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

COSTA RICA

PROJECT PAPER

FOREST RESOURCES FOR A STABLE ENVIRONMENT

AID/LAC/P-510

Project Number: 515-0243

UNCLASSIFIED

APPENDIX 3A, Attachment 1
Chapter 3, Handbook 3 (TM 3:43)

AGENCY FOR INTERNATIONAL DEVELOPMENT				1. TRANSACTION CODE		Amendment Number _____		DOCUMENT CODE	
PROJECT DATA SHEET				A A = Add C = Change D = Delete				3	
COUNTRY/ENTITY Costa Rica				3. PROJECT NUMBER 515-0243					
6. BUREAU/OFFICE LAC				05		5. PROJECT TITLE (maximum 40 characters) Forest Resources for a Stable Environment			
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 01 31 09 06				7. ESTIMATED DATE OF OBLIGATION (Under "B" below, enter 1, 2, 3, or 4) A. Initial FY 89 B. Quarter 2 C. Final FY 91					
8. COSTS (\$000 OR EQUIVALENT \$1 =)									
A. FUNDING SOURCE		FIRST FY			LIFE OF PROJECT				
		B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total		
AID Appropriated Total									
(Grant)		(5,500)	(-)	(5,500)	(7,500)	(-)	(7,500)		
(Loan)									
Other U.S.									
1.									
2.									
Host Country			\$15,000	\$15,000	-	\$15,000	\$15,000		
Other Donor(s)									
TOTALS			\$15,000	\$20,500	\$7,500	\$15,000	\$22,500		
9. SCHEDULE OF AID FUNDING (\$000)									
A. APPRO- PRIATION	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
(1)	233	160		-	-	\$5,500	-	\$7,500	-
(2)									
(3)									
(4)									
TOTALS						\$5,500	-	\$7,500	-
10. SECONDARY TECHNICAL CODES (maximum 8 codes of 3 positions each)								11. SECONDARY PURPOSE CODE	
240		450						235	
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)									
A. Code		BR		ENV		COOP		PVOU/PVON	
B. Amount									
13. PROJECT PURPOSE (maximum 480 characters)									

To develop forestry and agroforestry as economically and ecologically appropriate land uses in the buffer zones around the Braulio Carrillo, Poás and Irazú National Parks and other natural protected areas of the Cordillera Central, and to support management of these protected areas.

14. SCHEDULED EVALUATIONS				15. SOURCE/ORIGIN OF GOODS AND SERVICES			
Interim	MM YY 07 91	MM YY 12 93	Final	MM YY 03 96	<input checked="" type="checkbox"/> 000 <input type="checkbox"/> 941 <input checked="" type="checkbox"/> Local <input type="checkbox"/> Other (Specify) CACM		
16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)							

USAID Controller approves the Methods of Implementation and Financing proposed herein.

Tom Clarkson
Tom Clarkson, A/CONT

17. APPROVED BY		18. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION	
Signature	<i>Carl H. Leonard</i>		
Title	Carl H. Leonard Mission Director	Date Signed MM DD YY 10/10/89	MM DD YY| | | | |



AGENCIA PARA EL DESARROLLO INTERNACIONAL

MISION ECONOMICA DE LOS ESTADOS UNIDOS EN COSTA RICA

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PROJECT AUTHORIZATION

Name of Country: Costa Rica
Name of Project: Forest Resource for a Stable Environment
Number of Project: 515-0243

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Forest Resources for a Stable Environment (FORESTA) Project for Costa Rica involving planned obligations of not to exceed Seven Million Five Hundred Thousand United States Dollars (\$7,500,000.00) in grant funds over a three-year period from the date of authorization subject to the availability of funds in accordance with the A.I.D. OYB/allotment process and administrative approval, to help in financing foreign exchange and local currency costs for the Project. The initial obligation will not exceed Five Million Five Hundred Thousand United States Dollars (\$5,500,000.00) in FY 1989. The planned life of the Project is seven years from the date of initial obligation.

2. The Project ("Project") will improve the management and use of the protected areas (national parks, forest reserves, etc.) and of the buffer zone surrounding these areas through improved land-use management and planning, enhanced integrated forest industry, and expanded community awareness and participation within the Central Cordillera. The Project has four components:

A. General Operations Component, which will develop the overall plans and guidelines for the Central Cordillera and strengthen the Foundation for the Development of the Central Volcanic Cordillera ("Foundation") - the administrative organization to carry out project activities;

B. Management of Protected Areas Component, which will improve the management of and access to the protected areas;

C. Management of the Natural Forests for Production Component, which will improve the management and exploitation of existing forests compatible with commercial use; and

D. Integration of Trees on Farms Component, which will encourage reforestation and agroforestry practices on relatively deforested lands and foment community participation in improved forest management and use.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

A. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the Grant shall have their source and origin in the United States, or in countries which are members of the Central American Common Market, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Grant shall be financed only on flag vessels of the United States, except as A.I.D. may otherwise agree in writing.

B. Condition Precedent to Disbursement

Because the FORESTA Project will work in a GOCR priority sector with strong support and coordination from the government there are only the standard Conditions Precedent (CP) to first disbursement of the dollar grant required for the successful implementation of the Project.

However, the following CPs have been established precedent to entering into other financial transactions:

(1) Prior to entering into the dollar sub-grant with the Foundation and prior to disbursing the local currency to the Foundation, the Foundation will provide to A.I.D.:

(a) a legal opinion of counsel acceptable to A.I.D. certifying that the Project Assistance Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Foundation, and that it constitutes a valid and legally binding obligation;

(b) a statement of the name of the person holding or acting in the office of the Foundation specified in Section 7.2 and of any additional representatives, together with a specimen signature of each person specified in such statement;

(c) evidence that the Foundation has functioning an acceptable accounting and internal control system;

(d) evidence that the Foundation has entered into an agreement with a fiscal agent;

(e) evidence that the technical support contractor has begun to carry out its contracted duties.

(2) Prior to the BCCR making disbursements from the separate account for the endowment, the Foundation will provide to A.I.D.:

(a) evidence of the viability of the Foundation, and its capability to fulfill the goals and objectives set out in the Project Assistance Agreement;

(b) a legal opinion of counsel acceptable to A.I.D. certifying that an Endowment Agreement has been duly authorized and/or notified by, and executed on behalf of, the Foundation, and that it constitutes a valid and legally binding obligation, together with a copy of that Agreement.



Carl H. Leonard
Mission Director
USAID/Costa Rica

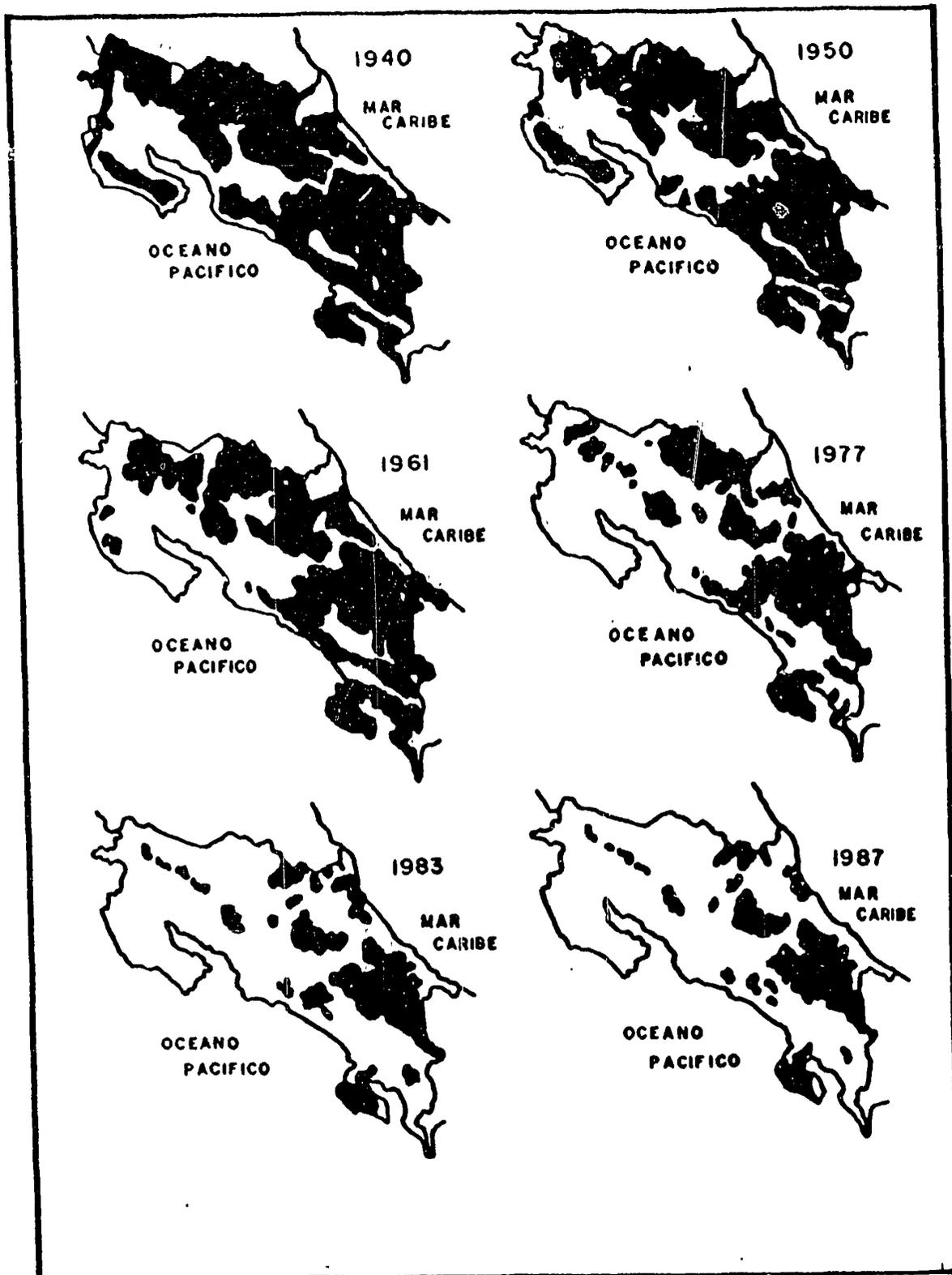
Date: 4/27/89


MCF:dm

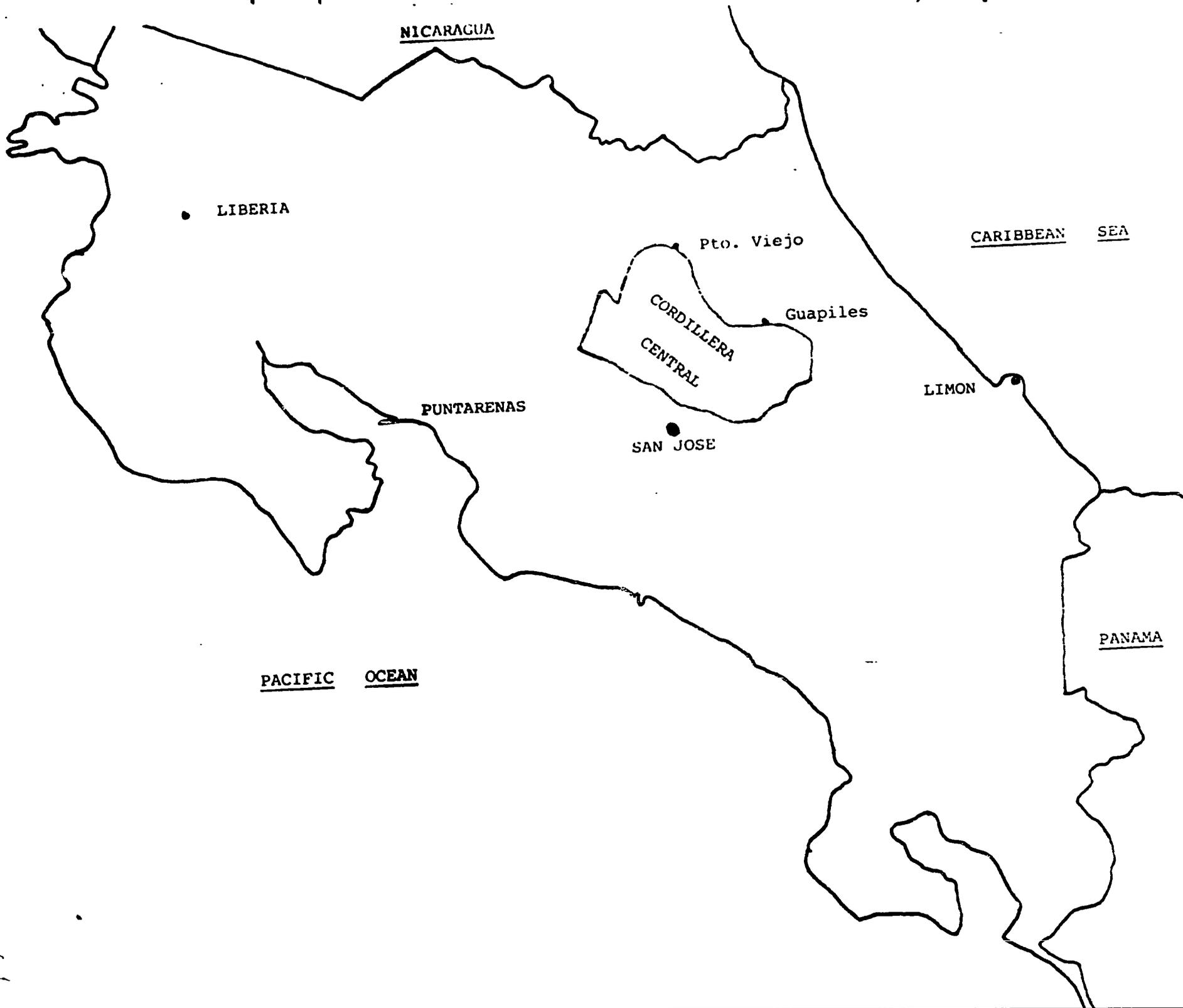
Clearance:

DENSE FOREST COVER (80-100% GROUND COVERAGE)

IN COSTA RICA IN 1940, 1950, 1961, 1977, 1983 Y 1987.



SOURCE: Oficina de Planificación Sectorial Agrícola (OPSA)
Dirección General Forestal (DGF)



NICARAGUA

LIBERIA

CARIBBEAN SEA

Pto. Viejo

Guapiles

CORDILLERA
CENTRAL

LIMON

PUNTARENAS

SAN JOSE

PANAMA

PACIFIC OCEAN

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LIST OF ACRONYMS

AA/LAC	Assistant Administrator/Bureau for Latin America and the Caribbean (A.I.D.)
A.I.D.	Agency for International Development
BCCR	Central Bank of Costa Rica
CACM	Central American Common Market
CAF	Certificado de Abono Forestal (Forest Bond Certificate, negotiable)
CATIE	Tropical Agricultural Center for Education and Research
CP	Condition Precedent
CPA	Certified Public Accountant
DGF	General Forest Directorate of MIRENEM
DVS	Wildlife Directorate of MIRENEM
ESF	Economic Stabilization Fund
ESR	Economic Stabilization and Recovery Program
FAO	Food and Agricultural Organization of the U.N.
FN	Neotrópica Foundation
FPN	National Parks Foundation
GOCR	Government of Costa Rica
HC	Host Country
HCLC	Host Country Owned Local Currency
IDA	Agricultural Development Institute
IRR	Internal Rate of Return
LAC/CEO	Chief Environmental Officer/Latin American Bureau (A.I.D.)
LC	Local Currency (Colones)
LOP	Life-of-Project
MIRENEM	Ministry of Natural Resources, Energy and Mines
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
NPV	Net Present Value
PIC	Project Implementation Committee
PIL	Project Implementation Letter
PP	Project Paper
RIG	Regional Inspector General (A.I.D.)
RDD	Rural Development Division of AID
REMC	Review and Evaluation of Managerial Capacity
ROCAP	Regional Office for Central America Programs of A.I.D.
SPN	National Parks Service
UNESCO	United Nations Economic and Social Council

I. PROJECT SUMMARY

A. Background and Problem

USAID/Costa Rica's recent natural resource strategy paper concluded that the primary threat to natural resources in Costa Rica is inappropriate land use. Perhaps the most alarming threat is the destruction of the country's forests - cut in half over the last 17 years. Unless this trend is checked, the remaining commercial natural forests will disappear in less than 10 years. Projections indicate that unless drastic steps are taken immediately, by the end of the century the annual import bill for wood could range from \$50 million to more than \$200 million, cancelling many of the macroeconomic gains from the GOCR's economic stabilization program supported by the Mission.

Although the Government of Costa Rica (GOCR) has recently begun a program to encourage reforestation, commercial tree harvesting cannot begin for at least 20 years. Therefore the medium-term problem of wood availability still needs to be resolved. In addition, forest plantations will not provide many of the benefits of natural forests, such as biological diversity.

Approximately 13% of Costa Rica is currently protected as wild lands such as national parks, wildlife refuges, and protection zones. Most of this area has steep mountains or extreme environmental conditions which make the land unsuitable for other uses. However, as the commercial forest and agricultural land disappear, these wildlands are coming under increasing pressure of colonization, deforestation, poaching, and other forms of degradation. The government agencies responsible for protecting and managing these areas (the National Parks Service and the National Forest Service) suffer from a severe lack of resources and bureaucratic inefficiency in the field.

Perhaps the greatest potential for medium- and long-term wood supplies, while protecting biological diversity, is to improve the management of the existing forests and continue to encourage reforestation and agroforestry where appropriate - i.e. land-use management.

B. Project Goal and Purpose

The project goal is to support Costa Rica's long-term economic development by conserving and developing its renewable natural resources upon which sustainable economic growth depends.

The Project's purpose is to develop forestry and agroforestry as economically and ecologically appropriate land uses in the buffer zones around the Braulio Carrillo, Poás and Irazú National Parks and other natural protected areas of the Cordillera Central, and to support management of these protected areas. This will be accomplished by strengthening an independent private foundation (the Foundation for the Development of the Central Volcanic Cordillera - herein referred to as the "Cordillera Development Foundation" (CDF) or the "Foundation"), which will provide direction, technical assistance, coordination and funding to (a) improve the management of the national parks and other natural protected areas in the Project area, (b) improve the sustainable management and production of the natural forests of the buffer zone around the parks, and (c) assist the residents of the area to increase their income and improve their land by integrating trees into their farming systems.

C. Project Activities and Expected Achievements

The Project is organized into four components:

1. General Operations Component, which will develop the overall plans and guidelines for the control and use of the Central Cordillera and strengthen the Cordillera Development Foundation as the administrative organization to carry out project activities;
2. Management of Protected Areas Component, which will improve the management of and access to the protected areas;
3. Management of the Natural Forests for Production Component, which will improve the management of exploitation of those existing forests compatible with commercial use; and
4. Integration of Trees on Farms Component, which will encourage reforestation and agroforestry practices on relatively deforested lands and foment community participation in improved forest management and use.

By the end of the Project these activities will have achieved the following:

- the strengthening of the Cordillera Development Foundation (CDF) as a permanent private organization primarily responsible for the control and use of the natural resources of the Central Cordillera;
- the effective management, through the CDF, of the protected areas and their buffer zones in the Central Cordillera;
- the creation of at least one efficient forest enterprise integrating forest management with wood processing and marketing;
- the end of rampant deforestation in the Central Cordillera and support for active reforestation programs;
- the support of area residents for land-use management and agroforestry practices on their own lands; and

- an increase in local incomes through improved forest management and new jobs created by the CDF and the forest enterprise.

The direct beneficiaries of this Project will include the approximately 40,000 inhabitants of the project area, and the approximately 250,000 annual visitors to the area's national parks. The indirect beneficiaries will include Costa Rica's wood products industry, most residents of the Central Valley (80% of Costa Rica's population) who depend on water from the Central Cordillera watershed, and all of the wildlife of the Central Cordillera.

D. Project Costs and Funding

A.I.D. will contribute \$7.5 million in Development Assistance and the GOCR will contribute C1,200 million from ESF-generated local currency jointly programmed for this purpose. The budget for the Project is as follows:

TABLE 1: SUMMARY PROJECT BUDGET

(Millions of dollars or Dollar equivalent)

	<u>A.I.D.</u>	<u>GOCR</u>	<u>TOTAL</u>
I. CDF			
A. General Operations	2.83	2.81	5.64
B. Management of Protected Areas	0.68	0.48	1.16
C. Natural Forest Management	0.17	1.00	1.17
D. Trees on Farms	0.02	0.42	0.44
E. Administration	1.03	0.20	1.23
II. T.A. Support Contract	0.72	-	0.72
III. A.I.D. Project Adviser	0.48	-	0.48
IV. Audits and Evaluations	0.29	-	0.29
V. Inflation and Contingencies	1.28	0.09	1.37
VI. Endowment	-	<u>10.00</u>	<u>10.00</u>
TOTAL	\$7.50	\$15.00	\$22.50

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II. BACKGROUND AND RATIONALE

A. The Problem

The Mission's 1987 "Natural Resource Management in Costa Rica: A Strategy for USAID" analyzes the relevant information available on Costa Rica's soil, forest, wildland, wildlife, water, coastal and energy resources. The analysis concludes that the common threat to all of these resources is inappropriate land use. Spontaneous, often chaotic exploitation of resources has resulted in numerous unstable land use systems which threaten to degrade further the resource base upon which development depends.

A particularly alarming threat to future development is the destruction of the country's forests. From an area of 26,000 km² covering more than half of the country in 1970, the forests have been reduced to only 13,230 km² covering one fourth of Costa Rica in 1987. Nearly the entire conversion has been into pasture. Pasture land occupies about 85% of the total land area of Costa Rica suitable for all agricultural uses.

Of the remaining 13,230 km² of forest, 4,200 km² or nearly one third, are located in national parks or equivalent wildlands where commercial exploitation of forest products is not permitted. A further 6,700 km² are located in forest reserves, wildlife refuges, indian reservations or protection zones where logging is permitted but with severe restrictions. This leaves about 2,300 km² of natural forest available as a commercial source of wood outside of restricted areas. However, an unknown fraction of the latter two categories should never be harvested because the forests are located on steep or especially fragile lands. Studies indicate that these remaining commercial natural forests of Costa Rica will near depletion around 1995. In addition, unless drastic steps are taken immediately, by the end of the century the annual import bill for wood could range from \$50 million to more than \$200 million, cancelling many of the macroeconomic gains from stabilization efforts and increased exports to which the Mission has given priority in recent years. Therefore, Costa Rica must stretch out its remaining forest resources through improved management and more effective utilization of sawmills.

The development of forest plantations is also urgently needed to help cover the impending wood deficit. At present, there are less than 20,000 ha of plantations in Costa Rica, almost all of them very young, having been planted since 1980. Efforts to create plantations are intensifying through the use of various incentives. However, since the trees need at least 20 years to produce sawtimber, plantations will not solve the medium-term lumber supply problem, nor provide many of the other benefits of natural forest, such as biological diversity.

