONFLICT</p> <ul style="list-style-type: none"> - Land use conflicts - Timber exploitation conflicts - Land tenure - Comparative natural resources management between black people, chachi and mestizo colonists 	<p>RECC, Local Communities CRS, CIBESA Local communities/CRS Local Communities/ECOCIENCIA, CIBESA</p>	<p>URI, F. IDEA</p>
<p>5. MONITORING IMPACT OF PROJECT ACTIVITIES AND ENVIRONMENTAL CHANGE</p> <ul style="list-style-type: none"> - Establishing of a Research Station - Establishing of a monitoring network 	<p>Universidad Técnica del Norte Local Communities/SUFBREN</p>	<p>Smithsonian Institute, PUCE, ECOCIENCIA FUNAN, Iglesia Católica</p>

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
CAYANBE-COCA ECOLOGICAL RESERVE		
<p>1. B. ZLINE SURVEYS AND INVENTORIES</p> <ul style="list-style-type: none"> - Survey wildlife populations to estimate hunting pressure - Identify and describe archeological sites 	<p>Local communities, EDCIENCIA, CECIA/ Banco Central/Patrimonio Cultural</p>	<p>PNCE, MSF, CENTRAL BANK, CEDINE, FUNAM PNCE</p>
<p>2. ETHNOBOTANICAL RESEARCH</p> <ul style="list-style-type: none"> - Ethnobotanical and anthropological research to identify economically valuable plant species and alternative uses of biological resources 	<p>RECAV authorities, local communities, PNCE, EDCIENCIA</p>	<p>Smithsonian Institute</p>
<p>3. APPLIED RESEARCH TO IMPROVE AGRICULTURE AND FORESTRY PRACTICES</p> <ul style="list-style-type: none"> - Analyze community organizations, land use pattern and determine their capacity to defend local resource base - Studies of management systems for forestry, silvopastoral and agricultural production - Analysis of marketing viability and processing of alternative products - Economically uses for tree species 	<p>Local communities/ CAMP, FEPP</p> <p>Local Communities/ CEBECO</p> <p>Local Communities/ FEPP</p> <p>Local Communities/SUBFOREN</p>	<p>CIBESA, FUNAM, FAG, CEDINE</p> <p>CUERPO DE PAZ, INCRAE CI URI, IDEA, ECOLOGICAL TRADING COMPANY COMADERA</p>
<p>4. SOCIOECONOMIC RESEARCH ON LAND TENURE/LAND USE CONFLICT</p> <ul style="list-style-type: none"> - Analyze level of land speculation and deforestation - Colonization rate 	<p>RECAV authorities/CEBECO</p> <p>CEDINE</p>	<p>YERAC, CRS, FLACSO</p>
<p>5. MONITORING IMPACT OF PROJECT ACTIVITIES AND ENVIRONMENTAL CHANGE</p> <ul style="list-style-type: none"> - Evaluate socio-economic viability of community resource management and relation to intensity of natural resource use versus private use. 	<p>Local communities/ FUNDEAL</p>	<p>URI, IDEA, Ecological Trading Company</p>

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ACTIVITY	BENEFICIARY/IMPLEMENTOR	POTENTIAL COLLABORATORS
YASUNI NATIONAL PARK		
1. BASELINE SURVEYS AND INVENTORIES - Description of Ecological and Social condition And Resource Use System. - Selective inventories to support ecotourism and ecological research activities	FCUNNE, SUFOREN, UCAO SUFOREN, FCUNNE, UCAO	Misión Capuchina, ECOCIENCIA, FUNDEAL Herbario Nacional, FEPROTUR, NTE
2. ETHNOBOTANICAL RESEARCH - To identify economically valuable species and alternative uses of natural resources - Systems of management forestry and agricultural practices	FCUNNE, UCAO, Fed. Shuar/SUFOREN	New York Botanical Garden, Smithsonian Institute, INIA, INIAP PPOFORS, GTZ, Ecological Trading Co.
3. APPLIED RESEARCH TO IMPROVE AGRICULTURE AND FORESTRY PRACTICES - Traditional uses and practices and demand of biological resources between Napo River Basins - Diversify agriculture and forestry practices - Processing and marketing of biological resources	FCUNNE UCAO SUFOREN	INIAP, INAG CIBESA Ecological Trading Co. New York Botanical Gal. Organization for Tropical Studies
4. SOCIOECONOMIC RESEARCH ON LAND TENURE/LAND USE CONFLICT - Diagnosis of communities along the roads of Coca-Nuca, Coca-Nuca and lower Napo River - Analyze land-use conflicts - Migration and colonization - Comparative studies between natural resources management practices from Indians and mestizo people	UCAO/FCUNNE Federación Shuar SUFOREN	FUNDEAL CEJINE Municipio de Francisco de Orellana, SUFOREN ORI
5. MONITORING IMPACT OF PROJECT ACTIVITIES AND ENVIRONMENTAL CHANGE - Biological, ecological and social impact of petroleum activities	FCUNNE/UCAO/FN Municipio de Francisco de Orellana/FCUNNE/ UCAO	PETROECUADOR FUNDEAL ECOCIENCIA, CECTA Misión Capuchina