In addition to natural forests and artificial plantations, a third source of sawtimber and other wood products are trees growing on farms: in pastures, along fence rows, in remnants of degraded forests scattered between agricultural parcels and in secondary forests. These sources are already supplying a significant amount of Costa Rica's wood.

About half of the cutting permits granted by the Directorate General of Forests are for this type of farm-grown wood. Increasing wood

production from these farm sources offer potential because agroforestry is a widespread tradition in Costa Rica.

Costa Rica has 13% of its land area (687,110 ha) protected as wildlands such as national parks, wildlife refuges and protection zones. Most of this area has steep mountains or extreme environmental conditions so that the land is not suitable for more intensive uses. This land provides important environmental benefits such as watersheds, wildlife habitats, recreation areas, and biological preserves, which yield benefits that cannot easily be valued in economic terms, but that are of critical importance for economic development and welfare. Another benefit of wildlands is their attraction for nature tourism which is already bringing millions of dollars of foreign exchange to Costa Rica annually.

However, with the closing of the agricultural frontier and the depletion of forests, these wildlands (defined as natural land and water areas little modified by modern society, where wild species predominate - including forests, woodlands, brushlands, grasslands, deserts, natural inland bodies of water, and coastal and marine areas, and wildlife) are coming under increasing pressure of colonization, deforestation, poaching and other forms of degradation. In many cases, wildlands stand as islands in vast expanses of degraded secondary forest and pasture. The government agencies responsible for protecting and managing these wildlands (National Park Service - SPN and the General Directorate of Forests - DGF) do not have the resources to do an adequate job. Chronic shortages of operating funds and bureaucratic inefficiency severely constrain field operations. For instance, the Braulio Carrillo National Park, with its 44,100 ha, is managed and protected with a staff of only 36 individuals including 28 rangers (half of whom are paid through a private foundation), and an annual budget of less than \$7,300 to cover all operating costs.

Many of the land abuse problems mentioned above have their origin in the indiscriminate clearing of forest. Consequently, proper management of the forest cover is one of the actions requiring the highest priority. Because a large proportion of the remaining forest is found in the national parks, management must involve both these reserved lands which are being threatened, as well as the lands with forestry potential that surround them but which are being exploited beyond their capacity. The "core" wildlands are best managed for conservation purposes when surrounded by a "buffer" where commercial forest development predominates and integrates harmoniously with agricultural practices.

Consequently, USAID/Costa Rica's strategy calls for the management of national parks as well as contiguous commercial forests. This combination offers unusual opportunities for demonstrating the complementarity between conservation and development, and creating models for expansion to other parts of the country and of Central America. These zones mitigate the effects of deforestation and other external pressures and make the park more viable as a conservation area. The buffer zones to be managed under the proposed Project will be treated like concentric rings around the parks, with the parks themselves considered as areas of absolute protection. As one leaves the center "core" area, increasing levels of development are permitted.

The proper management of the buffer zones around the parks has the double payoff of increased, sustained productivity of the land itself, as well as the numerous benefits generated by the parks which these buffer zones protect. Costa Rica needs to act urgently in order not to lose its productive and protective forest cover and the rich biological resources contained therein.

B. The GOCR Natural Resource Development Strategy and Activities

The severity of the problems noted above has prompted the GOCR to take a number of actions involving natural resources in Costa Rica. First, the National Development Plan (1986-1990) makes special mention of the degradation of the environment and the squandering of natural resources that has accompanied the country's economic development. The rational use of the environment and natural resources is highlighted as one of the priority areas to be addressed during the period covered by the National Development Plan.

In conjunction with its stated policy objective of increasing public sector efficiency (another of the priority areas mentioned in the National Plan), the GOCR recently restructured the responsibilities for environmental affairs and natural resources of several ministries into one ministry--the Ministry of Natural Resources, Energy and Mines (MIRENEM). This action concentrates in one focal point responsibility for programs dealing with the environment and natural resources. The objective of this restructuring is to improve the overall coordination and management of programs in the area of natural resources and conservation.

In recognition of concerns involving natural resources, the National Assembly passed a new forestry law in 1986, and in 1987 the President signed a forestry emergency decree which gives top priority to this sector. The new law gives more clout to protection and strengthens incentives leading to improved management and more effective utilization. Unfortunately, progress in implementing the law and the decree has been slow.

A central part of MIRENEM's strategy for long-term natural resource and protected areas development and management is the concept of "mega parks". This plan proposes to merge Costa Rica's many protected areas (including national parks, wildlife refuges, national forest reserves, national monuments, forest production zones, etc.) into six major management units - i.e. "mega parks". The mega parks will be managed by one or more private non-profit foundations. The foundations will employ personnel (rangers, guides, administrators, etc.) to carry out the management activities. Much of the current management responsibility of these areas within MIRENEM will eventually be turned over to the foundations. As a result, MIRENEM's main responsibility will become progressively more policy and guidance oriented and less implementation.

The Guanacaste National Park has been the first manifestation of this policy. The CDF, a more ambitious scheme, will become the second "mega park" program. The CDF, a new private organization, will be responsible for implementing most project activities. The Foundation (CDF), created by executive decree, is a "foundation" ("fundación") under the law of foundations. By law, the Foundation has a five-member

Board of Directors: three members appointed by the Minister of MIRENEM, one member appointed by the Municipality of Puerto Viejo de Sarapiquí where the Foundation is established, and one member appointed by the Executive Branch of the GOCR.

C. Relationship of the Project to A.I.D. Policy and Strategy

After a number of years concentrated on economic stabilization, U.S. economic assistance over the next few years will focus on sustained economic expansion through export-led growth. The Mission's Program Strategy states that, beginning in 1988, the Mission will broaden the export-led growth emphasis to include programs aimed at averting the deterioration of the country's forests. Long-run sustainable growth will depend upon the rational utilization and conservation of Costa Rica's natural resources. Continued degradation of forest resources could result in future import requirements for wood and wood products severe enough to offset much of the positive balance-of-payments impact of the increases in nontraditional exports. The degradation also affects the supply and costs of water and hydroelectric power needed by everybody, including export producers.

The Mission's 1989-1990 Action Plan lists the FORESTA Project as part of the Mission's response to Objective No. 6: Manage and Preserve Natural Resources.

D. Related A.I.D. Activities

The Mission's last forestry-related project - the Natural Resources Conservation Project, 515-L-032 - terminated in 1985. While the project did not completely achieve its purpose, it did lead to some important achievements and lessons which have provided a strong foundation for subsequent projects. It demonstrated the difficulty of implementing several different though related activities in diverse areas of the country coordinated with several different government organizations.¹¹

Currently, the Mission is providing some local currency support to the Forest Conservation and Management Project (BOSCOSA). This buffer zone management project on the Osa Peninsula of southwest Costa Rica is jointly implemented by the Conservation Foundation/World Wildlife Fund and the Costa Rican Neotropical Foundation. The purpose of BOSCOSA, which is similar to that of FORESTA but on a more modest scale, is to help conserve the Corcovado National Park by assisting communities around the park to improve the use of their land. The project offers assistance in agriculture, forest management, processing of wood and community development.

The Mission is currently considering a complementary watershed management project which would be closely coordinated with the FORESTA Project. During fiscal year 1989, the Mission and the GOCR will design a small local currency activity to support the Caño Negro Wildlife Reserve in north central Costa Rica.

A.I.D.'s Regional Office for Central America Programs (ROCAP) is currently financing the six-year Regional Tree Crop Production Project operated by the Tropical Agricultural Center for Education and Research

(CATIE) working jointly with the forest services of the five Central American countries. The project ends in August 1991. In Costa Rica, through the General Forest Directorate (DGF) of the Ministry of Natural Resources, this project trains personnel and develops techniques for planting and managing trees on farms.

E. Related Activities by Other Donors

The Interamerican Development Bank (IDB) recently signed a four year, \$12.2 million forestry development loan of national scope. The main objectives of this project are to provide credit to private landowners to create 10,000 hectares of forest plantation, and to extend the life of the native commercial forests by reducing waste in the forest industry. About three fourths of the funds are to be channeld to private reforestation and industry via the banking system. The project will also develop a training component for forest managers/administrators and users. The loan is currently before the Costa Rica Legislative Assembly pending ratification. As the two projects are complementary, coordination and collaboration between the FORESTA Project and that of the IDB will continue while the latter awaits approval by the Legislative Assembly.

The other major donor in this sector, the Dutch Government, provides forestry support to CATIE and to the National Autonomous University in Heredia.

In June 1988 an agreement was signed between the GOOCR and the Dutch Government for the establishment of a Forestry Development Fund (FDF) through a "debt swap" mechanism. This fund of over US \$11 million equivalent will be used especially to promote tree planting by small and medium farmers as well as the protection and management of natural forests and other forestry development activities, over a period of at least four years, mainly in Guanacaste and the Atlantic Zone.

The soon to be approved Dutch Trust Fund Project will be carried out by FAO and the Instituto de Desarrollo Agrario (IDA). With a budget of approximately US \$2.1 million plus support from the FDF, it will promote forestry development activities, mainly tree planting, by farmers in settlements primarily in Guanacaste.

The Dutch Embassy manages a program of so-called small projects, with a cost of less than US \$ 7,500 each. These projects help to start up small-scale forestry activities, such as nurseries and plantings on a very small scale, and in this way lay the groundwork for larger-scale activities.

Finally, the Dutch Government will probably provide a major financial and technical contribution to the preparation of and follow-up to the Tropical Forestry Action Plan for Costa Rica.

In addition, the GOOCR is carrying out negotiations for German assistance in San Carlos, with emphasis on reforestation.

III. PROJECT DESCRIPTION

A. Project Goal and Purpose

The goal of this Project is to support Costa Rica's long-term economic development by conserving and developing its renewable natural resources upon which sustainable economic growth depends.

The Project's purpose is to develop forestry and agroforestry as economically and ecologically appropriate land uses in the buffer zones around the Braulio Carrillo, Poás and Irazú National Parks and other natural protected areas of the Central Cordillera, and to support management of these protected areas. This will be accomplished by supporting an independent private foundation which has been created to provide direction, technical assistance, coordination and funding to (a) improve the management of the national parks and other natural protected areas in the Project area, (b) improve the sustainable management and production of the natural forests of the buffer zone around the parks, and (c) assist the residents of the area to increase their income and improve their land by integrating trees into their farming systems.

Given the long-term nature of the activities, this Project will have a life of seven years. However, the Foundation will continue to function indefinitely, funded primarily through an endowment that will be established with funds provided by the Project. This endowment will be called "The Central Cordillera Trust Fund".

B. Project Working Area

The principal forest and wildland management agencies of the GOCR (MIRENEM, DGF, SPN, DVS) have selected the national parks of the Central Cordillera and the surrounding buffer zone as the general area of concentration for the Project. The Mission fully agrees with this choice. Approximate boundaries (see Figure 1) were identified by contracted project design studies, based on existing forest, encroachment pressures, land use capability, access, easily controllable limits and other factors. This selection was made after analyzing most of the major national parks and their buffer zones as alternatives (Corcovado, Tortuguero, La Amistad) but, for the reasons outlined below, none could match the Central Cordillera. UNESCO's Man and the Biosphere program recently declared the Cordillera Volcánica Central as a Biosphere Reserve which coincides almost completely with the project area. This classification gives greater support to conservation and buffer zone management activities in this area.

The project area lies to the north of San José and is contiguous to the most densely settled part of Costa Rica which includes the capital city and the productive Central Valley. It has exceptional economic and ecologic importance, partly because it supplies much of the water, wood and agricultural produce needed by the population in the Central Valley, and partly because the variety of its landscapes encompass unusual biological diversity and tourist attractions. The Central Cordillera area presents unusual opportunities for the management of natural resources because of its new good road link to San José, the existence of community groups with an interest in conservation, its importance as a major source of community water

supplies, the prospects for environmental education and scientific tourism, and other favorable factors.

The Central Cordillera project area includes the 12 distinct legally created natural protected areas which are indicated on Table 2.

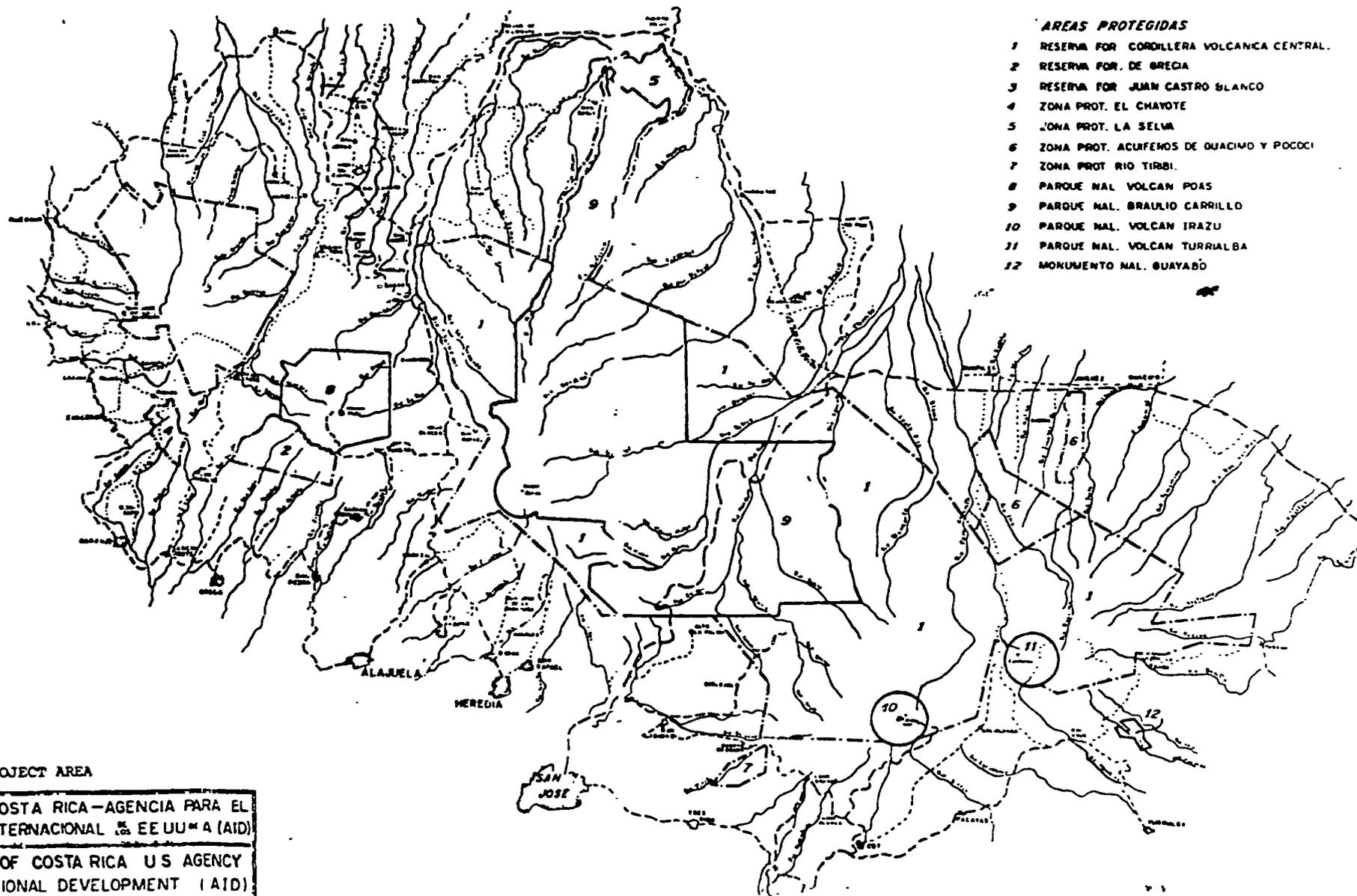
**TABLE 2: NATURAL PROTECTED AREAS WITHIN
THE CENTRAL CORDILLERA AREA**

<u>Protected Area</u>	<u>Hectares</u>
A. Forest Reserves:	
1. Central Cordillera	69,900
2. Grecia	2,000
3. Juan Castro Blanco	13,700
B. Forest Protection Zones:	
4. Chayote	1,400
5. La Selva	1,450
6. Guácimo y Pococí	3,700 *
7. Tiribí	650
C. National Parks:	
8. Poás Volcano	5,317
9. Braulio Carrillo	44,100
10. Irazú Volcano	2,309
11. Turrialba Volcano	1,256
D. National Monument:	
12. Guayabo	<u>218</u>
TOTAL	146,000

Note: Numbering on this Table corresponds to locations on the map of the project area (Figure 1).

* This amount is approximate since the limits are not clearly defined.

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- AREAS PROTEGIDAS**
- 1 RESERVA FOR. CORDILLERA VOLCANICA CENTRAL.
 - 2 RESERVA FOR. DE ORECA
 - 3 RESERVA FOR. JUAN CASTRO BLANCO
 - 4 ZONA PROT. EL CHAYOTE
 - 5 ZONA PROT. LA SELVA
 - 6 ZONA PROT. ACUFENOS DE GUACIMO Y POCOCI
 - 7 ZONA PROT. RIO TIRIBI.
 - 8 PARQUE NAT. VOLCAN POAS
 - 9 PARQUE NAT. BRAULIO CARRILLO
 - 10 PARQUE NAT. VOLCAN IRAZU
 - 11 PARQUE NAT. VOLCAN TURRIALBA
 - 12 MONUMENTO NAT. GUAYABO

Figure 1:
FORESTA PROJECT AREA

GOBIERNO DE COSTA RICA - AGENCIA PARA EL
DESARROLLO INTERNACIONAL DE EE.UU.A (AID)
GOVERNMENT OF COSTA RICA U.S. AGENCY
FOR INTERNATIONAL DEVELOPMENT (AID)

The area indicated on Figure 1 forms a logical unit for land management purposes. However, except for planning purposes, the activities of the FORESTA Project will exclude the land west of the Poás National Park. Precise boundaries will be determined during the first year of the Project, but will not exceed the limits of Figure 1. This project area (approximately 2,280 kms²) includes about 3% (232 kms²) of Costa Rica's remaining primary forest with commercial potential and 12% of the national parks and other reserved wildlands in Costa Rica. The innovative nature of many of the project activities, especially those dealing with forest management, require phased implementation under controlled conditions which can only be achieved in a well-defined area. The models created will gradually be used in other areas of Costa Rica as soon as institutions are capable of such replication. To accelerate this process, the Mission and the GOCR are helping to lay the groundwork for future replication by programming local currency to complement AID/Washington dollar funding of a parallel, although more modest activity--the BOSCOA project. This project includes activities for the buffer zone surrounding the Corcovado National Park similar to those proposed for the FORESTA project.

For purposes of the FORESTA project, all land inside the project area but outside of the natural protected areas is considered as buffer zone. The land in the project area can be classified into several use categories, as indicated in Table 3. Project activities will vary according to category. It should be noted that the Project, in general, does not intend to undertake activities on land classified as capable of sustained crop production or grazing and currently under these uses, except for fomenting the use of trees in agroforestry practices. Since other institutions in Costa Rica deal with agricultural productivity and animal husbandry, the Project will limit its role to encouraging the proper linkages with them. Another justification for this limitation is that the Project would become excessively complex if it were to address this vast sector.

**TABLE 3: SUMMARY OF PROJECT ACTIONS TO BE UNDERTAKEN
ON EACH CATEGORY OF LAND IN THE PROJECT AREA**

<u>Category of Land this Type of Land</u>	<u>Component which deals with</u>	<u>Type of Activity</u>
1. Natural protected areas (core area)	Component A: Management of the natural protected areas	Park protection, implementation of park mgt. plans, environmental ed.
2. Buffer zone (all land in project area outside of parks)		
2.1 Land classified as not capable of sustaining production forestry, agriculture or grazing (Class X)	Component B: Management of the natural forest for production Component C: Integration of trees in farms	Protection only
2.2 Land classified as appropriate for production forestry but not capable of sustaining agriculture or grazing (Classes VIII and IX)		

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2.2.1 Land covered with dense forest with commercial potential	Component B: Management of the natural forest for production	Forest protection, logging control, mgt. planning and implementation, forest owners assoc., forest industry
2.2.2 Land not covered by forest, or covered by forest without commercial potential	Component C: Integration of trees in farms conservation	Farm forestry, reforestation, agroforestry and other related activities identified by the community
2.3 Land classified as capable of sustaining agriculture or grazing (Classes I to VII)		
2.3.1 Land covered with dense forest with commercial potential	Component B: Management of the natural forest for production	Forest protection, logging control, mgt. planning and implementation, forest owners assoc., forest industry
2.3.2 Land under crops, grass, brush or forest without commercial potential	Component C: Integration of trees in farms	Farm forestry, reforestation agroforestry. Project functions as "broker", establishing links with other entities responsible for agriculture

C. Project Components

The FORESTA Project has been designed with four components: 1) General Operations; 2) Management of Protected Areas; 3) Management of Natural Forest for Production; and 4) Integration of Trees on Farms.

The first component establishes the relationship between the Project and the host country government through the project implementation organization. It also covers activities which have a wider scope than any one of the other components (eg: overall planning, community participation and environmental education).

The other three components divide up the project area according to current land use: 2) national parks and other legally protected areas where the forests and other resources cannot be commercially exploited but must be carefully managed; 3) other forested areas where varying degrees of utilization and management can be practiced; and finally 4) deforested lands where reforestation or mixed agriculture and forestry should be practiced.

These three components represent the actual land uses of the project area and determine the activities needed to develop the economically and ecologically most appropriate uses of this area - i.e. the project purpose.

I. General Operations Component

This component covers the administration of the Project and activities which have a scope beyond any one of the other three components; i.e., the project implementation unit, project-wide planning, the creation of operation centers throughout the project area, and environmental education and extension activities. The A.I.D. grant will provide approximately \$2.83 million and GOCR counterpart approximately C219 million for this component.

The GOCR has established the Fundación para el Desarrollo de la Cordillera Volcánica Central (the Foundation for the Development of the Central Volcanic Cordillera - referred to in this Project Paper as the "Cordillera Development Foundation", "CDF", or the "Foundation") as a private foundation for the purpose of managing the natural resources of the central cordillera area of Costa Rica. The Foundation currently has a Board of Directors and is in the process of hiring a full-time General Manager and a Financial Controller.

The first activity to be undertaken upon approval of the Project will be the linking of the Project with the CDF, which will be responsible for implementing most project activities.

As soon as is practicable after initiation of the Project, but prior to the legislative ratification of the Foundation, A.I.D. and the CDF will contract, through solicitation of bids, for an organization with the experience and technical and administrative expertise to support the Foundation, to assist with initial implementation actions, and to handle funds. Disbursements cannot be made until the

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certifies that the Foundation has the capability to handle funds.

With the assistance of the support contractor, the Board of the Foundation will begin to hire the staff for the Foundation, including a chief of operations, chief of administrative services, personnel officer, procurement officer, support staff, and a 4-person Planning and Evaluation Office. (See Section IV.A and Annex L).

The primary function of the Foundation will be to plan, carry out, or cause others to carry out activities needed to manage the natural resources of the management unit (the area under the authority of the CDF) on a sustainable basis. It will be the focus, and the integrating force which will encourage coordination and reduce conflict between activities. It will be a lean, efficient, field-oriented organization, responsive to the local population, capable of resolving many of the pressures and integrating the numerous activities needed for good land management. The Foundation will perform most of the natural resource management functions now dispersed among several government agencies. It will be financially self-sustaining, with much of its income after the Project ends derived from the Central Cordillera Trust Fund which the Project will create.

This Foundation will start very modestly and grow gradually. One of its first activities will be the preparation of the overall development strategy for the project area. For this reason it will be necessary to staff the Planning and Evaluation Office of the Foundation early in project operation and assign this office the responsibility of elaborating the strategy. This office will need to compile and analyze the abundant existing information and the plans for parts of the project area (see Bibliography, Annex M), and contract for limited additional field surveys.

Another early activity for the Foundation which has a project-wide scope is to improve infrastructure. Sadly deficient infrastructure, especially ranger stations, is one of the constraints to protection of the natural areas and the production forests, as well as to field activities in general. The Project will finance the construction and remodeling of fifteen "operational centers" for protection and management of all forested areas in the Central Cordillera. These operational centers embody a new concept. They are multi-purpose installations that serve as joint bases, not only for rangers who cover the natural protected areas and the forests of the buffer zone, but in some cases also for technicians assisting with forest management, reforestation, extension or other tasks of the CDF. Infrastructure and equipment shared by staff dealing both with protected areas and managed forests will result in considerable savings and greater effectiveness. At present SPN and DGF infrastructure and operations tend to be completely separate.

The Project will finance construction of three types of operational centers, ranging from the basic ranger station to a small complex of installations for multiple functions including attention to natural area visitors and environmental education. The CDF will contract for design of the centers, will purchase the land for the new ones where needed and will contract the construction and remodeling. All centers will be equipped with a unified two-way radio system and

adequate transportation (4WD vehicles and/or motorcycles). These centers will be complemented by a mobile patrol unit.

In collaboration with the DGF and the SPN, the CDF will put in place a joint protection program which will cover all of the forest land in the Central Cordillera project area. The program will be based on a comprehensive protection plan to be prepared during the first year of the Project. Additional rangers and other staff will be contracted by the CDF. New and old personnel will be trained periodically through short courses. Training will emphasize community relations and environmental education. To complement the traditional full-time civil service rangers employed by the SPN and DGF, the Project will introduce innovative arrangements using not only full-time but also part-time and seasonal employees, volunteers and resident rangers who live with their families in certain areas where permanent control over entry points and problematic areas is needed. These resident rangers will alleviate the personal and morale problems created by the present system whereby men are stationed separate from their families. In such posts, a ranger will be hired from outside the community and given a residence where he can live full time with his family. Then one or two additional full or part time subalterns will be recruited from the community itself. Current legislation stipulates that certain functions of the civil service rangers cannot be delegated. Therefore, unless the law is changed (as has been officially proposed by the GOOCR) SPN and DGF rangers will continue to play an important role. However, with the assistance of rangers and other staff hired by the CDF, the protection system will become more effective.

Although protection and vigilance are needed, prohibitions alone will not suffice in sustaining the natural resources. The CDF will launch a program of environmental education and extension, designed in such terms that it has relevance and practical applications for the local inhabitant. The program will avoid the traditional, top-down, exhortations about conserving trees and animals, but will point specifically to how degradation of the local environment affects the inhabitant and what he/she can do about it. Conception of an effective program will have to be preceded by an in-depth survey of needs and attitudes. Once the strategy, message, and work plan have been developed, selected field staff will be trained in community relations, extension techniques and the specific subject areas. These outreach and educational activities will not be limited to extension specialists, but will include most of the CDF personnel, especially the rangers and field staff. Educational materials adapted to local conditions will be developed and made available. The program will make full use of the diverse project activities and the facilities, such as the operational centers and park visitor installations. Most of the work will be carried out through the grass roots organizations which the project supports for forest management, tree planting and other specific purposes (see component 4 below).

Table 4 provides a brief summary of the implementation schedule for the principle activities of this component. A more detailed picture is provided in Annex K: Implementation Plan. Table 5 provides the summary budget for this component.

TABLE 4: IMPLEMENTATION PLAN: GENERAL OPERATIONS COMPONENT

Activity	Project Year						
	1	2	3	4	5	6	7
1. Overall Strategy	—
2. Operation Centers	—	—	—	—	—	—	—
3. Forest Protection	—	—	—	—	—	—	—
4. Environmental Education	—	—

* Note: — Continuous Activity;Sporadic Activity

TABLE 5: GENERAL OPERATIONS BUDGET

	A.I.D. (\$000)	GOCR (C000)
1. Overall Strategy	67.1	-
2. Operation Centers	-	104,660.4
3. Forest Protection	2,731.7	113,638.2
4. Environmental Education	<u>30.0</u>	<u>780.0</u>
TOTAL	\$2,828.8	C219,078.6

2. Management of Protected Areas Component

This component deals with the management, control, and use of those parts of the project area where forest cutting and resource exploitation in general is prohibited - i.e. the "non-touch forests". These areas include national parks, forest reserves, forest protection zones, and a national monument (see Table 2). Activities include management planning, boundary demarcation, and improving visitor infrastructure. To carry out these activities the Project will provide about \$682,000 in A.I.D. grant and about C37 million in GOCR counterpart contribution.

Once the overall strategy and management concepts for the project area have been officially approved by the CDF and MIRENEM, more detailed management plans will be developed for each protected area by the Planning Office of the CDF. At present there are 12 distinct protected areas in the Central Cordillera (see Table 2). The strategy will include recommendations for merging, expansion and reclassification of some of these units. These changes will need to be legalized through executive decree (or by law if park sizes are decreased). Plans and background studies already exist for some of these areas, such as for the Poás N.P., Irazú N.P. and Braulio Carrillo N.P. Unfortunately these and other planning studies have been prepared over a twenty-year period,

using different criteria, and by different individuals, agencies and consultants. The stable Planning and Evaluation Office of the CDF will update these plans and make them compatible with the strategy and with each other. The resulting documents, once officially approved, will guide coordinated management of all the protected areas. However, the fact that revised plans are being prepared will not be used as an excuse to delay construction of infrastructure or take actions recommended in previously completed plans.

At present very few of the boundaries of the protected areas are adequately marked in the field, a fact that makes protection more difficult. Demarcation is especially important where the boundaries do not follow natural landmarks. Very early in the Project, those boundaries for which no revision is foreseen, will be marked in the field by slashing brush, blazing and painting trees, and placing signs at road and trail crossings. Once the revised boundaries have been approved as part of the strategy and management plans, then executive decrees, justifying documentation and budgets for land acquisition, will be drafted to legalize the new boundaries of all the protected areas. After the decrees have been signed the new boundaries will also be marked in the field.

All of the parks still have sizeable private inholdings within their present boundaries. As the boundaries are revised the area of inholdings will increase. Because these enclaves complicate protection and management, it is important for the government to legally acquire most of these properties. Unfortunately land purchase surpasses the project's finances. However, in the past the government and international conservation organizations have been successful in providing funds for purchase of lands for the national parks. The Project will use its resources to encourage and leverage donations for this purpose. The fact that protection of the land to be acquired for the parks will be guaranteed in perpetuity by the existence of the CDF is expected to be a strong incentive for conservation organizations to raise and donate funds. A first step will be to classify the enclaves in order of priority for acquisition, giving top priority to those that contain ecosystems vital to the integrity of the parks and those that present the most serious impediments to park protection. The value of each property will be assessed as a basis for negotiation with the owners. There will be no expropriations and all purchases will be based on a freely negotiated price. It should be pointed out that only very few people live on these properties; most enclaves are tracts of virgin forest held by absentee landowners.

To realize their full potential, the national parks and the other protected areas need to be accessible to users such as tourists, students, scientists and the public in general. The influx of additional nature-oriented tourism is one of the Project's primary economic and financial justifications (see Economic Analysis, Annex H). The Project will finance the construction of facilities needed to serve visitors to the three national parks and the Grecia Forest Reserve. Most of these facilities such as visitor centers, overlooks, camping and picnic areas, water supplies, sanitary facilities, nature trails and others have already been proposed in various planning documents and their design and construction will begin quickly. The need for other facilities might emerge as a result of the detailed management plans

which the Project will prepare. All design and construction will be contracted to private companies as a result of a bidding process. The CDF Office of Planning and Evaluation will develop specifications for the contracts and control compliance.

In addition to facilities, attention to visitors also requires certain services such as guides, attendants at entrance points, maintenance at heavily used sites, sale of food, provision of riding horses and instructors for specialized groups such as students and bird watchers. Without the provision of such services, excessive uncontrolled use of the protected areas could result in degradation. The CDF will prepare a plan for public use as part of the management plan for the natural areas, contract the guides and other personnel that will be required, and train them. It will design special interpretative programs and educational materials for visitors, particularly for students. Whenever possible these services will be provided through concessions that are controlled by the CDF.

The conservation of natural protected areas cannot succeed without the collaboration of the local inhabitants. Outreach to and education of these rural people is needed but is not enough. Some of them must also perceive the protected areas as sources of income. The CDF will give preference to local inhabitants whenever opportunities for income generation occur; for example, the concessions mentioned above for food, riding horses, white water rafting, trail maintenance, boundary demarcation and maintenance, and various guide services. Whenever possible CDF personnel will be recruited from among local inhabitants, although the range of skills available can be a limitation. Contractors that build infrastructure with project funds will be encouraged, and for some jobs even required, to employ local people. The CDF will strengthen the volunteer program which is already successfully used by the SPN. It will lay down guidelines for meeting subsistence costs of volunteers, rules for selection, responsibilities and will promote their recruitment. The volunteer program serves the double purpose of education of the volunteer and the provision of low-cost services for the protected areas.

Table 6 provides a brief summary of the implementation schedule for the principle activities of this component. A more detailed picture is provided in Annex K: Implementation Plan. Table 7 shows the budget for this component.

TABLE 6: IMPLEMENTATION PLAN: PROTECTED AREAS COMPONENT

<u>Activity</u>	<u>Project Year</u>						
	1	2	3	4	5	6	7
1. Management Plan	—	—	—
2. Establish Boundaries	—
3. Buy Inholdings	—	—	—	—
4. Infrastructure for Visitors
5. Services for Visitors
6. Community Participation

* Note: — Continuous Activity; Sporadic Activity

TABLE 7: MANAGEMENT OF PROTECTED AREAS BUDGET

	<u>A.I.D.</u> \$000)	<u>GOCR</u> (C000)
1. Management Plans	71.3	-
2. Mark Boundaries	119.8	-
3. Buy Enclaves	18.1	-
4. Visitor Infrastructure	-	35,536.8
5. Visitor Services	23.0	-
6. Community Participation	<u>450.0</u>	<u>1,638.0</u>
TOTAL	\$682.2	C37,174.8

3. Management of Natural Forests for Production Component

The second land-use category for the FORESTA Project is those natural (i.e. existing virgin or regrowth) forests where forestry activities are legally permitted, deforestation is not yet far advanced, and the land is classified as capable for sustainable production forestry. This component will develop guidelines for controlling logging, selecting trees to harvest, constructing logging roads and silvicultural practices. Financial incentives and technical support will be provided to develop a viable vertically integrated forest enterprise which combines sustainable management of the forest with efficient utilization of the wood. This component will concentrate on the three remaining sizeable blocks of forests with commercial potential: Las Horquetas, La Virgen del Socorro, and Río Corinto (see Figure 3). The Project will provide \$170,000 and C78 million in counterpart for this component.

Forest management requires effective control of harvesting and land clearing operations. At present, the procedures and mechanisms by which the DGF carries out these controls are inadequate. Through technical assistance the Project will help the DGF in revising the regulations, procedures, inspection mechanisms and processing of permits. The new procedures will be tried out in the project area under conditions carefully monitored by the technical staff of the DGF and of CDF. The affected parties, especially forest owners, loggers and industrialists, will be consulted for feedback. The intent is to get away from the current piecemeal procedure of individual permits of short duration and with numerous loopholes. Instead, individual forest owners will develop, with the assistance of CDF staff, a multi-year management plan which includes detailed harvesting and regeneration activities. Once approved by the DGF and the CDF, the management plan will serve as the authorizing document for logging over several years. As long as periodic field inspections show compliance with the plan, the owner will be allowed to proceed. Such simplified procedures will act as an incentive for owners to manage their forests.

As part of developing guidelines for forest management the CDF will contract with specialists to compile the relevant experience and draft standardized technical guidelines which will be required for all individual management plans, covering such operations as construction of logging roads, selection of trees to harvest, permissible logging practices which cause minimal damage to the residual stand and silvicultural interventions (eg: thinnings). These guidelines will become standard provisions for attachment to the individual forest management plans. The guidelines will assure that management plans become easy to prepare, practical tools rather than the expensive, bulky, academic documents they now tend to be. On selected properties the effect of the guidelines will be carefully monitored by the CDF technical staff, especially with respect to logging damage, stand development and regeneration.

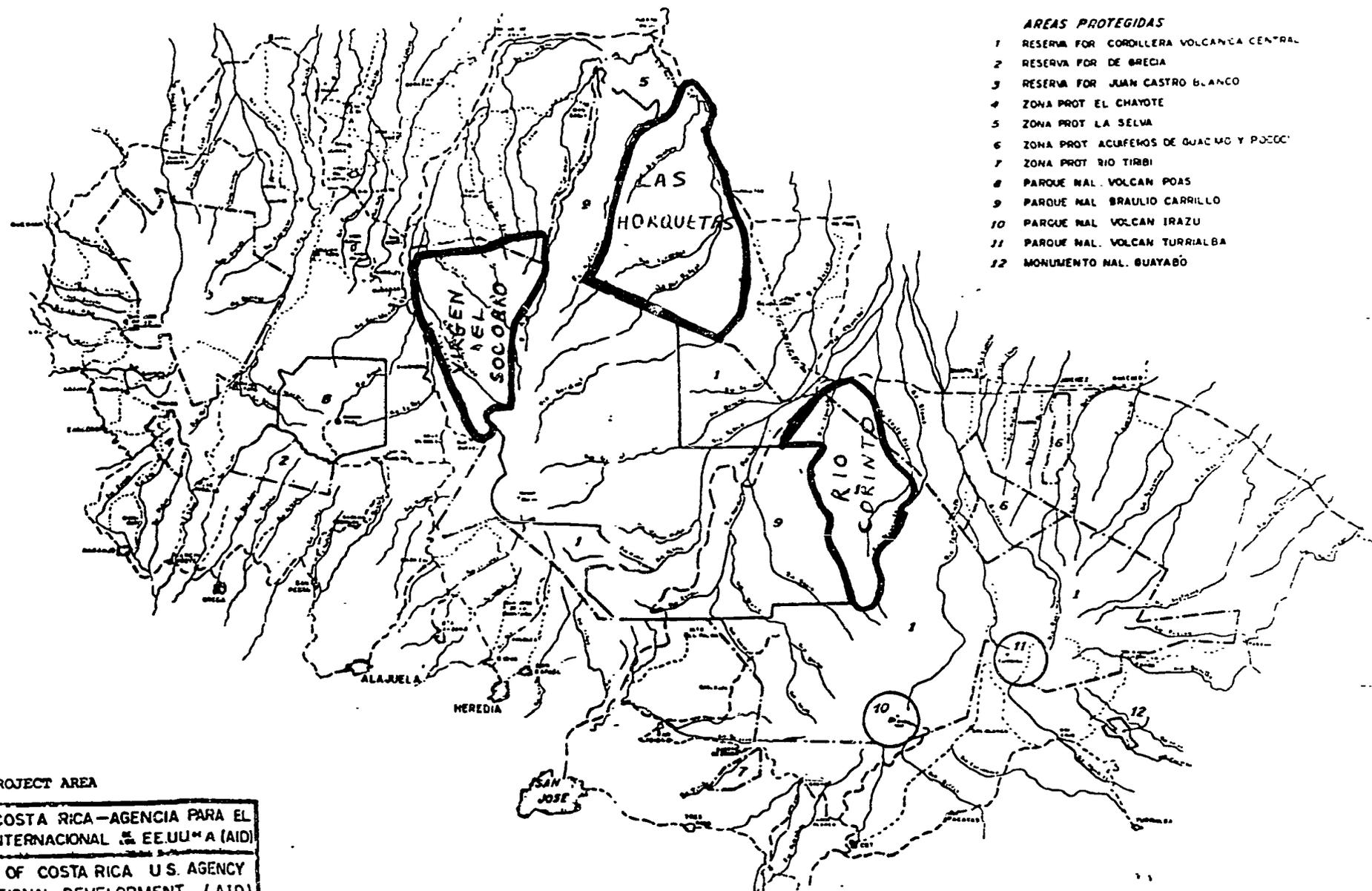


Figure 2:
FORESTA PROJECT AREA

GOBIERNO DE COSTA RICA—AGENCIA PARA EL
DESARROLLO INTERNACIONAL DE E.E.U.U. (AID)
GOVERNMENT OF COSTA RICA U.S. AGENCY
FOR INTERNATIONAL DEVELOPMENT (AID)

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The project design team has recommended two alternative silvicultural practices for use in the forests of the project area: "clear-cutting" of narrow strips (where all timber is removed and then the strip is left to regenerate naturally) and "liberation thinnings" in harvested stands (where only selected trees are removed, releasing young promising individuals to develop for later harvest). Details of each are discussed in the Technical Analysis (Annex F) and the Environmental Assessment (Annex I). Applied research aimed at testing these practices and at improving the guidelines will be contracted to local institutions qualified in forest research (eg: CATIE). These long-term studies will involve plots for experimental treatments and permanent inventory plots to assess stand development, all of which require periodic remeasurement and analysis over several years. Based on the monitored forests, research and general observations, revised editions of the guidelines will be prepared periodically. With the help of the research institution, the technicians of the DGF, the CDF and those contracted by the forest owners will be trained in application of the guidelines.

Unfortunately, the design team determined that even the best guidelines, supported by technical assistance, implemented as completely as possible, are not sufficient for forest owners to obtain attractive financial returns from sustainable forest management. Many forest operations have great economies of scale and cannot be carried out individually by owners of small tracts. For example, teams of oxen for extraction of logs, small sawmills, forest technicians and lumber marketing channels are only financially viable if they serve relatively large areas of forest. This leaves two basic possibilities: either sharing these means of production between numerous forest owners who retain ownership of their land (eg. a cooperative), or consolidation of the forest properties under one enterprise in which the original owners can participate if they desire. Both options received considerable study during project design. Although the first is not discarded, the second option was found to be better adapted to local realities and the one on which the Project will concentrate. (See Technical Analysis, Annex F.)

Therefore, this component of the FORESTA Project will provide technical assistance and financial incentives through the CDF, to create a commercial enterprise, a company (sociedad anónima), which combines the industry that processes the wood with the forest which produces it, and which manages this forest under one unified plan.

It is, clearly, too early to predict what this enterprise will look like, including its ownership and financial structure. The Project does not intend to dictate what those structures should be. The CDF will evaluate potential enterprise arrangements and support those with the best prospect for meeting the Project's purpose. The following paragraphs describe a sample enterprise which the design team believes could meet the requirements of the Project.

The enterprise will be managed just as any other commercial company. It will have a board elected by the shareholders, many of whom are expected to be forest industrialist and the former land owners. Involvement of the farmer is essential because of their management experience and contacts. The enterprise will contract an experienced manager and other personnel.

The enterprise will acquire forest land through one of at least three possible means of compensation:

- payment of 25% to 50% of the price of the land and forest in cash, and the balance in stocks in the enterprise;
- a downpayment for the land and the forest, with the balance spread over three to five years; and
- purchase of the right to the forest only, with payment partly in cash and partly in shares.

The idea behind these three alternatives is to encourage forest owners long-term participation by making them part owners in the enterprise and improving their cash flow while, at the same time, reducing the cash outlays of the enterprise during the start up phase.

As an incentive to participate, the enterprise will assist those owners who do not have clear title to their land, a common situation in the area, with surveying and legal services to straighten out their tenure situation prior to purchase by the enterprise. It will also provide the forest inventories needed to estimate the price of the properties. For those claimants who are not legally able to obtain clear title to the land (such as those inside the Forest Reserve) the sale of user's rights and acquisition of shares (alternative 3) is the only option. The existing, strong association of settlers in the Río Corinto area of the project could serve as a nucleus for formation of the enterprise.

This scheme will bring considerable benefits to the local inhabitants. In all cases the enterprise will only purchase land with forest cover. The owners will continue to farm the land under agricultural use as always, without disruption of their way of life. They can improve their farm by investing the money received for selling the forested portion in farm machinery, infrastructure or new crops. Second, many of these residents will receive a regular compensation from the enterprise for protecting the forest against illegal infractions, maintaining fences and keeping an eye on the property. Third, the enterprise will be a new source of employment both in the woods and the sawmill. It will give preference for employment to local residents. Fourth, those former owners who have chosen the stock option will receive dividends. Finally, the local inhabitants will also be the beneficiaries of other components of the Project, especially of reforestation and agroforestry which will help them improve their farms.

The purchase of a local sawmill and logging equipment will be similar to the procedure for the land purchases, that is, a combination between cash and shares. As a result, the management of the forest, logging and processing will be under the complete control of the enterprise, a condition considered important for efficient operation. The enterprise will have a strong incentive to manage the forest upon which it depends. The value added through processing of the wood will contribute to the enterprise as a whole and will ultimately benefit the shareholders and the local residents who receive forest related employment.

During the start-up phase, operation of the sawmill will change only slightly, because attention of management will focus on organization of forest harvesting, management and the supply of logs to the sawmill. At first the mill will continue to purchase most logs from outside the project area as it has always done. Gradually an increasing proportion of logs will be derived from the managed forests of the enterprise. Two innovations will be introduced by the enterprise for dealing with small logs: the use of oxen teams for logging and of portable sawmills as a complement to the stationary mill. As the enterprise develops, Project incentives will finance investments in the sawmill to improve efficiency and to increase the range of products by incorporating preservation plants, dry kilns, planers and secondary manufacturing. An assured wood supply allows the enterprise to make this type of long-term investment, which other mills in the country are not able to risk.

Irrelevant of the final enterprise structure, foresters contracted by the enterprise will prepare a management plan for its forest property. Management of all the land as a single unit, allows costs of roads and logging, which represent a large proportion of the cost of producing lumber, to be rationalized and minimized. The management plan will be submitted to the CDF and the DGF for approval. Periodic inspections to check compliance with the plan will be carried out by the DGF. The enterprise will contract its own technical assistance.