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ANNEX II. F

**LETTERS OF EXPRESSION OF INTEREST
AND UNSOLICITED PROPOSALS**

ANNEX II.F

LETTERS OF EXPRESSION OF INTEREST AND UNSOLICITED PROPOSALS

This annex presents letters of expression of interest by organizations representing a cross-section of intended and/or potential collaborators and beneficiaries in SUBIR activities. Several unsolicited proposals for collaboration were received during the Design Phase, only a few of these have been included for illustration purposes. These letters and proposals, along with the participation of more than 125 organizations in Design-Phase fora and roundtables (see Annex III.C), demonstrate the depth of interest across a range of GOE, non-governmental, private-sector, educational/research, and local-community organizations. Actual collaborations will be developed starting early in implementation and continue throughout the life-of-project. Many of the potential collaborations are profiled briefly in Annex II.E.

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PETROECUADOR
 EMPRESA ESTATAL
 PETROLEOS DEL ECUADOR

EL ECUADOR HA SIDO
 ES Y SERA PAIS AMAZONICO

Oficio No. 130-91-PAB

Quito, a 2 ABR 1991

01313

8 ABR 1991

1146

8 ABR 1991

Señor
 PAUL DULIN
 COORDINADOR PROYECTO SUBIR
 Berlín 180 entre Eloy Alfaro y 9 de Octubre
 Apartado 2097
 Presente.-

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FIN	

De mi consideración:

En referencia a su atenta comunicación del 15 de marzo del presente año, cúpleme informar que nos interesa partici - par en las actividades de capacitación, investigación, pro - yectos productivos, programas de monitoreo y protección am - biental, que en este caso abarcarían las áreas y problemas locales del Parque Nacional Yasuní y El Coca.

PETROECUADOR coordinaría las acciones de las compañías pe - troleras que operan en las áreas indicadas.

De nuestra parte, y con el propósito de continuar la coor - dinación, se ha designado al Lcdo. Ramiro Galarza, con - quien ruego contactar. (Teléfono 561-250 Ext. 343).

Atentamente

Manuel Navarro V.
 Lcdo. Manuel Navarro V.,
 JEFE UNIDAD PROTECCION
 AMBIENTAL-PETROECUADOR.



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REPUBLICA DEL ECUADOR

MINISTERIO DE INDUSTRIA, COMERCIO, INTEGRACION Y PESCA

SUBSECRETARIA DE RECURSOS PESQUEROS

DIRECCION GENERAL DE PESCA

Dirección: V. M. RENDON 1006 - 1010

Casilla 8888

Guayaquil - Ecuador

F A X (02) 565990

Attn.: PAUL DULING

Ahora recibo de su comunicación relacionada con el Proyecto SUBIR y su invitación para interactuar con el grupo de trabajo que se encuentra diseñándolo.

En vista que recibimos la información en forma extemporánea que nos permita efectuar una participación personal, permitame comunicarle que la Subsecretaría de Recursos Pesqueros, tiene como interés en todo aquello que signifiquen acciones orientadas a propiciar un uso sostenible de la biodiversidad. Las normas dictadas por esta Subsecretaría en lo concerniente a la protección de habitats y particularmente de especies amenazadas, demuestran nuestra preocupación y acciones concientes con la conservación de la naturaleza.

Por tal razón, y a fin de que uds. se sirvan considerarlos, los estoy enviando por separado lo siguiente:

1. Un perfil de proyecto sobre conservación de áreas marinas y costeras protegidas, formulado en 1989 y que no hemos podido implementarlo en su gran mayoría debido a la falta de recursos financieros.
2. Las prioridades de la investigación científica para el ecosistema en las áreas marinas y costeras del Ecuador. Su ejecución no ha sido iniciada por falta de fondos.
3. Las líneas de investigación para las tortugas marinas, que se las hizo conocer al WWF.

Adicionalmente lo estoy enviando:

1. Un borrador del folleto de divulgación sobre conservación marino costera, que resume las acciones adoptadas por el Gobierno en esta materia.
2. Un documento de antecedentes que fue presentado en una Reunión de Expertos de la CPPS titulado "La Conservación en el Ecuador: Síntesis de su estado actual y perspectivas para su institucionalización."

Ojalá que el Proyecto SUBIR cuente con recursos financieros que nos permitan ejecutar algunas de las acciones que se han visto limitadas hasta ahora debido a las restricciones económicas. Estaremos prontos a analizar la información en el caso que ustedes tengan interés.

Atentamente,


M. A. Acosta Acosta

SUBSECRETARIO DE RECURSOS PESQUEROS.



LightHawk
The Wings of Conservation

Project LightHawk
P.O. Box 3736
Aspen, CO 81612
(303) 926-0827 FAX



Meeting held Feb. 8, 1991
at CARE/Ecuador Offices
to discuss participation
in SUBIR Monitoring
Program.