As this enterprise demonstrates the feasibility of managing the forest in conjunction with industry, many new opportunities for increased involvement will open up. More forest owners will be attracted either to become shareholders or to manage their properties on their own or in association with others. As income from jobs and shares in the enterprise increases, gradually a consciousness of forestry as a sustainable financial activity will develop in the region. In the long run, this attitude will reflect favorably on maintenance of productive forests and on reforestation.

It is unlikely that an enterprise which manages forests on a sustainable basis could be financially viable in Costa Rica without some kind of government subsidy. One of the reasons is the large amount of capital that would have to be tied up in the acquisition of forests, part of which would not produce returns until many years in the future. Most countries, including the U.S. and Costa Rica, recognize that because of the special features of forestry, such as its multiple benefits which are not adequately valued in our economic system and its long time horizon, many forest activities merit government subsidies. For example, Costa Rica for years has given generous tax incentives for reforestation and is considering expanding these to the management of natural forests. It is also generally accepted that governments (and the FORESTA Project) finance the acquisition and management of natural protected areas such as national parks, because of their social and biological values which are not reflected in financial analyses (and not easily quantified even in economic analyses). An enterprise which successfully manages a large area of natural forest and thereby prevents its destruction, provides many of these "externalities" and contributes to the conservation of the adjoining parks. Consequently the Project will provide incentives which will help to make the sustained management

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and utilization of natural forests into a financially viable business.

The exact nature of these incentives will be negotiated during project implementation. Conditions of financing and disbursement will be contingent on proposals submitted by interested forest owners and investors, sustained by detailed feasibility studies of the specific enterprise. One of the main selection criteria will be the willingness of the investor to risk some of his own resources. The aim will be a flexible incentive program that can be responsive to the specific needs of a prospective investor. Whether the mechanism is to be a direct subsidy, credit, cost sharing, leasing arrangements or a combination of these or other incentives will be decided once the proposals are negotiated. It is foreseen that this kind of flexible arrangement which stimulates innovation and creativity on the part of the entrepreneur is more likely to result in a successful program than the customary route of preparing the scheme by an outside design team.

The CDF will be the principal catalyst for all of these activities. The Project will make available to the CDF \$1 million in local currency to allocate for such incentives. The final decision as to the destiny and modality of the incentive program will be made by a committee which includes, as a minimum, representatives from the CDF, DGF, and A.I.D. Working with local forest owners, the CDF staff will be responsible for presenting this scheme, encouraging proposals, organizing potential participants in the enterprise, evaluating feasibility studies, and supporting negotiations. The support contract for the CDF will be very important in carrying out these activities. This incentive fund will be kept in the CDF's endowment to support the capitalization of the Trust Fund, subject to withdrawal by the CDF's Board as it funds interested investors and an appropriate incentive vehicle. In addition, funds have been budgeted for specialized technical assistance for the Foundation.

Table 8 provides a brief summary of the implementation schedule for the principle activities of this component. A more detailed picture is provided in Annex K: Implementation Plan. Table 9 shows the budget for the implementation of this component.

TABLE 3: IMPLEMENTATION PLAN: NATURAL FOREST MANAGEMENT COMPONENT

<u>Activity</u>	<u>Project Year</u>						
	1	2	3	4	5	6	7
1. Forest Control Plan							—
2. Forest Management Procedures							
3. Forest Enterprise						
4. Forest Under Management							
5. Establish Forest Industry(s)							

* Note: _____ Continuous Activity; Sporadic Activity

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TABLE 9: NATURAL FOREST MANAGEMENT BUDGET

	A.I.D. (\$000)	GOCR (C000)
1. Control Mechanisms	5.0	-
2. Technical Guidelines	100.0	-
3. Forest Enterprise	40.0	-
4. Forests Under Management	27.5	-
5. Investment Incentive Fund	-	<u>C78,000.0</u>
TOTAL	\$172.5	C78,000.0

4. Integration of Trees on Farms Component

The third land use category established for the FORESTA Project is land currently under agricultural use (crops or pastures). Much of this land in the project area has been cleared for crops and pastures even though it is not capable of sustaining such uses. This component will encourage returning that land which is inappropriate for agriculture to forests, and promote the integration of trees in a beneficial way on good agricultural land. Local grass-roots organizations will be created/fortified to serve as the primary mechanism for encouraging these activities. The Project will provide \$24,500 from the A.I.D. grant and about C32.5 million from the GOCR counterpart contribution to implement these activities.

Much of the land which has been cleared for pasture and crops is not capable of sustaining such uses and should return to a forest cover, either by letting the land naturally revert to forest or by establishing plantations. On the other hand, much of the land appropriately used for pasture and crops could benefit through the integration of trees as fencerows, windbreaks, woodlots, for shade over crops and pastures, or in other arrangements. Therefore, the project will promote both the establishment of forest plantations and the planting of trees in conjunction with pasture and crops (or agroforestry practices, as these associations are commonly called). Both of these ways of planting trees are closely related. Many of the species, techniques and the individuals involved tend to be the same. In practice, the same nurseries and technicians would often be used for both. However, for conceptual and planning purposes, plantations in blocks and the integration of trees with pastures and crops will here be described separately.

Considerable experience is available in ecologically similar areas of Costa Rica on the establishment and management of plantations. CDF foresters will compile and analyse the information available on species selection for the most common sites, nursery techniques, plantation techniques and management of the plantations. Particularly useful sources of information will be the Tree Crop Production Project through which the DGF, with CATIE and ROCAP assistance, has been

promoting farm forestry for about eight years. Many of the organizational and extension schemes evolved under that project can be applied. Also species trials being carried out by the Organization for Tropical Studies within the project area will help determine additional species and techniques. Finally, biological diversity and the creation of wildlife habitats will be included among the criteria for selecting tree species to be promoted. (See Technical Analysis, Annex F).

To encourage the establishment of plantations, the GOCR currently provides financial incentives - primarily tax credits. More than 90% of the more than 12,000 ha of plantations in blocks established in Costa Rica during the last two years have benefited from these incentives. The modality is moving away from an income tax credit toward a bond (Certificado de Abono Forestal = CAF) which can be used to pay various taxes or traded on the security exchange. The GOCR will allocate a certain percent of the country's CAF's to the project area in order to encourage reforestation. The use of CAF's using the present amounts and procedures is not a permanent solution to reforestation. There is considerable interest in evolving more effective and less expensive incentives, a tendency which the Project will support. However, the CAF's are seen by the GOCR and the design team as a means of demonstrating the feasibility of forest plantations and of having a rapid impact.

The CDF foresters will select the community leaders, organizations and individual farmers most interested in establishing plantations. The project design team found that there is already considerable latent interest in the project area. Preference will be given to cooperatives or other groups. The foresters together with the owners will determine the most appropriate species for each site which is intended for planting and the area to be planted. This information will be the basis of a simple reforestation plan for each property. With this plan the CDF foresters will assist the owners in submitting the request for CAF's and provide the necessary technical certification, whenever appropriate.

Nurseries will be established according to the reforestation plan. Emphasis will be given to communal, family or commercial nurseries all operated by the interested parties themselves, but with technical and modest material assistance from the Project. The Project will also help with the acquisition or collection of good quality seeds. Establishment and management of the plantations will be the responsibility of the owners, but the Project will continue to contribute technical assistance.

The Project, through the CDF, will provide short courses to tree planters and nursery operators in subjects related to reforestation. As plantations grow, selected ones will be used as demonstrations to encourage the expansion of this activity. This will require thinnings and careful documentation of all costs and benefits. A collaborative agreement will be made with the Tree Crop Production Project (of ROCAP) so that this project helps monitor demonstration plots and carries out research on growth and management practices, as part of a network of such studies which it carries out throughout Central America.

Experience in other areas of Costa Rica has shown that the

second modality of planting trees, that is in agroforestry combinations, tends to be acceptable by a much larger number of farmers, although usually on a smaller scale. Most farmers in the project area, just as elsewhere in Costa Rica, already practice some form of agroforestry. The Project will promote improved practices and wider application based on CDF developed guidelines. It has often been shown that successful promotion of these techniques requires very intensive extension services, provided on a long-term basis, combined with demonstration plots.

Because of the large number of potential beneficiaries, this extension program is best carried out through groups of farmers. As a first step, CDF technicians will identify promising groups. Based on interest, location and group characteristics, the technicians will prepare a plan for extension and training. Subjects covered will include species selection, agroforestry techniques, outreach strategy, nursery location, types of courses, location of demonstrations and possible incentives. Two teams of extensionists will be contracted by the CDF primarily for the agroforestry work, and to help with reforestation. Each team will consist of one professional forester and two mid-level technicians (*peritos*), all of whom will be provided with transportation. The teams will receive on-the-job training through the Tree Crop Production Project and will participate in short courses periodically offered by that project. In turn these two teams will motivate and instruct the selected farmer groups in nursery operation, tree planting and management. They will provide continuous, reliable, well-founded technical assistance to those groups whose members participate in agroforestry practices. They will help establish and make full use of demonstration plots on the farmers' land. They will lead extension events such as courses, field days, and demonstrations of harvest operations. The effectiveness of this approach has been demonstrated in several areas of Costa Rica (San Ramón, Hojanca, Pérez Zeledón, the Río Parrita watershed) and will yield an accelerating rate of planting. These trees become important sources of fuel, rustic construction wood, posts and poles for the farmers.

As mentioned above, both the reforestation and the agroforestry activities will be primarily implemented through groups of farmers. A team of CDF technicians involved in the various components will meet with local farmers and groups of farmers to determine their potential for working together in resource management. Together with those groups selected, the technicians will develop group-specific implementation plans for reforestation and agroforestry activities. The CDF, in collaboration with ROCAP's Tree Crop Production Project and CATIE, will sponsor courses and workshops on technical and organizational subjects during the second and third year of the Project. The CDF will help establish links between these groups and with relevant existing umbrella organizations (see Institutional Analysis - Annex E). The thrust of the interaction with the groups will be to get them to be more involved in tree planting, forest management, and the protection of natural areas. This ties in with the CDF's environmental education activities described in the General Operations Component of the Project.

The following Table 10 provides a brief summary of the implementation schedule for the principle activities of this component.

A more detailed picture is provided in Annex K: Implementation Plan. Table 11 provides a summary of the budget for the implementation of this component.

TABLE 10: IMPLEMENTATION PLAN: TREES ON FARMS COMPONENT

<u>Activity</u>	<u>Project Year</u>						
	1	2	3	4	5	6	7
1. Reforestation							
2. Agroforestry							
3. Community Involvement							

* Note: ____ Continuous Activity; Sporadic Activity

TABLE 11: TREES ON FARMS BUDGET

	A.I.D. (\$000)	GOCR (C000)
1. Reforestation	2.0	16,224.0
2. Agroforestry	6.5	16,224.0
3. Community Organizations	16.0	-
TOTAL	\$24.5	C32,448.0

D. End of Project Status

The most important accomplishment of the Project will be the strengthening of the Cordillera Development Foundation to become a permanent self-sustaining private organization primarily responsible for the control and use of the natural resources of the Central Cordillera area. The Foundation will have a fully functioning planning office with established relationships with the relevant GOCR authorities and with the area's residents, which provides practical and acceptable (to the end users) plans and guidelines for all activities related to the natural resources under its authority.

The CDF will be effectively managing the three national parks and other protected areas in response to the MIRENEM-approved management plans and guidelines. The Foundation will have the trained staff and facilities necessary to implement its activities and to assure protection of the protected areas.

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The CDF will have the technical expertise to support and guide commercial forestry activities in the non-protected forests. It will also have a limited investment incentive fund with which to support new forest enterprises - at least one of which will be created during the life of the Project - which combines forest management for a sustainable supply of wood and wood processing operations.

As a result of technical assistance and guidance from the CDF, local residents will be benefitting from improved forest management and agroforestry practices on their own lands. New jobs created by the CDF and the forest enterprise will also be providing income for these families.

The rapid pace of deforestation in the project area will be arrested significantly and reforestation will be carried out.

By demonstrating to the Central Cordillera residents (and indirectly to other Costa Ricans) the value of the forests for the ecology and for their own financial benefit, and by creating a permanent planning and control mechanism for the Central Cordillera which promotes appropriate land use, the FORESTA Project will have achieved its purpose.

IV. PROJECT IMPLEMENTATION

A. Administrative Arrangements

This section provides a description of how the Project will be implemented including the strengthening of the Cordillera Development Foundation, technical support to the Foundation in the early years of the Project, and the creation of the Central Cordillera Trust Fund which will provide ongoing financial support to the Authority once the Project ends. A more complete description of these activities is included as Annex L, Description of the Administrative Structure and the Endowment.

The Mission will enter into a Project Assistance Agreement (ProAg) with the Foundation and the GOCR represented by the Minister of Natural Resources, Energy and Mines (MIRENEM) which grants \$7.5 million to the GOCR on an incremental basis. The ProAg will also commit C1,200 million in local currency resources and assign them directly to the Foundation on an incremental basis. The first funding increment will be C400 million previously programmed under PIL No. 32. The C800 million balance will be made available under ESR VIII, currently under negotiation. In the ProAg the GOCR will request A.I.D. to enter into a Sub-Agreement (HB-13) with the Foundation for the Development of the Central Volcanic Cordillera (CDF) to commit approximately \$6 million. In addition the ProAg will have the following provisions:

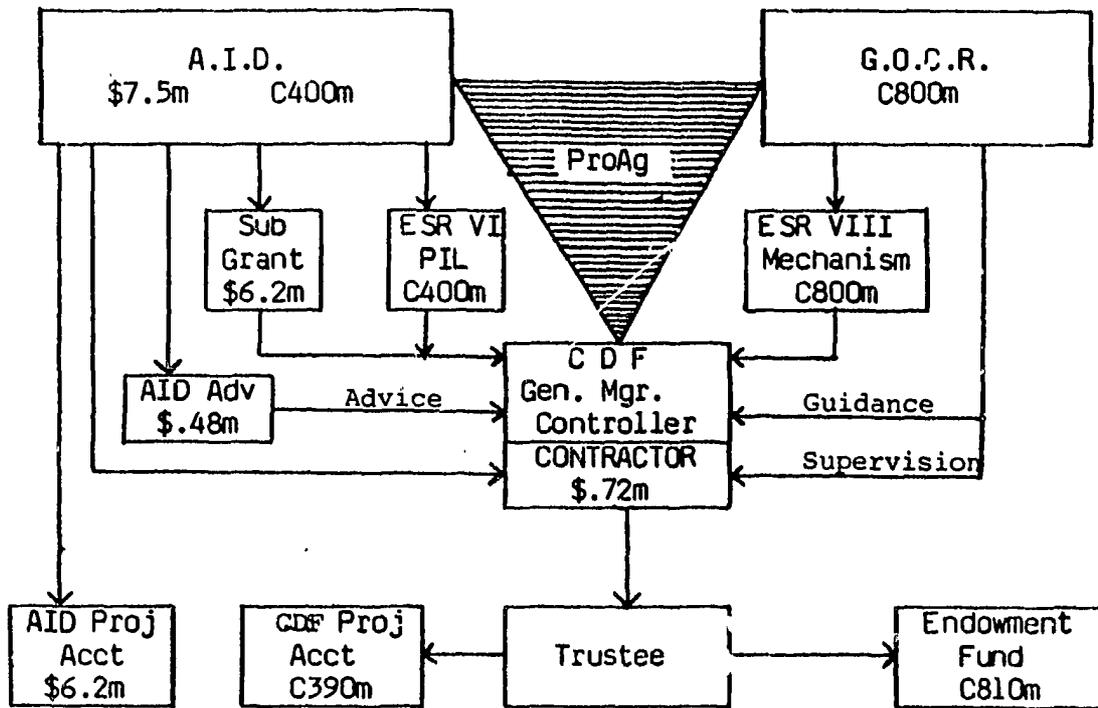
- 1) A.I.D. and CDF will jointly enter into a contract with a support organization to provide financial control and administrative assistance to the CDF;
- 2) A.I.D. agrees to fund the above-mentioned support contract;

- 3) the GOCR agrees to be responsible for oversight of the Project, to provide implementation guidance to the CDF and to supervise the support contract;
- 4) the Parties agree that C810 million of the GOCR counterpart contribution will be used by the CDF to establish an endowment fund (the Central Cordillera Trust Fund) for the CDF (the balance of the local currencies will be used for program costs);
- 5) the Parties agree that A.I.D. will establish a mechanism to provide up to \$100,000 from the A.I.D. dollar contribution for the purpose of meeting initial approved project costs prior to meeting the CPs and entering into the sub-agreement described below.

Once the ProAg is signed, the support contractor, the General Manager, and the Controller are on board, and A.I.D./CONT determines that the CDF can receive funds, A.I.D. will enter into a Sub-Agreement (HB-13) with the Foundation committing approximately \$6 million. This Sub-Agreement will describe the duties and responsibilities of the Foundation for the implementation of the Project including the establishment of the endowment.

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FORESTA PROJECT ORGANIGRAM



Setting up the initial administrative structure for the Foundation is fairly simple and rapid, the steps required will be taken very soon after the Project begins. However, developing the foundation into the fully operational forest resource management entity that it was designed to be, successfully performing all the functions required of it, including having procedures acceptable to the Mission for the accountability and control of funds, is expected to take approximately two years. In order to carry on implementation activities during this period, A.I.D. and the Foundation jointly will contract with an established entity with the technical, financial and administrative capabilities to assist in the development of the Foundation into a fully functioning organization and in the implementation of the Project. For the Contractor to be acceptable to A.I.D. it must be able to provide the financial control and administrative support to the Foundation such that the Foundation (with the contracted support) can be certified by the Mission to receive and manage A.I.D. funds. Contractor selection will be through the open bidding procedure. Illustrative terms of reference are included as Attachment A to Annex L. Once this support contract is executed and the contractor and staff are in place, an assessment of the financial and management capability of the CDF, as supported by the contracted T.A., will be undertaken. If the assessment is positive, A.I.D. will enter into the Sub-Agreement.

The Foundation will contract an NGO (referred to herein as the "fiscal agent") to monitor and control disbursements of the local currency which will be kept in a special project account. The fiscal agent will also oversee the endowment fund until another fiduciary is selected.

The Foundation currently consists of a Board of Directors, who, as a condition precedent to disbursement, will hire a General Manager who will be responsible to the Board for the day-to-day operation of the CDF and a Financial Controller responsible to the General Manager. The Foundation will also have: (1) an Office of Planning and Evaluation responsible for preparing the strategies for the Central Cordillera and for monitoring project activities; (2) a Department of Operations responsible for all field activities and the operational centers; and (3) a Department of Administration responsible for funds and personnel management. Each of these units will start very small and initially will depend on contracted technical assistance and the support contractor to fulfill its responsibilities under the supervision of the General Manager. Each division should be fully functional by the end of the second year of project implementation.

During the life of the Project, activities will be financed by project funds. Initially, before the Foundation has built up its capability, most activities will be carried out by contracted personnel. Gradually permanent personnel of the Foundation will assume increased responsibilities and contracted personnel will be phased out. The rate of this transfer of responsibility will be determined by the Board of the Foundation.

The project budget includes the local currency equivalent of approximately \$10 million from the GOCR counterpart contribution to establish an endowment fund for the Foundation (the Central Cordillera Trust Fund). In addition, other donor support for the endowment will be

sought from other donors (see Annex L).

The endowment will be kept in a separate account at the Central Bank of Costa Rica (BCCR), invested in GOCR long-term securities, during the entire life of the Project in order to capitalize. Neither principal nor interest will be disbursed from the endowment until the Project terminates and project funding ceases. At some point during the life of the Project, the Foundation, with the concurrence of the Mission and the Minister of Natural Resources, will select a fiduciary, completely separate from and independent of the Foundation, to control and manage the fund. Since the fund is to be created to support the activities of the Foundation into perpetuity, only interest from the endowment can be disbursed - the principal will not be spent. Timing for the selection of the fiduciary will be decided by the Board of the Foundation, with the only stipulation being to do so prior to the PACD. An early selection is not necessary since the funds will remain in the BCCR in long-term GOCR securities with no investment or disbursement decisions to be made until project funding has terminated.

The GOCR has indicated a desire to rebuild the National Parks Foundation (FPN), a private foundation established by the GOCR to seek out and manage funds to support the national parks. Over the years the FPN has withered nearly away (see the Institutional Analysis, Annex E). The GOCR and the project design team agree that the FPN would be an acceptable fiduciary for the FORESTA endowment fund if the FPN is rebuilt and can be certified to handle funds. The GOCR believes such a process will take a "few" years to achieve an acceptable operation.

The Project will also provide an A.I.D. direct-contracted Project Adviser to work with the support contractor, MIRENEM and the CDF. The individual will also be the primary liaison between the A.I.D. Project Manager (in RDD) and the Project and will provide close oversight of all project activities during the first four years of the Project. There has been \$480,000 budgeted for this contract.

The collaboration of certain government agencies, especially the SPN and DGF, will be essential for success, partly because some legal functions (permits, control, etc.) cannot yet be delegated to a private entity such as the CDF. The composition of the Board of Directors of the CDF will also facilitate collaboration. Collaboration will also be encouraged through one of the innovations of the Project, joint operational centers shared by field staff from both SPN and DGF, as well as CDF.

This Project will be implemented in two phases. Phase I will cover the period from the signing of the Project Agreement through the first year of Project implementation. The activities to be undertaken during Phase I will be directly related to the staffing of the CDF and those project activities which will directly benefit Costa Rica and stand on their own even if the CDF were never to be brought to its full operational potential, eg: land use and management planning, already approved (by the GOCR) national park infrastructure design and construction, construction of some operations centers, forest use control studies, and initial community outreach studies. The total cost of these activities will be approximately 5.4% of total project cost.

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After the first year, the Ministry of Natural Resources and the USAiD Mission will conduct a joint internal assessment of the status of the CDF and the Project. The following questions will be answered:

- 1) (a) can the CDF as currently constituted achieve the long-term purpose of the Project?
 - (b) is it desirable to continue with the current CDF structure?
 - (c) should/can the current structure be adjusted so as to achieve the purpose of the Project?
 - (d) does the tax status of the CDF or its endowment fund impact on the Project?
- 2) Is project implementation on track?
 - 3) Can it be expected that the Project will achieve its purpose?

Based on the results of this assessment, the assessors will determine whether to continue, modify, or terminate the Project. Because of the importance of this decision, the assessors will be the following:

For A.I.D.: the Mission Director, the Project Officer (RDO), a Project Design Officer (PDO), and the ROCAP Forestry Adviser with support from other divisions as necessary;

For the GOCR: the Minister of Natural Resources and the heads of DGF and SPN; and

The contracted A.I.D. Project Adviser.

Upon approval of the assessment, Phase II begins and covers the rest of project implementation.

B. Financial Plan and Analysis

I. General Description

Table 12 shows the total project costs by component and source of financing. The GOCR counterpart contribution is derived entirely from ESF local currency generations. Beyond that shown, the GOCR will be contributing salaries of all GOCR employees who will participate in project implementation and will commit itself, at a minimum, to maintain the current level of staffing for project activities.

The \$7.5 million shown in Table 12 as the A.I.D. contribution is composed of an estimated \$3.06 million for direct foreign exchange (FX) costs and \$4.44 million to be converted into colones for local currency costs. Table 13 provides a breakdown of the direct FX use of the dollars donated by A.I.D. by component and year of expenditure.

Table 14 presents the local currency budget of the Project from both the A.I.D. grant and from the GOCR counterpart by component and year of expenditure.

Finally, Tables 15 and 16 show the total Project Budget as actually contributed by A.I.D. and the GOCR, and as all U.S. dollars for comparison, respectively.

TABLE 12: TOTAL PROJECT COSTS BY COMPONENTS AND SOURCE OF FINANCING

(in thousands of dollars and dollar equivalent) 1/

	AID 2/	GOCR 3/	TOTAL
I. CDF			
A. General Operations	2,828.8	2,808.7	5,637.5
B. Mngt. of Protected Areas	682.2	476.6	1,158.8
C. Natural Forest Mngt.	172.5	1,000.0	1,172.5
D. Trees on Farms	24.5	416.0	440.5
E. Administration	1,033.7	204.2	1,237.9
II. T.A. Support Contract	720.8	-	720.8
III. A.I.D. Project Adviser	480.0	-	480.0
IV. Audits and Evaluations	285.0	-	285.0
V. Inflation and Contingencies	1,272.5	94.5	1,367.0
VI. Endowment	-	<u>10,000.0</u>	<u>10,000.0</u>
TOTAL	7,500.0	15,000.0	22,500.0

1/ Exchange rate used: US\$1 = 78 colones.

2/ A.I.D. contribution represents the amount of the local currency costs financed with dollars, plus the dollar cost items.

3/ ESF generated local currency converted to U.S. dollars only for the purposes of comparison.

TABLE 13: DOLLAR COST BUDGET BY COMPONENT AND YEAR
(Thousands of Dollars)

	Phase I	Phase II						Total
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
I. CDF								
1. General Operations	37.1	10.0	8.0	5.0	4.0	4.0	2.0	70.1
2. Mgt. of Protected Areas	20.0	21.4	16.4	5.0	-	-	-	62.8
3. Natural Forest Mgt.	75.0	30.0	25.0	10.0	10.0	5.0	5.0	160.0
4. Trees on Farms	-	5.0	3.0	2.0	1.0	1.0	1.0	13.0
5. Administration	-	-	-	-	-	-	-	-
II. Support Contract	187.6	338.8	122.7	71.7	-	-	-	720.8
III. A.I.D. Adviser	90.0	120.0	120.0	120.0	30.0	-	-	480.0
IV. Evaluation and Audits	20.0	20.0	100.0	5.0	20.0	100.0	20.0	285.0
V. Inflation & Cont.	221.5	215.3	159.4	162.7	120.4	111.3	281.9	1272.5
VI. Endowment	-	-	-	-	-	-	-	-
TOTAL	651.2	760.5	554.5	381.4	185.4	221.3	309.9	3,064.2

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TABLE 14. LOCAL CURRENCY COST BUDGET BY COMPONENT AND YEAR
(Thousands of Colones)

	Phase I	Phase 2						Total
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
I. CDF								
A. General Operations	41,395	102,024	56,963	60,902	57,985	58,305	56,690	434,264
B. Mgt. of Protected Areas	5,889	4,633	15,608	31,379	9,976	9,157	8,845	85,487
C. Natural Forest Mgt.	-	78,390	195	195	-	195	-	78,975
D. Trees on Farms	3,806	4,345	4,976	4,781	7,004	4,274	4,157	33,343
E. Administration	11,755	15,584	13,845	12,948	15,444	14,118	12,870	96,564
II. Support Contract	-	-	-	-	-	-	-	-
III. A.I.D. Adviser	-	-	-	-	-	-	-	-
IV. Evaluation and Audits	-	-	-	-	-	-	-	-
V. Inflation & Cont.	-	-	-	-	-	-	7,371	7,371
VI. Endowment	<u>810,000</u>	-	-	-	-	-	-	<u>810,000</u>
TOTAL	872,845	204,976	91,587	110,205	90,409	86,049	89,933	1,546,004

* C78 million programmed for the investment incentive fund can be disbursed as soon as required after the approval of Phase II.

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TABLE 15: FORESTA PROJECT BUDGET (Actual)

	<u>G.O.C.R. COUNTERPART</u> (000 Colones)	<u>A.I.D. GRANT</u> (000 Dollars)
I. CDF	382,629.0	4,741.7
A. General Operations	219,078.6	2,828.8
1. Overall Strategy	-	67.1
2. Operation Centers	104,660.4	-
3. Forest Protection	113,638.2	2,731.7
4. Environmental Education	780.0	30.0
B. Management of Protected Areas	37,174.8	682.2
1. Management Plans	-	71.3
2. Mark Boundaries	-	119.8
3. Buy Enclaves	-	18.1
4. Visitor Infrastructure	35,536.8	-
5. Visitor Services	-	23.0
6. Community Participation	1,638.0	450.0
C. Natural Forest Management	78,000.0	172.5
1. Control Mechanisms	-	5.0
2. Technical Guidelines	-	100.0
3. Forest Enterprise	-	40.0
4. Forest Under Management	-	27.5
5. Investment Incentive Fund	78,000.0	-
D. Trees on Farms	32,448.0	24.5
1. Reforestation	16,224.0	2.0
2. Agroforestry	16,224.0	6.5
3. Community Organizations	-	16.0
E. Administration	15,927.6	1,033.7
1. CDF Staff	15,927.6	1,033.7
II. A.I.D. Adviser	-	480.0
III. T.A. Contract	-	720.8
IV. Audits & Evaluations	-	285.0
V. Inflation & Contingencies	7,371.0	1,272.5
VI. Endowment	<u>810,000.0</u>	<u>-</u>
TOTAL	CI,200,000.0	\$7,500.0

TABLE 16: FORESTA PROJECT BUDGET (In Dollars)

	AID GRANT		GOCR *
	FX (\$000)	LC (\$000)	LC (\$000)
I. CDF	305.9	4,435.8	4,905.5
A. General Operations	70.1	2,758.7	2,808.7
1. Overall Strategy	50.1	17.0	-
2. Operation Centers	-	-	1,341.8
3. Forest Protection	-	2,731.7	1,456.9
4. Environmental Education	20.0	10.0	10.0
B. Management of Protected Areas	62.8	619.4	476.6
1. Management Plans	62.8	8.5	-
2. Mark Boundaries	-	119.8	-
3. Buy Enclaves	-	18.1	-
4. Visitor Infrastructure	-	-	455.6
5. Visitor Services	-	23.0	-
6. Community Participation	-	450.0	21.0
C. Natural Forest Management	160.0	12.5	1,000.0
1. Control Mechanisms	5.0	-	-
2. Technical Guidelines	100.0	-	-
3. Forest Enterprise	40.0	-	-
4. Forest Under Management	15.0	12.5	-
5. Investment Incentive Fund	-	-	1,000.0
D. Trees on Farms	13.0	11.5	416.0
1. Reforestation	-	2.0	208.0
2. Agroforestry	-	6.5	208.0
3. Community Organizations	13.0	3.0	-
E. Administration	-	1,033.7	204.2
1. CDF Staff	-	1,033.7	204.2
II. T.A. Contract	480.0	-	-
III. A.I.D. Adviser	720.8	-	-
IV. Audits & Evaluations	285.0	-	-
V. Inflation & Contingencies	1,272.5	-	94.5
VI. Endowment	-	-	10,000.0
TOTAL	\$3,064.2	\$4,435.8	\$15,000.0*

* NOTE: GOCR local currency contribution is a cash contribution, not in kind, and is in colones. This conversion which is calculated at C78/dollar, is for comparison purposes only.

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2. Methods of Implementation and Financing

a. Chart of Methods of Implementation and Financing

Table 17 presents a chart with the implementation and financing methods to be used in the project.

b. Narrative, Financing Methods Assessment

(1) Dollar Assistance provided by A.I.D.

All proposed financing methods for the dollar assistance to be used in the project are preferred methods.

(2) Local Currency Counterpart provided by the GOCR

The counterpart contribution, provided in cash, comes entirely from ESF local currency generations.

The GOCR, with A.I.D. concurrence, will provide the local currency to CDF to fund its local currency program expenses and an endowment. The actual granting mechanism will be the tripartite HB 3 Project Agreement to which A.I.D., the GOCR and the CDF will all be parties.

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TABLE 17: METHODS OF IMPLEMENTATION AND FINANCING
(US\$000)

Type of Expenditure	Implementation Method	Financing Method	HC/AID	HOST COUNTRY IMPLEMENTING AGENCY	CONTRIBUTION AID	CONTRIBUTION HC
<u>CDF OPERATIONS</u>						
1. A.I.D. dollars	A.I.D. Direct Grant (HBI3)	Direct payment	AID	N/A	6,014.2	
2. ESR VIII local currency	See narrative					\$5,000.00
<u>ADVISOR</u>						
3. A.I.D. Advisor	A.I.D. Direct Contract	Direct payment	AID	N/A	480.8	0.0
<u>TECHNICAL ASSISTANCE</u>						
4. TA Contract	A.I.D. Direct Contract	Direct payment or Trea L/Cred.(*)	AID	N/A	720.8	0.0
<u>AUDITS AND EVALUATIONS</u>						
5. Audits & Evaluations	A.I.D. Direct Contract	Direct payment	AID	N/A	285.0	0.0
<u>ENDOWMENT</u>						
6. ESR VI Local Currency	See narrative					5,000.0
7. ESR VIII Local Currency	See narrative					<u>5,000.0</u>
					\$7,500.0	\$15,000.0

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The Project Agreement will commit and assign C400 million (approximately \$5 million) from ESR VI and agree to program an additional C800 million (approximately \$10 million) from ESR VIII for the Project. All the local currency will be transferred to a separate interest-bearing account in the BCCR. The fiscal agent, hired by the CDF with A.I.D. and MIRENEM approval, will be empowered by the Foundation (1) to make disbursements from this separate account into the Foundation's project account for project implementation costs (approximately C390 million plus interest earned) and (2) to make disbursements from this separate account into the endowment account - once established by the foundation (not less than C810 million plus interest earned). The endowment funds will not be monetized during the life of the Project. (See Annex L for more details on this mechanism.)

c. Implementation: Capability Assessment

No assessment of the implementing and financial capability of the Host Country entities is necessary because all U.S. Dollar financed contracts and subgrants will be executed directly by A.I.D.

However, for the A.I.D. HB 13 subgrant to CDF, a pre-award survey of the implementation and financial capability of the CDF, as supported by the TA Contractor, will be completed as part of the grant process. Full implementation of the Grant to the CDF will depend on a positive assessment. Disbursement of local currency to CDF by the fiscal agent will also be conditioned on a positive assessment. This condition will be included in the agreement between CDF and the fiscal agent.

d. Audits

This section identifies auditable agreements and proposes an audit budget.

Normally FIG audits A.I.D. direct contracts and (sub) grants. RIG may decide to use non-federal auditors, therefore money for these audits is included in the project budget. The general criteria for setting the audit budgets are:

- a) audit no agreements under \$100,000
- b) one audit will be performed every two years
- c) agreements costing \$100,000 to \$2,000,000 will have a budgeted unit cost of \$10,000
- d) agreements costing over \$2,000,000 will have a budgeted unit cost of \$20,000.

However, considering that the CDF is a brand new institution this project will budget for annual audits \$15,000 per audit. Other audits will be budgeted according to the above criteria. The audit budget for the project is presented next:

TABLE 18: AUDIT BUDGET

Agreement to be Audited	Agreement Cost (\$000 or \$ Equivalent)	Duration In Years	Audit Units	Audit Unit Cost	Audit Budget (\$000)
CDF operations	\$11,029	7	7	\$15	\$105
A.I.D. Adviser	480	4	2	10	20
TA Contract	721	3	1.5	10	15
Endowment	10,000	7	0	0	0
TOTAL					\$140

The CDF will be required to have public accounting firms perform periodic audits of its US Dollar and local currency accounts. This requirement and the budget resources to meet the requirement will be contained in the tripartite HB3 agreement which grants the funds to the CDF. Also, an audit requirement will be imposed on the fiscal agent in the agreement between it and the CDF. Funds for CDF and fiscal agent administered audits are to be included in the HB13 subgrant and the CDF/fiscal agent agreements respectively and are additional to the funds provided above for RIG audits.

3. Procurement Plan

This Project has two main categories of procurement: (1) procurement of goods and (2) contracting for services. Table 19 gives a summary of the plan for the procurement of goods and services:

TABLE 19: FORESTA PROCUREMENT PLAN (\$000)*

	\$/C	HC/A.I.D.	1	2	3	4	5	6	7	TOTAL
1. CDF	\$	HC	-	3.0	3.0	2.0	1.0	1.0	1.0	11.0
a) Goods	C	HC	133.0	237.2	45.0	16.0	104.0	51.0	19.0	665.2
b) Services	\$	HC	154.1	83.6	71.2	63.2	57.2	52.2	50.2	531.7
	C	HC	71.8	369.6	146.7	359.7	10.0	-	-	957.8
2. Support Contract	\$	A.I.D.	187.6	338.8	122.7	71.7	-	-	-	720.8
3. A.I.D. Advisor	\$	A.I.D.	90.0	120.0	120.0	120.0	30.0	-	-	480.0
4. Audits & Evaluations	\$	A.I.D.	20.0	20.0	100.0	5.0	20.0	100.0	20.0	285.0
TOTAL	\$		451.7	565.4	416.9	261.9	108.2	153.2	71.2	2,028.5
	C		264.8	606.8	191.7	375.7	114.0	51.0	19.0	1,623.0

* All figures are shown as U.S. dollars for comparison only. The exchange used is U.S. \$1/C78.

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INPUTS

(Millions of Dollars or Dollar equivalent)

	<u>A.I.D.</u>	<u>GOGR</u>	<u>TOTAL</u>
I. CDF			
A. General Operations	2.83	2.81	5.64
B. Management of Protected Areas	0.68	0.48	1.16
C. Natural Forest Management	0.17	1.00	1.17
D. Trees on Farms	0.02	0.42	0.44
E. Administration	1.03	0.20	1.23
II. T.A. Support Contract	0.72	-	0.72
III. A.I.D. Project Adviser	0.48	-	0.48
IV. Audits and Evaluations	0.29	-	0.29
V. Inflation and Contingencies	1.28	0.09	1.37
VI. Endowment	-	<u>10.00</u>	<u>10.00</u>
TOTAL	\$7.50	\$15.00	\$22.50

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Approximately \$665,000 worth of local currency plus \$11,000 (in dollars) will be used to procure goods for the Project. Approximately 75% of all procurement of goods is for the purchase of 31 vehicles. Most of the rest of the goods to be purchased are to set up the operation centers to be established throughout the project area and to furnish the new CDF. The purchase of all goods will be carried out by the CDF using good host country procurement practices for local currency procurement and using Handbook 11 regulations for the dollar procurement.

Approximately \$2 million will be used to contract for services plus about \$960,000 in local currency will be used to contract for 22 small construction projects. Here there are approximately 61 contracting activities totaling approximately \$2.96 million in value over the LOP. It is significant to note that the two support contracts for the creation of the CDF total about \$1.2 million, or over 40% of total services. In addition, nearly \$1 million in local currency will be used to contract for the construction of 18 ranger stations and several visitor facilities (about 32% of the total). All contracts for services will be executed by the CDF (except the two support contracts which will be executed by A.I.D.) as host country contracts using good contracting practices for local currency contracting and using HB11 regulations for dollar contracting.

The geographic code for the procurement of all goods and services using U.S. dollars from the A.I.D. grant will be Code 000 plus the host country and the members of the CACM. The geographic code for the procurement of all goods and services using funds from the host country counterpart contribution will be Code 899.

4. Recurrent Cost Consideration

An analysis by the design team of the last year of project implementation (year 7) identified approximately \$1.07 million as the minimum recurrent costs of the CDF necessary for the Foundation to continue operating as planned in the Project. The Central Cordillera Trust Fund is being provided by the Project to meet most (if not all) of these costs. Attachments A, B and C to the Financial and Economic Assessment (Annex H) provide four potential scenarios for the cash flow of the Trust Fund.

Scenario A assumes a \$10 million fund in local currency started on day 1 of the Project with no payment of taxes on the earnings of the endowment. This provides for all expected operating costs plus continued growth of the fund for the next 12 1/2 years.

Scenario B assumes the same fund is started on day 1 of the second year of the Project. This provides an annual income of \$665,000.

For both of these scenarios, additional income will be sought from two already identified sources:

(1) earning from concessions and other visitor related activities currently expected to be between \$180,000 and \$200,000 in year eight (a very conservative estimate based on current earnings).

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This will require a change in the current law which MIRENEM fully supports.

(2) private donations have supported many national park activities in the past and are continuing to do so.

Grants from other donors are not factored into this analysis since it is too early to know what might happen; however, it is clear that such grants would stabilize the long-term financial program of the CDF under each of the scenarios described above.

C. Monitoring and Evaluation Plan

I. Project Monitoring

The monitoring and evaluation plan set out below (and in greater detail in Annex J) establishes procedures for continuous monitoring of the Project by project participants. It envisages baseline data collection as well as periodic collection and analysis of information pertinent to numerous outputs and indicators which will enable project administrators to evaluate performance of the several project components.

The monitoring and evaluation plan relates directly to the Logical Framework for the Project and the Project Implementation Plan, from which it draws the specific outputs and indicators that it seeks to verify. It also relates directly to USAID's formal mid-term and final evaluations of the Project in that it will provide much of the information required for these evaluations. In addition, the following planning documents will be submitted to A.I.D. for approval based on environmental criteria: the global development strategy for the project area, the individual management plans for the protected areas, and the forest management guidelines.

Ideally, the monitoring and evaluation process will prove truly useful in day-to-day Project implementation as it will become an integral part of project planning and operations. The monitoring and evaluation process will be instrumental in developing the successive annual operating plans. The combined planning, monitoring and evaluation effort will continuously refer to basic project goals so as to meet them whenever feasible, and revise them when experience indicates this to be necessary.

2. Monitoring Mechanisms

The monitoring and evaluation techniques are designed to track the indicators. Descriptions of the principal mechanisms follow.

Remote Sensing (RS): Interpretation of satellite images of the project area for the first year of the Project with subsequent interpretations in years 4 and 7. Periodic aerial photography of the project area should be undertaken to supplement the satellite imagery as necessary.

Mapping (M): Biennial mapping of actual land use in the project area based on information obtained from remote sensing, verified

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on the ground.

Sample Plots (SP): Establishment and periodic measurement of selected field sites for such items as regeneration of natural forest, reforestation and logging, with annual compilation and analysis of data obtained.

Field Visits (FV): Frequent on-site observations of project activities, memorialized in progress reports or in separate field reports.

Censuses (C): Periodic interviews of samples of the population to be aggregated and analyzed.

Progress Reports: Periodic written statements by the project adviser and other technicians of status and progress of specific project activities, to be aggregated and analyzed. In some instances these could be of a standardized form, e.g. checklists.

Personal Knowledge: Awareness and communication by project participants, technicians, administrators of project conditions, continuously available to supplement information gathered through the aforementioned more formal mechanisms.

3. Project Evaluations

In addition to this continuing monitoring program, the project will have two formal outside evaluations. The first, after approximately 30 months of project implementation, will evaluate the development of the CDF, the utility and success of the monitoring program and make recommendations concerning monitoring techniques and outputs. The second outside evaluation will be larger in size and broader in scope to include project performance to date and recommendations of possible further action. This evaluation will be conducted during the second half of the fifth year of the project. A decision on whether to actually perform a final evaluation will depend on the recommendations of the second outside evaluation and Mission priority as the FORESTA Project draws to a close.

4. Verification of Project Outputs

The Project outputs to be verified through the monitoring and evaluation process are set out below:

a) Protected Areas Component:

- Prepare/apply management plans
- Establish/demarcate boundaries
- Acquire enclaves
- Construct/operate administrative and visitor infrastructure
- Control entry/activities
- Increase public visits, information, education
- Provide economic and social benefits through park management
- Maintain biodiversity

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b) Forest Management Component:

- Protect forests by controlling entries/activities
- Determine land use capability and actual land use
- Inventory forest resources
- Apply forest management techniques
- Apply forest industrial techniques
- Establish ownership rights to forest resources
- Involve communities in forest management and protection
- Increase income to forest owners from forest harvesting
- Increase value added to forest products from forest industrialization
- Reduce environmental impacts of forest harvesting operations
- Reduce environmental impacts of forest industrial operations

c) Farm Forestry Component:

- Reforest land on farms
- Introduce agroforestry, i.e. incorporation of wood trees for income production, into cropping and livestock systems
- Manage second growth forests on farms

D. Responsibility of USAID in Project Implementation

An A.I.D. Direct Hire Agricultural Development Officer in the Mission's Rural Development Office (RDO) will be the Mission official directly responsible for the implementation of the Project (i.e. the Mission Project Officer). The Project Officer will be the primary USAID contact person with the Foundation. He/she will also be the principal USAID contact with the support entity and with all other institutions and individuals that relate to the Project. He/she will continuously monitor project implementation in close coordination with the Manager of the Cordillera Development Foundation and the AID Project Adviser.

The Mission will also establish a Project Implementation Committee (PIC), chaired by the Mission Project Officer, with representatives from at least the following offices: Rural Development, Project Development, Controller, Executive, Program, ROCAP/Forestry, and ROCAP/Regional Environmental Management Specialist. The PIC will provide technical as well as general support to the Project Manager.

The Controller's Office also has a monitoring role as it approves disbursements and advances for project implementation.

V. PROJECT ANALYSES SUMMARY

A. Institutional Analysis

The FORESTA Project will work directly with the Ministry of Natural Resources, Energy and Mines (MIRENEM), the National Park Service (SPN - a division of MIRENEM), and the Forest Service (DGF - a division of MIRENEM). In addition, the Project proposes to establish an

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endowment under the management of a nonprofit foundation selected near the end of project implementation. Finally, the Project will work with local associations representing farmers, tree growers, wood processors, marketers, etc. in the project area.

Annex E presents an indepth assessment of the relevant organizations conducted by the Central American Institute for Business Administration (INCAE). The following are relevant points from that assessment.