LightHawk The Wings of Conservation

Project LightHawk, "Alas para la Conservación de la Naturaleza", ha demostrado la eficacia de sus operaciones de vuelo en asuntos internacionales relativos a la conservación de la naturaleza. A lo largo de los ocho años pasados, Project LightHawk ha proporcionado vuelos colaborando con muchos esfuerzos fundamentales para la protección ambiental dentro del Oeste de Estados Unidos, el Oeste de Canadá, Alaska y México.

En 1988 nuestros vuelos en Costa Rica han contribuido a proyectos como la reforestación del Parque Nacional de Guanacaste dirigida por Daniel Janzen y a proyectos de conservación a gran escala en la Península Osa y en Braulio Carrillo (coordinado por la Fundación de Parques Nacionales), que han transformado y mejorado grandemente la labor de conservación de la naturaleza en el país.

En la mayoría de los casos, incluso los experimentados pilotos profesionales no están familiarizados con las técnicas especializadas, que hacen del volar un instrumento poderoso para la protección de los recursos naturales. La extraordinaria experiencia y el equipo especial de Project LightHawk son en muchos casos el factor decisivo a la hora de ganar o perder una batalla en pro de las reservas naturales.

Estamos especialmente interesados en colaborar en diferentes países para retardar la deforestación. Si usted está llevando a cabo algún proyecto interesante relacionado con la conservación de la naturaleza y cree que podría necesitar la ayuda de vuelos especializados, por favor, póngase en contacto con la oficina central del Project LightHawk en Santa Fe, New Mexico (USA).

Teniendo en cuenta nuestro alto porcentaje de éxito en los Estados Unidos, creemos que podemos surtir una ayuda extraordinaria para la conservación de habitats deteriorados en muchos otros países.

A continuación citamos algunos ejemplos de como podemos realizar este proyecto:

- Organizando y proporcionando vuelos a diferentes políticos, conservadores de la naturaleza, científicos, medios de información y ciudadanos interesados en la selva y otras áreas para mostrar las problemáticas y maravillas de estos lugares espectaculares.
- Proporcionando fotografías aéreas a alta y baja altitud.
- Ayudando a científicos en los centros de datos para la conservación de la naturaleza a identificar los límites de la selva.
- Ayudando a directores de parques naturales a determinar tendencias y problemas en la administración de la tierra y a controlar usos ilegales, como tala de árboles y minería.
- Transportando equipo y personal a áreas remotas.
- Proporcionando inspecciones de arroyos y ríos para mostrar la contaminación y el deterioro causado por la erosión del suelo.

Referencias:

Dr. Daniel Janzen
Guanacaste National Park
Costa Rica

Sr. Mario Boza
Fundación de Parques Nacionales
San José, Costa Rica

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feprotur

Quito, febrero 26, 1991

Señor
Paul Dulin
Coordinador
PROYECTO SUBIR
Ciudad -

De mis consideraciones

Agradezco a usted la invitación para participar en las Mesas Redondas para presentar los resultados de la fase de investigación para el diseño del Proyecto SUBIR. Desafortunadamente, con anterioridad fui invitado por BIOMA (Fundación Venezolana para la Conservación de la Diversidad Biológica), The Nature Conservancy y The American Assembly a la Cumbre Hemisférica sobre Economía y Ambiente que se desarrollará en Caracas del 3 al 6 de marzo de 1991.

Por sugerencia del señor Juan Black, a quien le manifieste la antedicha situación, adjunto a la presente las principales actividades que podrían ser desarrolladas por FEPROTUR en el Proyecto SUBIR, en las tres áreas seleccionadas.

El Proyecto de Turismo Orientado a la Naturaleza de FEPROTUR, que tiene el financiamiento de AID, según le expusiera a usted en días pasados en el Hotel Republica, debía terminar en el presente año, sin embargo y con buenas perspectivas, se están haciendo las gestiones necesarias ante el AID para prorrogar su periodo y financiamiento, más aun, para disponer de algunos fondos de canje de deuda externa que se encuentra próximo a ser aprobado por la Junta Monetaria.

Bajo dichos supuestos, las actividades que se realizarían dentro del Proyecto SUBIR podrían tener eventualmente y en ciertos campos la contrapartida de FEPROTUR.

A la reunión de SUBIR asistirá la señorita Lorena Ordóñez para tomar nota de los puntos que sean de interés, especialmente en la planificación

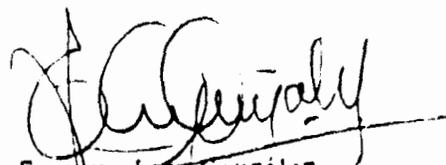
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subsiguiente de las actividades de turismo, de las cuales espero podamos discutir más específicamente

Agradeciéndole una vez más por su interés en nuestra participación, me suscribe de usted,

Atentamente,

PROYECTO-NATURALEZA


Ing. Enrique Laso González
Director

EL/lop
Adj

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