1. Ministry of Natural Resources, Energy and Mines (MIRENEM):

MIRENEM was created by executive decree in 1986. It does not yet have official legal status (the bill for its creation is currently in the Legislative Assembly). It is made up of the National Park Service, the Directorate General for Forestry, the Office for Wildlife, and the National Meteorological Institute which previously belonged to the Ministry of Agriculture. MIRENEM has recently begun to centralize planning, purchasing, budgeting, accounting, auditing, and personnel. The Ministry is subject to the government-wide budget and audit reporting to the Ministry of Finance and the Comptroller General's Office. Donations or loans for the Ministry or its departments from other governments or international organizations must be approved by the legislature, or they may be channelled through a foundation. Turnover of personnel is minimal, with the exception of the Finance Department.

In general, the Ministry has the technical expertise and ability to carry out its mandate. Department heads are considered responsible and conscientious. However, there is concern that the failure to pass the law creating the Ministry could become a threat to the motivation of the personnel as the change of GOCR administrations in 1990 draws near. The primary concern is that the new administration could decide to break up MIRENEM; however, with the legal establishment of the CDF and/or continuation of MIRENEM under the current executive decree project activities would not be much affected.

2. National Parks Service (SPN):

The SPN was created by Executive Decree in 1970 under the Directorate General of Forestry (DGF). The National Parks Law of 1977 confirmed the SPN as a directorate and a department of the Ministry of Agriculture. Although that law is still in force, the SPN has been transferred to MIRENEM.

The SPN exercises control over 14 National Parks, 6 Biological Reserves, a national monument, and a zoo. To carry out its duties it has a 77-million colon budget, coming from the nation's ordinary budget and 17 million colones from the National Parks Fund; 367 officials are in charge of seven programs: Area Management and Protection; Planning; Land Purchasing; Research; Training; Management and Operations; Environmental Education and Extension Activities. Staff salaries take up 74% of the budget. In key positions there are personnel with much field experience who are career employees of the institution.

3. Directorate General of Forestry (DGF):

This GOCR office was created by the 1969 Forestry Law and started operations in 1970 as a department of the Ministry of Agriculture. It now forms part of MIRENEM and has 472 staff members, the salaries of whom, in addition to the rents, electricity and communications takes up 95% of its budget. There is marked centralization within the DGF. As an entity with responsibilities relating to forestry resources, its presence is very limited at the regional level. Even though the Forestry Act grants it powers, which in the opinion of some of its officials are sufficient for it to operate with relative autonomy, the DGF decision-making process is strongly influenced by the Ministry.

The DGF is responsible for policy and control on the use of all forests (public and privately held) in Costa Rica outside of the national parks and biological reserves; this includes the cutting of trees and reforestation.

The visits made to regional entities in the forestry field, such as the forestry corporations of San Carlos and Puerto Viejo and the Atlantic Sawmill Owners and Reforesters Association, and interviews with both board members and associates of these institutions, highlighted the lack of communication between these entities and the DGF. Therefore, the new CDF must develop strong community and forest user communication channels where project activities are responsive to the beneficiaries. (This has been planned.) Also, in order to win over such groups and many individuals, the CDF will simplify procedures for obtaining forest user permits.

4. National Parks Foundation (FPN) and Neotrópica Foundation (FN):

In June 1979 the National Parks Foundation was established by the Attorney General's Office under the guidance of the Director of SPN and the Presidential Adviser on Natural Resources. The purpose was to establish a nonprofit private body that would promote the consolidation of the national parks system and other protected areas. It has a five member Board of Directors (3 appointed by the founder - Attorney General's Office, one by the Executive Branch of the GOCR, and one by Central Canton of San José).

In 1985, the same individuals, plus the current Ministerial Adviser on Natural Resources, created the Neotrópica Foundation, seeking less involvement from government officials and more from private individuals.

The National Parks Foundation continued to exist but, the emphasis began to be placed on the Neotrópica Foundation until, in June, 1986, the two signed a cooperation agreement. The agreement stipulated the organization of activities which would be defined by mutual agreement and a body composed of members of both Boards was set up, to whose discretion it was left to appoint representatives as necessary, for joint action. The Neotrópica Foundation took charge of the administrative affairs of the two foundations. Gradually the National Parks Foundation handed over programs to the Neotrópica Foundation and,

on July 4, 1987, the FN took over the four main programs: 1) the Natural Patrimony Program; 2) the Environmental Education Program with the Heliconia Publishing Company; 3) the Land Ownership Program; and 4) the Lobbying Program. The FPN donated all its personal property to the FN. With the above programs, the FN received 42 specific projects to manage, the majority of a temporary nature, however, five of the projects required 37 new positions at the FN. The accompanying budget for these projects was over 45 million colones, a large proportion of the budget managed by the FN in 1987. Together the budgets of the two organizations exceeded 63 million colones.

The two foundations' Boards of Directors meetings have been held jointly and, although the majority of the resolutions are passed jointly, they are recorded separately in each Foundation's minutes.

Some of the administrative aspects detected are as follows: although both foundations are housed in the same building, they keep separate accounts and each is responsible for managing its own resources. They currently manage approximately 60 projects, each of which has its own set of books. Annually, the foundations carry out separate audits, and this year Peat, Marwick Mitchell & Co., Certified Public Accountants, carried out the audits for the two foundations, certifying that the financial statements on the 31st of December, 1987, reasonably reflected the financial situation of each. They have budgetary resources up to 1993 and are trying to create a patrimony fund. As of December 31, 1987, the two foundations' total assets exceeded \$4.7 million. The Foundations maintain bank accounts in Costa Rica with the Banco de Costa Rica and two accounts with the Perpetual Fund of Washington, in Washington D.C. They have no difficulty in opening any additional bank accounts that they require. The management supports training which it considers important to enable the staff to carry out its duties more efficiently.

Therefore, the FPN is not currently capable, on its own, of handling project funds. The FN, on the other hand, is experienced in carrying out activities similar to those proposed for the FORESTA Project and has a strong financial control system. However, as primarily a conservation organization with nationwide scope, the FN could not be expected to devote the time and effort required to successfully implement the Project on a permanent basis. The CDF must be completely dedicated to forest management in the Central Cordillera.

5. The Institutional Analysis (Annex E) also discusses the three private associations currently active in the project area:

- San Carlos Forestry Development Corporation (CODEFORSA) was created in 1984 and includes almost all the North Huétar Region sawmill owners as associates. There are notable strains between the association and the DGF. CODEFORSA leases the facilities it needs for its operations and works from the basis of a permanent administrative structure, made up of the Executive Director, a forester, a legal counselor, administrative assistant, secretaries and miscellaneous personnel. Accounting services are contracted for externally.

- Agricultural and Forestry Development Corporation of Sarapiquí (COFORSA) was established in 1986 as a civic organization. It

intends to bring together the area's producers of lumber for reforestation purposes and to protect the area's forestry resources. There are 47 members, of whom 30 are farmers, 4 are haulage contractors, and 4 are professionals. There are also strains between this Corporation and the DGF.

- Atlantic Sawmill Owners and Reforesters Association (ASIREA) was founded in 1987 to unite the Atlantic loggers and sawmill owners to improve the industry, to make better use of the raw materials, to create permanent sources of raw materials and to promote reforestation programs by coordinating with government and private bodies. Membership includes the 18 active sawmills in the zone. The Association lacks a permanent management structure and does not maintain a formal accounting system. It also has strained relations with the DGF.

Since the primary cause of tension between these forest user associations and the GOCR agency (DGF) currently responsible for forest use and control has been the belief on the part of these associations that the DGF does not listen to them, it is important that the CDF develop a system of communications with forest users to be aware and responsive to their needs. (This is an integral part of the CDF program.)

The other major source of problems is the large amount of "red tape" within the DGF required to get permits to work in the controlled areas. The CDF's procedures will be much simpler.

6. Conclusions

The analysis concludes that those institutions identified by the design team as relevant to the success of the Project are the correct institutions; they are interested in working with the CDF; and they all support the Project as designed. In order to maintain their support, communication with the CDF is very important. Finally the analysis recommends significant rebuilding of the National Parks Foundation (separate from the Neotrópica Foundation) before it could play a significant role in the Project.

B. Technical Analysis

I. Protected Areas Management Component

This study (Annex F) analyzes the technical feasibility and cost effectiveness of the proposed project activity and offers several recommendations. Most significant among these recommendations is that the concept of the "national parks component" be widened to include all 12 protected areas in the project area and that they should be handled by the Project in the same way. This recommendation has been adopted by the project design team.

There are several recommendations concerning the development of long-term plans including management strategy between SPN, DGF and FPN, meshing the biosphere reserve with the project area, and improving management planning. Integrated planning, management, and administration of the entire project area is of vital importance to ensuring the technical feasibility of the Project. The study emphasizes

that those government agencies responsible for the parks, local governments, community groups, and private organizations with specific commitments to the parks should form the core planning group - not outside consultants.

The analysis also discusses the immediate need for land tenure and biological inventories within the project area prior to finalizing park expansion proposals, field markings, or infrastructure development plans. These are also required for developing a policy for dealing with "squatters" in the area which could include expulsion, buy-out, and/or relocation.

The study distinguishes between that infrastructure which should be designed and built right away and that which should await further study and completion of the development and management plans.

Additional recommendations include providing for public transportation to selected parks, environmental education programs, developing a long-term financial strategy for the project area, seeking alternative revenue sources, creating several permanent plots for vegetation and wildlife inventories.

Finally, the analysis stresses the need for an autonomous or semi-autonomous management authority for the Cordillera Central as vital to guarantee the success of the Project.

2. Forest Management Component

Management for the sustained yield of natural forest types found in the project area does not yet exist in Costa Rica.

Two silvicultural methods have been proposed for the Project:

a) the Strip Shelterwood Method - involves clear-cutting narrow strips of forest with all woody biomass removed from the strip followed by natural regeneration. This method is best suited to old growth forests with a wide species diversity.

b) the Selection Cut Method - involves cutting a few mature, sawtimber trees from a given area permitting the remaining trees to mature and natural regeneration to develop. This method has better potential in secondary forests or others of limited species diversity.

Each method has its benefits and use depends on the type of forest area selected for implementation. The Project has identified three primary areas for this component:

a) Las Horquetas contains about 12,700 hectares, mostly in good forest. Six to eight landowners have expressed interest in participating. The strip shelterwood method would best apply for this land block.

b) Río Corinto landowners have expressed support for this activity; however, differences in property size, timber quality and quantity, and difficult access will complicate operations. Both silvicultural methods apply in this block of land.

c) La Virgen del Socorro has less than 4,000 hectares of forest, poor road access, and no professed interest in developing a forest industry. This area should be kept as it is for the time being. Eventual project activities will probably be more similar to Río Corinto.

Project selection of the best forest industry method (central processing complex vs. portable sawmilling facilities in the woods) should conform to the selection of the silvicultural option in that the strip shelterwood technique leads to the full-scale industrial approach, whereas the selection cut method leads to the limited industrial approach. In general the Project should aim for the full-scale industrial approach, except where forest conditions produce limited volumes of material more appropriate to the portable sawmilling option.

Because of the time element involved in forestry, technical assistance in silvicultural and industrial techniques should be available to the Project throughout its seven-year life, but not necessarily on a full time basis.

3. Farm Forestry Component

The technical analysis proposes that the farm forestry component have two principal activities:

- a) training and extension in nursery establishment and seedling production; and
- b) tree planting on farms whether for timber production, agro-forestry, or other uses.

The first entails the establishment of at least five principal nurseries located in the key farm forestry zone from San Ramón de La Virgen to Cubujuquí. The second will involve as many farmers as possible, recruited through forestry promoters, to introduce forestry as an income-generating activity.

The first activity can use combinations of models developed by CATIE's Madeleña project: that is, the establishment of family, communal or private commercial nurseries. Local organizations or community leaders should be identified by FORESTA and an assessment made of their interest in establishing a forestry nursery with technical and material assistance provided by the Project.

FORESTA will provide technical training and assistance during the first few years of nursery establishment. Financial assistance can be provided. Nurseries will be encouraged to produce extra seedlings for sale to tree planters using tax incentives (the CAF). Within a few years some of the nurseries should be independent, income-generating businesses.

Participants for the tree planting activity will be recruited by CDF-selected and trained forestry promoters who live and work locally. They will receive Project training on the benefits of tree planting, how to establish and maintain plantations and how to identify different tree planting sites and appropriate species.

Promoters will then contact their neighbors, looking for program participants. Promoters will not receive a salary but rather a commission which could be based on the number of participants recruited, or area or number of seedlings planted.

FORESTA will employ different incentive mechanisms to interest farmers in planting, e.g.: give each participant 500 seedlings financed by FORESTA to plant on their farm. The promoter will help coordinate seedling delivery to their area and assure that site preparation has been completed on each farm. Participants who properly plant and care for their trees will be eligible to receive another 500 free seedlings from FORESTA in subsequent years. Each year the promoters will continue to find new Project participants, thus increasing the number of farmers exposed to tree planting activities. Farmers who wish to plant more than the allotted 500 trees/year will be able to purchase extra seedlings from the nursery in their area. No money should be spent paying farmers to plant trees nor in supporting them while the trees grow. Similarly, FORESTA could sell highly subsidized seedlings to participants or give them a rebate after one year for each surviving seedling.

Assuming three promoters for each nursery and at least five nurseries, if each promoter recruits ten new farmers per year, by the end of FORESTA's seventh year approximately 1,000 farmers will have planted trees on their farms with a total of approximately 1,575 million seedlings. The Project will leave at least five commercial nurseries operating to produce seedlings for future planting by the newly interested farmers.

As mentioned in Section III.C.4. integration of Trees on Farms Component (and in Technical Annex F) the CAF program gives financial incentives for reforestation. FORESTA will collaborate with the CAF program in promoting reforestation but will NOT depend on it as the driving force of its farm forestry component. CAF requirements (title to land, a forest management plan and a restricted species list) will limit participants to those farmers or groups with the necessary resources to wade through governmental red tape. Rather than helping local campesino organizations apply for CAF credits, project resources will benefit a greater number of farmers by making available seedlings, without charge and without red tape, to those who simply want to plant trees. Larger-scale planting with CAF financing will ultimately support the nurseries that FORESTA helps to establish. While many FORESTA farmers will go on to apply for CAF's to plant larger areas on their farms, the Project will not condition its farm forestry component on the farmers ability to secure government financing prior to planting trees. Otherwise, the Project would only be reinforcing the status quo rather than promoting new forestry-oriented activities.

C. Social Soundness Analysis

I. The Problem

Deforestation in tropical America has been primarily a response for expanding the agricultural frontier. New settlers want land to continue traditional agricultural practices and speculators clear land to secure property rights. Both groups are encouraged by

loggers who are now entering into future contracts years before cutting. Even public institutions have encouraged and legitimized deforestation: IDA obliged its settlers to clear land for productive use; banks seldom accept virgin forest land as collateral for credit; greater legal protection is granted to protect productive land (i.e. pastures and farms) against squatters; and cleared expropriated land for the national parks has been compensated for at a much higher level than virgin forest. Therefore, deforestation has been the result of logical and reasonable behavior of responsible citizens.

2. The FORESTA Response

The FORESTA Project will change this pattern by generating new, reasonable income streams from the trees themselves, within the following land use categories:

a) Park Management: Improved park management will stimulate visitor-generated income and local community participation.

b) Forest Management (in non-protected areas): Local income streams will be actuated by improving local cutting, marketing, industrial capacity for more wood varieties under local control, and natural forest regrowth.

c) Planting New Trees: Commercial planting in degraded areas and intercropping creates income from harvesting these trees.

FORESTA's most fundamental contribution is the linking of new technology to local ownership arrangements that will activate new local income streams from wood itself.

3. The Socio-cultural Feasibility of FORESTA

The sociocultural feasibility of FORESTA depends on the ability and willingness of two groups to change certain aspects of their behavior: rural landowners have to be willing to refrain from certain traditional land use behaviors in exchange for income streams derived from new tree-related behaviors. Urban authorities not only have to cease questioning the right of currently deedless rural residents to reside in the project area; they also have to take the unprecedented step of granting them permits to harvest wood on a sustainable basis. An honest assessment would have to say that neither side is yet comfortable with the other. Rural residents are skeptical, not only about conservationists, but also about those who claim that wood-management will be more profitable than traditional livestock or coffee. Urban officials are still heard to say, in unguarded moments, that recently arrived campesinos of certain sectors should be removed from the hillsides.

If agreement can be reached between the two groups, the analysis presented in the report shows that FORESTA is highly feasible from a sociocultural perspective. The discussion is divided into four major sections: population distribution, land tenure, local economic organization, and local social organization. Not only are there no major barriers to project implementation in any of these domains, there are conditions which could be interpreted as making this region

particularly favorable to such activities. Though land tenure issues were viewed as potentially problematic, the report gives evidence that the local land tenure situation may make this region unusually appropriate for the launching of FORESTA.

4. Recommendations

More than half of the report is dedicated to specific recommendations, subdivided into several major categories. Under general project structure, it is recommended that tree planting be elevated to the status of a major component. It is recommended that "community development" not be a separate component but a series of activities within each component. Land tenure research should be carried out, but it should focus, at least in the beginning, on the status of specific farms participating in the Project. Recommendations on the park management component focus on leads for diverting visitor-derived income streams to local families. All of these recommendations have been incorporated into the Project Paper.

Recommendations on natural forest management deal in some detail with a possible organizational model for integrating silviculture and industrial processes. With respect to the tree planting component, while it is recommended that caution be exercised not to convert FORESTA into simply a tree planting project, specific outreach recommendations are made to launch the Project rapidly into the tree planting component.

The most controversial cluster of recommendations concerns the overall institutional structuring of the Project and the specific operational management of project funds and project activities. The report lauds the proposed non-governmental character of FORESTA, but warns against certain specific managerial options. These warnings have been fully considered in implementation arrangements proposed in this Project Paper. Specific recommendations include: final trust fund ownership should be cautiously determined by MIRENEM and USAID during the duration of the Project; in deciding eventual trust ownership, both governments should insist on substantive competence criteria in the activities to be carried out by FORESTA. In the meantime, forest management and tree planting activities can be immediately launched via competitively earned contracts with NGOs. The general conclusion of the Social Soundness Analysis is that all components of FORESTA are highly feasible. If MIRENEM and USAID can deal effectively with the issue of project management and funds ownership, then FORESTA stands an excellent chance of providing program breakthroughs.

D. Financial and Economic Assessment

Two spreadsheets, one financial (Economic Assessment Annex I, Attachment 1) and the other economic (Attachment 2), comprise the framework for assessing the viability of the FORESTA Project. Project worth is presented in measures of net present value (NPV) and internal rate of return (IRR). Project disbursements occur over 7 years, but flows of benefits and costs are projected and compared over 20 years. Project discount rates are 12% for the financial analysis, and 6% for the economic analysis.

FORESTA produces four classes of measurable outputs plus

important intangibles. The four classes of measurable outputs are: (1) recreational, educational, and scientific use of the national parks, La Selva field station, and other public and private sites suitable for the production and consumption of these services; (2) production, consumption, and sale of farm trees in the Project area; (3) increased economic returns from natural forests in the buffer zones through implementation of sustained yield management and improved conversion technology; and (4) reduced deforestation in the Project area.

Total financial input to FORESTA over years 1-20 exceeds U.S.\$37 million, not including contingencies and inflation. Most of this (over \$29 million) will be generated by the Central Cordillera Trust Fund. The initial amount to capitalize the trust fund is approximately \$10 million.

Financial NPV of the Project is \$6.8 million, while economic NPV is \$59.9 million, in the base case of direct outputs plus reduced deforestation. The IRRs are 18 and 35 percent, respectively. Exclusion of indirect benefits (i.e. omission of the economic value of reduced deforestation) has little effect in diminishing FORESTA's viability. Sensitivity tests indicate that financial NPV turns negative if the time horizon is shortened to 10 years, or if visitations to the national parks and other wildlands are valued at 50% of the base case. However, economic NPV remains positive for all sensitivity tests.

In view of inadequate data and untested assumptions, these results are preliminary. Principal tasks to develop the analysis in greater depth include: (1) refining budget categories and estimates; (2) tightening the links between budget estimates, implementation plans, and quantities of outputs; (3) reviewing concepts, assumptions, and estimates for quantities and values of visitation to the national parks and other wildlands; (4) initiating cost-benefit analysis of reduced deforestation in the FORESTA area, focusing primarily on water and watersheds; and (5) evaluating FORESTA's viability under various scenarios regarding debt swap, financial performance of the trust fund, and prospects for interrelated projects.

E. Environmental Assessment

I. Major Conclusions

a) Desirability of the FORESTA Project

The Environmental Assessment (Annex I) concludes that the FORESTA Project, as designed, meets the development goals for the Project area in an environmentally sound manner. The Project would finance moderate expansion of park boundaries, application of park management plans, and implementation of more effective controls on entry and use of the park. This will attain the Project goal of managing and protecting the parks and the biodiversity they contain.

The Project would also finance sustained yield, natural forest management in the forested parts of the buffer zones around the parks. In parts of the buffer zones that have already been cleared for pastures and agriculture, the Project would finance a combination of reforestation, agroforestry, and management of second growth forests.

Additionally the Project would put in place a system of more effective controls on forest harvesting and forest clearing. These Project activities would control deforestation in the buffer zones and enhance their capacity to augment park habitat, thereby meeting the Project's additional development goals.

b) **Impracticality of Other Environmentally Sound Alternatives**

The environmental assessment examines two alternatives that would appear to meet the Project's environmental responsibilities: an alternative that would expand parks substantially by acquisition of additional lands; and an alternative that would apply existing control mechanisms more strictly to ensure adequate protection in parks and buffer zones. The assessment rejects both alternatives as impractical; the first because it is expensive and unpopular; the second because it is unrealistic, especially in the absence of complementary development investments.

c) **Unacceptability of the No Project or Traditional Forest Extraction**

Both the alternative of no Project and that of promoting traditional forest extraction methods through the Project lead to similar, environmentally disastrous results which must be rejected. Under the status quo in the Project area, deforestation for low levels of forest production and land clearing for unsustainable uses would continue unabated. This would quickly lead to nearly complete deforestation of the buffer zones, rendering them useless as buffers. The motivating force behind the Project is the desire to avert this scenario and substitute it with sustainable natural resources management.

The FORESTA Project as designed does this. But, if the Project were to adopt traditional forest harvesting practices, it would reach the worst of all results and actually become an agent of deforestation. Since a major emphasis of the Project is to institute new forest harvesting methods, regression to traditional forestry will not be allowed in project implementation.

2. **Areas of Controversy and Issues to be Resolved**

a) **Protected Areas Component**

Some controversy surrounds the questions of which inholdings and which parcels adjacent to parks should be acquired to expand the parks. A related question concerns which lands outside of parks should be incorporated into protection zones or forest reserves and which should remain without restriction. The Project will resolve these issues by setting up criteria for purchase and reservation of lands and applying these criteria uniformly in accordance with a timetable for acquisitions and reservations. (See Technical Analysis, Annex F, for the parks component.)

b) **Natural Forest Management Component**

The Project will complete land use capability and actual

land use studies that are now in progress in forested areas at scales that permit accurate classification of individual parcels. Criteria should be established and applied to determine which silvicultural method will apply to which types of forest and to which parcels. Likewise, the Project must decide what level of forest industrialization to support in which blocks of forest in the Project area. (See the technical analysis of the forestry component.)

c) Farm Forestry Component

For this component, the Project needs to develop and apply criteria to determine where and how to reforest, to support agroforestry, and to manage second growth forests. Biodiversity considerations should figure prominently in devising these criteria. (See technical analysis of the farm forestry component.)

3. Use of Herbicides or Pesticides

Prior to any use of herbicides or pesticides in the Project, the EA must be amended and approved by the LAC/CEO.

VI. CONDITION PRECEDENT AND COVENANTS

Because the FORESTA Project will work in a GOCR priority sector with strong support and coordination from the government there are only the standard Conditions Precedent (CP) to first disbursement of the dollar grant required for the successful implementation of the Project.

However, the following CPs have been established precedent to entering into other financial transactions:

A. Prior to entering into the dollar sub-grant with the Foundation and prior to disbursing the local currency to the Foundation, the Foundation will provide to A.I.D.:

(1) a legal opinion of counsel acceptable to A.I.D. certifying that the Project Assistance Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Foundation, and that it constitutes a valid and legally binding obligation;

(2) a statement of the name of the person holding or acting in the office of the Foundation specified in Section 7.2 and of any additional representatives, together with a specimen signature of each person specified in such statement;

(3) evidence that the Foundation has functioning an acceptable accounting and internal control system;

(4) evidence that the Foundation has entered into an agreement with a fiscal agent;

(5) evidence that the technical support contractor has begun to carry out its contracted duties.

B. Prior to the BCCR making disbursements from the separate account for the endowment, the Foundation will provide to A.I.D.:

(1) evidence of the viability of the designated beneficiary, and its capability to fulfill the goals and objectives set out in the Project Assistance Agreement;

(2) a legal opinion of counsel acceptable to A.I.D. certifying that an Endowment Agreement has been duly authorized and/or notified by, and executed on behalf of, the designated beneficiary, and that it constitutes a valid and legally binding obligation, together with a copy of that Agreement.

The GOCR will also covenant:

(1) to continue, at a minimum, current GOCR staff and operating budget levels related to project activities, and

(2) to permanently direct all income generated by visitor-related activities (eg: user fees and concession fees) in the national parks in the project area to the Foundation.

(3) to exert its best efforts to establish an appropriate legal and administrative framework to facilitate the implementation of its national parks/natural resource management program on a national basis within the limitations of Costa Rica's legal system, and to provide to A.I.D. a copy of this plan, as well as semi-annual reports on progress achieved.

The Foundation will covenant not to use any herbicides or pesticides in the Project prior to specific A.I.D. approval.

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ANNEX A

LOGICAL FRAMEWORK

Project title and number: Forest Resources for a Stable Environment (FORESTA) (515-0243)

Logical Framework

BRIEF SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Sector Goal:

Measures of goal achievement:

Assumptions for achieving targets

Support Costa Rica's economic stabilization by conserving and developing its renewable natural resources, upon which economic growth depends.

1. Increased welfare of local population attributable to land use.

1. Economic indicators.

1. Political stability.
2. Peace in Costa Rica.
3. No catastrophic economic crisis

Project Purpose:

Conditions that will indicate purpose has been achieved: End of project status

Assumptions for achieving purpose.

Develop forestry and agroforestry as economically, ecologically and socially appropriate land uses in the buffer zones around the Braulio Carrillo, Poas and Irazu National Parks and other natural protected areas of the Cordillera Central, and to support management of these protected areas themselves.

1. Area of current forest cover maintained or increased.
2. At least 5000 ha managed according to officially approved forest management plans.
3. An integrated forest industry with access to a sustainable supply of raw material.
4. No encroachment on national parks.

1. Landsat images and other remote sensing tools.
2. Production statistics
3. Statistics of national park use.

1. Political will to address natural resource concerns.
2. Increasing participation of private sector in rural development.
3. Market available for major agricultural and forest products of the region.
4. Part of forest industry receptive to change.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Outputs: 1. General Operations</p> <p>=====</p>	<p>Magnitude of Outputs:</p>	<p>MEANS OF VERIFICATION</p>	<p>Assumptions for achieving outputs</p>
<p>1. An overall development strategy for the Cordillera Central and the buffer zone, which includes definitive limits of the protected areas and proposals for management categories, as well as plans for land acquisition, and general management guidelines.</p>	<p>1. Copies of the strategy available for consultation.</p>	<p>1. SPN & DGF records 2. Review of strategy by outside experts 3. Consultant reports</p>	
<p>2. Strategically located and adequately equipped operations centers, which combine facilities for protection, public use, extension and other uses.</p>	<p>1. Operations centers functioning at 21 sites (Type A=1, Type B=9, Type C=4, Type D=7).</p>	<p>1. Site visits</p>	<p>1. Communities can be motivated when proper strategy is used.</p>
<p>3. An efficient control and protection system for the project area, with long-term financing assured, for preventing illegal interventions such as timber harvest, squatting, hunting and the removal of other forest products.</p>	<p>1. Total of 41 rangers and foresters trained and deployed. 2. Continuous flow of income from endowment fund adequate to cover protection budget as stipulated in management plan. 3. 21 operations centers staffed and functioning effectively. 5. All marked boundaries maintained. 6. Less than 10% of the project area is affected by illegal logging or squatting.</p>	<p>1. SPN & DGF records. 2. Independent field inspections and interviews. 3. Bank statements.</p>	
<p>4. An environmental education and extension program, with emphasis on the welfare of local communities, taking advantage of the facilities and activities offered by the project.</p>	<p>1. At least 10% of the adults participating in some interactive environmental instruction annually. 2. 30 events of environmental education for local communities offered annually. 3. At least 20% of the working time of rangers and foresters spent in the communities. 4. At least one environmental education event held annually in half of the schools in the project area.</p>	<p>1. Progress reports 2. Field visits & interviews</p>	<p>1. Communities respond to appropriate environmental education activities.</p>

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Outputs:</p> <p>1. Management of the natural protected areas</p> <p>=====</p>	<p>Magnitude of Outputs:</p>	<p>1. SPN & DGF records</p> <p>2. Review of plans by outside experts</p> <p>3. Consultant reports</p>	<p>Assumptions for achieving outputs</p>
<p>1. An integrated management plan for the natural protected areas, officially approved by the Ministry of Natural Resources and available for distribution.</p>	<p>1. Copies of the plan available for consultation.</p>	<p>1. SPN & DGF records</p> <p>2. Review of plans by outside experts</p> <p>3. Consultant reports</p>	<p>Assumptions for achieving outputs</p>
<p>2. Boundaries of the natural protected areas legally established according to the park management plans and critical segments marked in the field.</p>	<p>1. All boundaries according to official management plans legally established</p> <p>2. All legal boundaries which do not follow natural limits marked on the ground.</p>	<p>1. Text of new presidential decree for expansion of parks.</p> <p>2. Text of new legislation for reduction of park area.</p> <p>3. Periodic field inspections of marked boundaries.</p>	<p>1. Legislative assembly willing to deal with the parks issue.</p>
<p>3. Ownership of private enclaves within the three parks transferred to the GOCR, for those properties designated for acquisition in the management plan.</p>	<p>1. 75% of land in private enclaves bought and ownership transferred to GOCR.</p>	<p>1. SPN records and land deeds.</p>	<p>1. Donations from conservation groups forthcoming for land purchase.</p>
<p>4. Services and physical infrastructure, including those needed for interpretation, in place to attend to park visitors without detriment to the environment.</p>	<p>1. Visitors centers operating at 4 sites.</p> <p>2. Overlooks on new San Jose - Guapiles highway at 2 sites.</p> <p>3. Picnic/camping areas at 4 sites.</p> <p>4. Various paths and nature trails.</p>	<p>1. Site visits.</p>	<p>1. Donations from conservation groups forthcoming for land purchase.</p>
<p>5. An efficient system of services to visitors of natural areas, with long-term financing assured.</p>	<p>1. A plan for public use of the natural areas.</p> <p>2. Trained guides and rangers readily accessible to visitors.</p> <p>3. Operating concessions for some visitor services.</p>	<p>1. SPN records of visitor use.</p> <p>2. Sample surveys of visitor reactions.</p>	<p>1. International tourism continues to grow in Costa Rica.</p>
<p>6. Local communities participating in management</p>	<p>1. At least 25% of the permanent and temporary jobs</p>	<p>1. SPN records.</p>	<p>1. International tourism continues to grow in Costa Rica.</p>

Project title and number: Forest Resources for a Stable Environment (FORESTA) (515-u.43)

Preliminary Logical Framework

NARRATIVE SUMMARY

Outputs:
of the natural protected areas and as a result
receiving income and other benefits.

OBJECTIVELY VERIFIABLE INDICATORS

- Magnitude of Outputs:
1. financed by the project are filled by local inhabitants
 2. 100 local volunteers serving the parks.
 3. At least 3 advisory boards with representatives from local communities operating in the project area.
 4. Local hotels, tours, restaurants receiving 50,000 visitor-days annually.

MEANS OF VERIFICATION

2. Field inspections and interviews during project evaluations.
3. Sample surveys.

IMPORTANT ASSUMPTIONS

Assumptions for achieving outputs

NARRATIVE SUMMARY:

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Outputs:

Magnitude of Outputs:

Assumptions for achieving outputs

6. Management of natural forests for production

1. Practical guidelines, regulations and controls for logging under various conditions so as to encourage regeneration and optimum utilization, and to mitigate environmental impacts.

1. One document published and disseminated.

1. Review of document by outside experts before approval.

2. Technical standards for forest management, which can serve as a solid foundation for the preparation, implementation and control of management plans.

1. One document published and disseminated.

1. Review of document by outside experts before approval.

3. One or more functioning enterprises or other types of association which combine management of the forest with its utilization, in such a way that the forest contributes sustained benefits to the local population.

1. One or more associations whose members account for at least 5000 hectares of commercial forest, functioning and financially viable.

1. Records of the association.
2. Audits

1. Forest owners can be motivated to collaborate.

4. At least 5000 ha of forest with commercial potential, under sustained management based on approved plans.

1. Approved management plans for 5000 ha.
2. Management progressing as planned.

1. DGF records.
2. Field visits.
3. Remote sensing images.

1. Forest owners can be motivated to collaborate.

6. One or more viable industries, integrated with the new forest enterprise, utilizing the

1. One or more financially viable forest industries processing logs from the project area.

1. Financial records and audits.
2. Sawmill sample studies.

1. Forest industry owners willing to collaborate.

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Title and number: Resources for a Stable Environment (FORESTA) (S15-0243)

Preliminary Logical Framework

IVE SUMMARY

es:
...with possible range of species and
versions to produce a range of products.

OBJECTIVELY VERIFIABLE INDICATORS

Magnitude of Outputs:

2. At least 75% of the commercial wood volume which
is felled, is processed by industry.

MEANS OF VERIFICATION

3. Independent evaluations.

IMPORTANT ASSUMPTIONS

Assumptions for achieving outputs

05

Project title and number: Forest Resources for a Stable Environment (FORESTA) 1515-0243

Preliminary Logical Framework

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:		Assumptions for achieving outputs
1. Integration of trees on farms			
1. Establishment of an economically productive forest cover on those non-forested lands classified as incapable of sustaining agriculture.	1. At least half of the Class VIII & IX land not covered by natural forest is covered by forest plantations.	1. DGF records 2. Field visits. 3. Remote sensing imagery.	1. Government financial incentives available.
2. The integration of multi-purpose tree species into agroforestry systems, on those lands classified as appropriate for agricultural use.	1. 25% of farmers have participated in reforestation. 2. Five tree nurseries in production. 3. 315,000 trees planted in combination with crops or pastures. 4. Agroforestry practices (trees in pastures, live fences, shade for crops, etc.) established annually increases at 10% per year.	1. Field visits. 2. Nursery records.	
3. Communities in the project area have grassroots organizations active in furthering appropriate land use in areas that influence the community.	1. 20 organizations, with a total of at least 1000 members, have adopted conservation actions as one of their explicit goals. 2. 20 organizations annually undertake at least one action resulting in land use improvement. 3. One functioning network of organizations working in conservation and improved land use is active in the project area.	1. Periodic interviews with community leaders. 2. Field inspections and interviews during project evaluations.	

ANNEX B

PID APPROVAL CABLE

THE TRUST BE OWNED/OPERATED BY THE PRIVATE SECTOR--TO PAY GUARD SALARIES AND OTHER RELATED PUBLIC SECTOR COSTS FOR FOREST PROTECTION? WHAT WILL GOCR INVOLVEMENT BE IN MANAGING THE TRUST FUNDS?

MISSION REPRESENTATIVES STATED THAT THE TRUST FUND IS AT THE CONCEPT STAGE AND THAT THE DETAILS WILL HAVE TO BE DEVELOPED DURING PP DESIGN. TWO OPTIONS ARE BEING CONSIDERED: ENDOWING A NON-GOVERNMENTAL ORGANIZATION; OR A GOVERNMENT INSTITUTION. THE MISSION HOPES TO AVOID GOCR RESTRICTIONS ABOUT ASSISTANCE TO PRIVATE ORGANIZATIONS BY PROGRAMMING QUOTE OLD UNQUOTE LC (FROM THE FY 87 ESR VI PROGRAM) FOR THIS USE.

DECISIONS: 1) THE USE OF HOST-COUNTRY-OWNED LC TO FUND THE KIND OF FOREST SERVICES DESCRIBED WOULD NOT VIOLATE PD-5; 2) THE MISSION WILL DESCRIBE THE ENDOWMENT MECHANISM IN THE PP; INCLUDING OWNERSHIP, MANAGEMENT, AND PROCEDURES FOR USE OF THE FUNDS AND PERMIT A.I.D./W TO REVIEW THE PROCEDURES IN LIGHT OF A.I.D.'S EVOLVING PROCEDURES FOR LC AND TRUST FUND USES; 3) LC FUNDS WILL NOT FINANCE QUOTE LAW ENFORCEMENT UNQUOTE SERVICES OF ANY KIND. THE PP SHOULD USE APPROPRIATE TERMINOLOGY TO AVOID ANY MISTAKEN IMPRESSION IN THIS REGARD, E.G., USE FOREST RANGERS INSTEAD OF GUARDS. GC/LAC WILL REVIEW THIS ASPECT OF THE PROJECT FOR ANY POTENTIAL CONFLICT WITH A.I.D. REGULATIONS BARRING SUPPORT FOR POLICE AND RELATED PURPOSES.

(B) ISSUE: LAND ACQUISITION: SHOULD LC BE USED UNDER THE PROJECT TO FINANCE THE ACQUISITION OF LAND?

DISCUSSION: THE ISSUE HAS TWO ASPECTS: 1) WHETHER THE USE OF LC FOR THESE PURPOSES IS PERMISSIBLE UNDER PD 5; AND 2) WHETHER THE PROJECT SHOULD FINANCE PURCHASES OF PRIVATE LAND FOR THE PUBLIC DOMAIN OR FOR PRIVATE CONSERVATION?

THE PID CALLS FOR APPROXIMATELY DOLS 830,000 EQUIVALENT LC TO PURCHASE LAND TO PROTECT THE INTEGRITY OF PARKS AND RESERVED FORESTS. PROJECT FUNDS ARE INTENDED TO BE A CATALYST FOR OVER DOLS 5 MILLION IN PRIVATE CONTRIBUTIONS FOR LAND ACQUISITION.

DECISIONS: 1) LC FUNDS MAY BE USED FOR THE KIND OF LAND PURCHASES AS DESCRIBED IN THE PID AS LONG AS SUCH PURCHASES ARE VOLUNTARY AND NOT COERCIVE AND DO NOT VIOLATE U.S. LEGISLATION THAT BARS SUPPORT FOR QUOTE EXPROPRIATION UNQUOTE. 2) THE PP DESIGN SHOULD ENCOMPASS ISSUES RELATED TO FAIR PRICING OF SUCH LAND. ↙

4. DECISIONS/CLARIFICATIONS FROM THE ISSUES MEETING OF MAY 13, 1988.

A) ISSUES: DEFORESTATION: DOES THE PID FOCUS ON THE ISSUES RELATED TO DEFORESTATION, AND THE SOLUTIONS AND RELATED PRIORITIES? DOES IT LOOK AT WAYS TO GET TEETH INTO THE CONSERVATIONIST LEGISLATION AND ENFORCEMENT?

DISCUSSION: IN PREVIOUS GUIDANCE, A.I.D./W ASKED THE MISSION TO FOCUS ON THESE SUBJECTS. THE PID SAYS DEFORESTATION IS A CRITICAL PROBLEM BUT IT DOES NOT DISCUSS THE ISSUE IN ITS VARIOUS DIMENSIONS--ECONOMIC, LEGAL, POLITICAL, INSTITUTIONAL AND SOCIAL. IT DOES NOT HIGHLIGHT PRIORITIES RELATED TO THE DEFORESTATION ISSUE OR PROPOSED SOLUTIONS. IT DOES NOT DISCUSS RELATED LEGISLATION OR WHY THE LEGISLATION IS NOT BEING IMPLEMENTED/ENFORCED.

IT WAS SUGGESTED AT THE ISSUES MEETING THAT PROJECT DESIGNERS NEED TO ASK QUESTIONS LIKE THE FOLLOWING: 1) WHAT GROUPS ARE LOGGING THE FOREST, CLEARING LAND FOR PASTURE (LEGALLY AND ILLEGALLY)? 2) WHAT EFFORTS HAVE BEEN MADE TO HALT ILLEGAL LOGGING AND FOREST CLEARING? TO WHAT EFFECT? 3) WILL ASSIGNING MORE GUARDS AND ALLOCATING RELATED BUDGET BE EFFECTIVE? WHAT PRACTICAL PROBLEMS DO FOREST RANGERS AND ENFORCEMENT AGENCIES FACE? DO THEY HAVE LEGAL AUTHORITIES, SUPPORT OF

COMMUNITY, POLICE AND COURTS? 4) WHAT IS THE LOGGING PERMIT SITUATION? HOW CAN IT BE IMPROVED? WHAT TAXES/FEE'S DO LOGGERS PAY? ARE THEY PAYING FAIR PRICES FOR THE BENEFITS THEY EXTRACT? 5) WHAT DIMENSIONS OF THE FOREST CLEARING SITUATION ARE MOST IMPORTANT? WHAT ARE THE PRIORITY INTERVENTIONS?

MISSION REPRESENTATIVES FELT THE FUNDAMENTAL ISSUES AND REMEDIAL APPROACHES HAD BEEN COVERED IN VARIOUS ENVIRONMENTAL ASSESSMENTS AND STRATEGY STATEMENTS.

DECISIONS: 1) SO THAT THE PP WILL STAND AS A SELF-CONTAINED DOCUMENT, THE MISSION AGREED TO ATTACH AN ANNEX SUMMARIZING THE BASIC CONCERNS/CONCEPTS FROM THE BACKGROUND ENVIRONMENTAL STUDIES. IN THIS RESPECT, THE MISSION IS ENCOURAGED TO SUMMARIZE THE DEFORESTATION PROBLEM IN ITS VARIOUS DIMENSIONS--LEGAL, JURIDICAL AND POLITICAL AS WELL AS TECHNICAL, ECONOMIC AND INSTITUTIONAL. 2) EVEN THOUGH THE PROJECT SCOPE IS LIMITED BY THE RELATIVELY SMALL GEOGRAPHIC AREA AND ITS PILOT NATURE, THE PP SHOULD IDENTIFY POLICY ISSUES RELATED TO SLOWING/HALTING DEFORESTATION. IMPLICATIONS FOR THE PROJECT AND POSSIBLE BROADER FUTURE DIALOGUE ON THE SUBJECT OUTSIDE THE PROJECT SHOULD BE ADDRESSED. THE PP SHOULD EMPHASIZE THE POLITICAL ASPECT, WHAT THE GOGR HAS AND SHOULD DO AND HOW THE PROCESS CAN BE FACILITATED.

(B) INSTITUTIONAL ROLES AND CAPABILITIES: WHICH IS THE LEADING ORGANIZATION FOR THE PROJECT? SHOULD THE

PROJECT FOCUS MORE ON THE ROLE OF GOVERNMENT AND THE GOVERNMENT'S CAPABILITY TO CARRY OUT ITS ROLE?

DISCUSSION: GIVEN THE INSTITUTIONAL WEAKNESSES OF PRIOR NATURAL RESOURCES PROJECTS, THIS ELEMENT OF PROJECT DEVELOPMENT IS ACKNOWLEDGED TO BE A DIFFICULT AND IMPORTANT AREA. THE OVERLAPPING FUNCTIONS OF PUBLIC AND PRIVATE-SUPPORTED ENVIRONMENTAL INSTITUTIONS ARE POORLY COORDINATED. ANALYSIS AND DESCRIPTION IS NEEDED ON THE APPROPRIATE ROLE FOR GOVERNMENT AND THE CAPABILITY OF GOVERNMENT INSTITUTIONS TO CARRY OUT THEIR FUNCTIONS.

DECISION: 1) THE PP WILL EXPLAIN THE ROLES AND CAPABILITIES OF PARTICIPATING INSTITUTIONS, COORDINATING MECHANISMS AND RELATED PROJECT INTERVENTIONS; 2) ANY SUPPORT FOR AN N60 UNDER HB 13 PROCEDURES, IF FULL AND OPEN COMPETITION IS NOT FOLLOWED, WOULD REQUIRE SPECIFIC APPROVAL OF THE RCO IN ACCORDANCE WITH THE NEW HB 13,

OBTAIN SPECIFIC APPROVAL, IF NEEDED, PRIOR TO AUTHORIZATION.

(C) ISSUE: PRIVATE SECTOR INCENTIVES: IN DESIGNING PRIVATE SECTOR PROJECT COMPONENTS AND APPRAISING THEIR FEASIBILITY, SHOULD THE PP CAREFULLY CONSIDER THE RELATED ECONOMIC FORCES AND INCENTIVES?

DISCUSSION: THE PROJECT INVOLVES A NUMBER OF PRIVATE SECTOR INTERVENTIONS, INCLUDING THE PROMOTION OF FOREST PLANTATIONS, ON-FARM WOOD PRODUCTION, FOREST GROWERS COOPERATIVES, NEW SAWMILL TECHNIQUES AND OPERATIONS, COMMUNITY DEVELOPMENT THROUGH CONSERVATION, ETC. IN SOME INSTANCES, THE INCENTIVES ARE APPARENT; IN OTHER INSTANCES THEY ARE LESS CLEAR.

DECISION: THE MISSION WILL ASSESS INCENTIVES RELATED TO THE VARIOUS PRIVATE SECTOR COMPONENTS, DRAWING ON LESSONS LEARNED FROM PRIOR EXPERIENCE IN SOME CASES.

(D) ISSU: USE OF DA FUNDS FOR CREDIT: WHAT IS THE JUSTIFICATION FOR THE CREDIT ACTIVITIES UNDER COMPONENT C (FOREST MANAGEMENT)?

DISCUSSION: THE BUDGET PROPOSES DOLS 700,200 OF GRANT DA FUNDS FOR CREDIT TO THE FOREST INDUSTRY. THERE IS LITTLE DISCUSSION ON THE SPECIFIC PURPOSES, TERMS OF THE CREDIT OR INSTITUTIONAL ARRANGEMENTS.

MISSION REPRESENTATIVES EXPLAINED THAT THE FUNDS WERE INTENDED ESSENTIALLY TO FINANCE IMPORTED EQUIPMENT, PARTS, RAW MATERIALS AND OTHER ITEMS FOR THE TIMBER INDUSTRY THAT INCUR FOREIGN EXCHANGE COSTS. A ONE-TIME PROCUREMENT WAS ENVISIONED. OTHER ALTERNATIVES RATHER THAN INSTITUTIONALIZATION OF A CREDIT FUND WILL BE EXPLORED DURING PP DESIGN.

DECISIONS: 1) DOLLAR FUNDING CAN BE USED TO FINANCE ACTIVITIES THAT INCUR FOREIGN EXCHANGE REQUIREMENTS. USES AND TERMS OF THIS COMPONENT WILL BE ANALYZED/DESCRIBED IN THE PP.

(E) ISSUE: TENURE SITUATION: WHAT NEW STRATEGIES AND MECHANISMS ARE GOING TO BE PURSUED TO OVERCOME THE TENURE CONSTRAINTS THAT ARE ONE OF THE CAUSES FOR CONTINUED CLEARANCE OF THE FOREST?

DISCUSSION: THE PID SAYS THAT CO-OPS WILL HELP MEMBERS LEGALIZE THEIR LAND TENURE SITUATION. THE PROJECT BUDGET IS PROBABLY NOT COMMENSURATE WITH THE PROBLEM (DOLS 90,000 IN LC FOR SURVEYOR AND LEGAL FEES AND DOLS 50,000 IN TA).

DURING THE A.I.D./W REVIEW OF THE CONCEPTS PAPER (SAN JOSE 14358-87), THE TENURE SITUATION WAS HIGHLIGHTED AS AN IMPORTANT CONCERN TO BE ADDRESSED DURING PP DESIGN.

MISSION REPRESENTATIVES CLARIFIED THAT TITLES WILL NOT BE ISSUED IN PARKS OR FOREST RESERVE AREAS; THAT PRIVATE PARTIES MAY BE ISSUED QUOTE CONCESSIONS UNQUOTE ON THESE LANDS. ON FORMERLY PUBLIC DOMAIN LAND, LEGAL OCCUPANTS WOULD BE ASSISTED IN RECEIVING TITLES.

DECISION: THE PP WILL EXPLORE THE NATURE AND EXTENT OF THE LAND TENURE PROBLEM, APPROPRIATE SOLUTIONS AND RELATED PROJECT BUDGET.

(F) EVALUATION AND RELATED OPERATIONAL RESEARCH: GIVEN THE COMPLEX AND EXPERIMENTAL NATURE OF THE PROJECT, THE MISSION IS ASKED TO CONSIDER BASELINE DATA COLLECTION, OPERATIONAL RESEARCH AND STUDIES FOR APPRAISING PROJECT RESULTS.

(G) INTERMEDIARIES FOR COMMUNITY DEVELOPMENT: THE MISSION IS REQUESTED TO EXPLORE PROSPECTS FOR USING PVOS, COMMUNITY ORGANIZATIONS AND/OR OTHER INTERMEDIARIES FOR THE COMMUNITY DEVELOPMENT COMPONENTS

OF THE PROJECT.

(H) LIFE-OF-PROJECT: THE PID PROPOSES SEVEN YEARS AS THE MINIMUM DURATION OF THE PROJECT. IT WAS SUGGESTED AT THE ISSUES MEETING THAT THE LOP MIGHT BE TOO SHORT GIVEN PREVIOUS PROBLEMS IMPLEMENTING WATER RESOURCE AND FORESTRY PROJECTS.

IT WAS DECIDED THAT THE PROPOSED 7 YEAR LOP IS ALL RIGHT, BUT THE MISSION SHOULD DESIGN THE PP WITH PRE-SELECTED DECISION POINTS REGARDING A PROJECT EXTENSION OR FOLLOW-ON.

(I) RELATION WITH FY 90 WATERSHED MANAGEMENT PROJECT: THE PP WILL EXPLAIN THE RELATIONSHIP BETWEEN THIS PROJECT AND THE PROPOSED WATERSHED MANAGEMENT PROJECT.

(J) COORDINATION WITH OTHER DONORS: THE PP SHOULD EXPLAIN HOW THE PROJECT WILL BE COORDINATED WITH

PROPOSED IDB FORESTRY PROJECT AND ANY OTHER RELATED PROJECTS.

(K) TRADE OFF BETWEEN COMMERCIAL FORESTRY AND BIOLOGICAL RESERVES: THE PP WILL CONSIDER THESE TRADE-OFFS AND THE PROJECT RESPONSE.

(L) PARTICIPATION OF FOREST AND SAWMILL OWNERS: THE PP WILL EXPLORE THE ROLES AND INCENTIVES RELATED TO THEIR PARTICIPATION IN PROJECT ACTIVITIES.

(M) SEMI-AUTONOMOUS QUOTE FORESTRY INSTITUTE UNQUOTE : A DECISION ABOUT A.I.D. SUPPORT FOR THIS NEW INSTITUTION MAY HAVE TO AWAIT MORE INFORMATION/ANALYSIS ON THE ROLE AND NATURE OF THE INSTITUTE AS IT DEVELOPS.

(N) GIVEN POTENTIAL FOR SIGNIFICANT IMPACT ON

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STATE 217004/04

ENVIRONMENT AND CONGRESSIONAL LEGISLATION REQUIRING AN
ENVIRONMENT ASSESSMENT ON ALL TROPICAL FOREST
DEVELOPMENT PROJECTS AN IEE SHOULD BE PREPARED BY
MISSION REQUESTING A POSITIVE DETERMINATION AND AN EA
CONDUCTED. WHITEHEAD

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ACTION AID-2 INFO AMB DCM ECON/5

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ADD:

M Foster
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ACTION

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E.O. 12356: N/A

TAGS:

SUBJECT: FOREST RESOURCES FOR A STABLE ENVIRONMENT
(5150243) - REVIEW OF ENDOWMENT MECHANISM

1. THE ENDOWMENT MECHANISM FOR THE SUBJECT PROJECT WAS REVIEWED ON JANUARY 5, 1989. TERRENCE BROWN, LAC/DR, CHAIRED THE REVIEW. IN ADDITION TO LAC/DR AND LAC/CEN, REPRESENTATIVES FROM GC AND PPC WERE ALSO INVITED DUE TO NATURE OF THE ISSUES DISCUSSED BELOW.

2. THE REVIEW WAS HELD IN ACCORDANCE WITH THE PID GUIDANCE CABLE (STATE 217664) FOR THE SUBJECT PROJECT WHICH STATED THAT AID/W WOULD REVIEW THE LOCAL CURRENCY ENDOWMENT MECHANISM PRIOR TO PROJECT AUTHORIZATION. THE MECHANISM AS PROPOSED BY USAID/COSTA RICA RAISED TWO SIGNIFICANT POLICY ISSUES: THE USE OF U.S. DOLLAR GRANT FUNDS TO CREATE AN ENDOWMENT AND TO PURCHASE COSTA RICAN DEBT FROM U.S. BANKS. THE REVIEW CONCLUDED THAT: A) US DOLS 7.5 MILLION LOCAL CURRENCY EQUIVALENT FROM THE HOST COUNTRY CONTRIBUTION CAN BE USED TO CREATE THE TRUST FUND SUBJECT TO GUIDANCE BELOW; 2) US DOLS 2.5 MILLION IN DOLLAR GRANT FUNDS CANNOT BE USED EITHER FOR DEBT

BUY-BACK OR TO CREATE THE TRUST FUND; AND) 3) IF USAID IS INVOLVED IN THE ENDOWMENT AGREEMENT ESTABLISHING THE FUND, AID/W WOULD REVIEW AND APPROVE IT. THE RATIONALE FOR THESE DECISIONS IS PROVIDED BELOW.

3. THE CREATION OF AN ENDOWMENT WITH APPROPRIATED U.S. DOLLARS CURRENTLY REQUIRES SPECIFIC CONGRESSIONAL APPROVAL. THEREFORE, USAID/COSTA RICA CAN NOT AUTHORIZE THE DOLLAR PORTION OF THE ENDOWMENT MECHANISM. THE USE OF HOST COUNTRY-OWNED LOCAL CURRENCY TO CREATE AN ENDOWMENT IS PERMISSIBLE WITH THE FOLLOWING GUIDANCE: A) THE MISSION SHOULD LIMIT ITS PROGRAM ACCOUNTABILITY TO THE PACD OF THE GRANT AGREEMENT; B) IF THERE IS A SEPARATE AGREEMENT ESTABLISHING THE ENDOWMENT, USAID SHOULD HAVE NO SUBSTANTIVE ROLE AND, IF POSSIBLE, SHOULD NOT BE A PARTY TO THAT AGREEMENT; AND C) IF USAID IS A PARTY TO THE AGREEMENT, AID/W SHOULD REVIEW AND APPROVE THE AGREEMENT. WE WILL FAX A COPY OF THE MEMORANDUM OF UNDERSTANDING AMONG USAID/HONDURAS, THE GOVERNMENT OF THE REPUBLIC OF HONDURAS, AND ESCUELA AGRICOLA

19 JEN. 1989

C & R Section	
USAID/Costa Rica	
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MAN-AMERICANA AS AN EXAMPLE OF AN ENDOWMENT AGREEMENT.

4. THE USE OF U.S. DOLLAR GRANT FUNDS TO PURCHASE COSTA RICAN DEBT FROM U.S. BANKS RAISES THE BROADER ISSUE OF USING DISCOUNTED LDC DEBT FOR DEVELOPMENT FINANCE. ON OCTOBER 18, 1988, PPC CIRCULATED ITS GC APPROVED DEBT FOR DEVELOPMENT GUIDANCE WHICH EXPLAINS HOW AID FUNDS MAY BE USED TO BUY DEBT TO BE CONVERTED TO LOCAL CURRENCY FOR DEVELOPMENT PROGRAMS. A COPY OF THE FINAL DRAFT OF THIS POLICY STATEMENT WHICH IS CURRENTLY BEING REVIEWED WILL BE FAXED TO THE MISSION. WHILE WE SUPPORT THE MISSION IN ITS EFFORTS TO CREATIVELY LEVERAGE DEVELOPMENT RESOURCES, THE APPROACH AS PROPOSED IN THE FAXED ANNEX L OF THE FORESTA PP CONTRAVENES TWO PRECEPTS OF THIS POLICY STATEMENT. FIRST, THE GUIDANCE STATES THAT ONLY NON-GOVERNMENTAL ORGANIZATIONS (NGO) SUCH AS PRIVATE VOLUNTARY ORGANIZATIONS AND COOPERATIVES (DEBT FOR DEVELOPMENT "INTERMEDIARY ORGANIZATIONS) ARE ELIGIBLE TO IMPLEMENT THE A.I.D. DEBT FOR DEVELOPMENT PROGRAM. WHILE THE PP ANNEX IS UNCLEAR, IT IMPLIES THAT THE GOCR WILL BE THE INITIAL RECIPIENT OF THE GRANT WHICH WOULD THEN BE GRANTED TO CCNRA. THE FORMER ENTITY IS INELIGIBLE ACCORDING TO THE ABOVE GUIDANCE, AND THE STATUS OF THE LATTER IS UNCLEAR. SECOND, EVEN IF THE RECIPIENT OF THE GRANT IS AN NGC, PRINCIPLES OF APPROPRIATION LAW, IN GC OPINION, REQUIRE THAT INTEREST EARNED ON ALL LOCAL CURRENCIES OBTAINED BY INTERMEDIARIES THROUGH DEBT EXCHANGE TRANSACTIONS BEFORE

THEIR USE FOR FINAL PROGRAM PURPOSES SHALL BE REMITTED TO TREASURY. THEREFORE, A.I.D. POLICY AND GC OPINION DO NOT PERMIT THE INTEREST EARNED FROM THE A.I.D.-ASSOCIATED PORTION OF THE ENDOWMENT TO BE DISBURSED TO CCNRA, THEREBY NEGATING THE REASON FOR CREATING AN ENDOWMENT. PPC AND GC ARE CONSIDERING A STRUCTURE INVOLVING DOLLAR-DENOMINATED BONDS PAYABLE IN LOCAL CURRENCY WITHOUT INTEREST, WHICH MAY OVERCOME THIS SECOND OBJECTION.

5. IT IS OUR UNDERSTANDING THAT THE US DOLS 2.5 MILLION WILL BE REALLOCATED WITHIN THE PROJECT BUDGET. THE PP SHOULD PROVIDE ADEQUATE JUSTIFICATION FOR THIS LEVEL OF RESOURCES. IN ADDITION, IT IS OUR UNDERSTANDING THAT THE SHORTFALL IN THE ENDOWMENT WILL BE MADE UP FROM ADDITIONAL HOST COUNTRY-OWNED LOCAL CURRENCY. THE PP SHOULD CONTAIN AN ANALYSIS INDICATING THAT THE LEVEL OF ENDOWMENT IN LOCAL CURRENCY IS ADEQUATE TO SUSTAIN CCNRA. SHULTZ

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AGENCIA PARA EL DESARROLLO INTERNACIONAL

MISION ECONOMICA DE LOS ESTADOS UNIDOS EN COSTA RICA

Apartado Postal 10053
1000 San José Costa Rica
Teléfono 20-45-45
Telex 3550 AIDCR KR
Fax (506) 20-34-34

March 10, 1989

TO: FORESTA PROJECT PAPER AND FILE
FROM: Michael C. Foster, PDO *MF*
SUBJECT: Response to AID/W's FORESTA PID Review Cable (State 217664) of July 7, 1988

1. The FORESTA PP responds to each of the issues raised at the AID/W PID DAEC as follows (item numbering below refers to the subject cable):

(3A)(2): The endowment mechanism is described in detail in Annex L of the P.P. Briefly \$10.0 million of the local currency host country counterpart will be assigned by the Project to the Cordillera Development Foundation (CDF). These funds will be set aside in an interest bearing account during the LOP. Near the end of the Project, the CDF will select a fiduciary to be responsible for maintenance and disbursement from the endowment after the Project ends. To round off the endowment and to guarantee the long-term viability of the fund, USAID will propose that the Government of Japan match the Project's contributions with a \$10 million contribution to the endowment to be handled in the same way as the other contributions.

(3A)(3): PP is clear that law enforcement activities are not being funded. The RLA has reviewed these aspects and has concluded that no potential conflict with A.I.D. regulations barring support for police and related purposes exists.

(3B) This issue is related to proposed land purchases by the Project. This activity has been dropped from the Project, therefore this issue is no longer pertinent.

2. The FORESTA PP responds to each of the issues raised at the AID/W PID issues meeting as follows (item numbering below refers to the subject cable):

(4A) Deforestation: Per the recommendation, the PP has a separate report, part of Annex F, specifically dealing with the problems, impact, and GOCR policy concerning deforestation.

Missing

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(4B) Project Administration:

(i) The PP explains the role of the participating institutions in Section IV.A. and in Annex L. The Institutional Analysis (Annex E) and its summary in Section V.A. of the PP discuss the capabilities of the participating institutions.

Briefly, A.I.D., the GOCR represented by MIRENEM and the CDF will enter into a ProAg delegating authority to A.I.D. to grant project funds directly to the CDF. A.I.D. will execute a contract for the support contractor to assist the development and operation of the CDF. A.I.D. will also contract for a Project Adviser who will serve as a liaison between the Mission, the GOCR, the CDF, and the support contractor.

(2) The NGO contract will follow full and open competition.

(4C) Private Sector Initiatives: The private sector activities are fully discussed in the Institutional Analysis (Annex E), the Technical Analysis (Annex F), and in the Economic and Financial Analysis (Annex H). The paper also discusses the investment incentive program in Section III.C.3.

(4D) Use of DA Funds for Credit: The credit program proposed in the PID has been dropped from the Project.

(4E) Tenure Situation: The land tenure problem is discussed in the Social Soundness Analysis (Annex G) and in the Technical Analysis (Annex F). Section III.C.3. also discusses this. Briefly the PP supports land tenure resolution where it affects project activities - i.e. forest enterprise development. The enterprise's budget includes funds to assist land owners interested in selling parts of their land to the enterprise to clarify their tenure.

(4F) Baseline Data Collection: The project Monitoring and Evaluation Plan (Section IV.C. and Annex J) has a detailed program for collecting the data and analysing it for appraising project results.

(4G) Intermediaries for Community Development: The primary intermediary will be the non-profit NGO CDF which will work directly with community organizations.

(4H) Life-of-Project: The LOP is 7 years. The second evaluation will determine the need to consider a project extension or follow-on.

(4I) Watershed Management Project: The relationship between this project and FORESTA will be discussed in the Watershed project. At this time it is not sufficiently advanced to discuss in the FORESTA PP.

(4J) Coordination with Other Donors: Section II.D. discusses this coordination. Direct contact with the IDB is on-going as their forestry project develops (it is still awaiting GOCR approval).

(4K) Commercial Forestry vs Biological Reserves: The Environmental Assessment (Section V.E. and Annex I) discuss the

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Project's impact on the forests and reserves. The design of the Project directly addresses both areas by establishing separate components to manage each land use category.

(4L) Participation of Forest and Sawmill Owners: Section III.C.3. and Annex F deal with forest industry in the area. Section III.C.3. also discusses the forest industry investment incentive fund, the purpose of which is to encourage responsible forest industry in the project area. The participation of forest owners in these activities is also discussed in the above sections of the PP, including ownership participation, employment, community extension, environmental education, etc.

(4M) Forestry Institute: The Mission is still awaiting developments on the Institute. Nothing is currently happening in relation to the Institute.

(4N) Need for an Environmental Assessment: The Assessment (Annex I and summarized in Section V.E.) has been submitted to the LAC Environmental Adviser and approved in State 4-6645. The conditions established in the cable have been incorporated into the PP (Section V.E.).

MCF:dms

FINANCIAL AND ECONOMIC ASSESSMENT

EXECUTIVE SUMMARY

Two spreadsheets, one financial (Annex 1) and the other economic (Annex 2), comprise the framework for assessing the viability of USAID/Costa Rica's FORESTA Project. Project worth is presented in measures of net present value (NPV) and internal rate of return (IRR). Project disbursements occur over 7 years, but flows of benefits and costs are projected and compared over 20 years. Project discount rates are 12 per cent for the financial analysis, and 6 per cent for the economic analysis.

FORESTA produces four classes of measurable outputs plus important intangibles. The four classes of measurable outputs are: (1) recreational, educational, and scientific use of the national parks, La Selva field station, and other public and private sites suitable for the production and consumption of these services; (2) production, consumption, and sale of farm trees in the Project area; (3) increased economic returns from natural forests in the buffer zones through implementation of sustained yield management and improved conversion technology; and (4) reduced deforestation in the Project area.

Total financial input to FORESTA over Years 1-20 exceeds US\$37 million, not including contingency and inflation. Most of this (over \$29 million) will be generated by the Central Cordillera Trust Fund. The initial amount to capitalize the trust fund is approximately \$8.1 million (excluding contingency and inflation). An amount of \$7.8 million (excluding contingency and inflation) finances Project administration, start-up costs, infrastructure, technical assistance, other non-recurring costs, and recurring costs during the first two years.

Financial NPV of the Project is \$6.8 million, while economic NPV is \$59.9 million, in the base case of direct outputs plus reduced deforestation. The IRRs are 18 and 35 per cent, respectively. Exclusion of indirect benefits (i.e. omission of the economic value of reduced deforestation) has little effect in diminishing FORESTA's viability. Sensitivity tests indicate that financial NPV turns negative if the time horizon is shortened to 10 years, or if visitations to the national parks and other wildlands are valued at 50 per cent of the base case. However, economic NPV remains positive for all sensitivity tests.

In view of inadequate data and untested assumptions, these results are preliminary. Principal tasks to develop the analysis in greater depth include: (1) refining budget categories and estimates; (2) tightening the links between budget estimates, implementation plans, and quantities of outputs; (3) reviewing concepts, assumptions, and estimates for quantities and values of visitation to the national parks and other wildlands; (4) initiating cost-benefit analysis of reduced deforestation in the FORESTA area, focusing primarily on water and watersheds; and (5) evaluating FORESTA's viability under various scenarios regarding debt swap, financial performance of the trust fund, and prospects for interrelated projects.

FINANCIAL AND ECONOMIC ASSESSMENT

1. INTRODUCTION

1.1 Terms of Reference

This report examines the financial and economic viability of USAID/Costa Rica's FORESTA Project (515-0243). The report follows the guidelines outlined in AID Handbook, Chapter 3. The terms of reference for this component of the Project Paper are given in USAID/Costa Rica's PIO/T, Attachment 1, "Scope of Work for Assistance in the Design of the Forest Resources for a Stable Environment Project," Section 5.3.3.

The Project Identification Document (PID) for FORESTA states that the project is to develop forestry and agroforestry as economically and ecologically appropriate land uses in the buffer zones around three national parks in the Cordillera Central, and to support management of the parks themselves. To achieve this purpose, the PID proposed that the Project have three components: (1) protection and management of the three national parks Braulio Carrillo, Poas, and Irazú; (2) protection and management of the buffer zones around these parks; and (3) integration of the communities of the area into these actions so that they become supporters (rather than the primary threat) of natural resource management in the Project area. The PID describes the buffer zone concept, FORESTA's conformity with Costa Rica's national priorities, and the Project's relationship to USAID/Costa Rica's strategy statement.

1.2 Scope and Organization of this Report

Two spreadsheets, one financial and the other economic, comprise the organizing framework for this assessment. The spreadsheets are presented as annexes. The report includes a number of separate tables which are either inputs or outputs for the spreadsheets. The purpose of these tables is to focus the reader's attention on particular details that may not be as clear when examining the large amounts of information contained in the spreadsheets.

Section 2 of this report establishes the Project context in terms useful for the financial and economic analyses which follow. It identifies the relevant time horizon for assessment of Project costs and benefits; identifies a Project discount rate; and discusses cash flow from the proposed Project endowment.

Section 3 presents the financial and economic analyses for FORESTA in measures of net present value (NPV) and internal rate of return (IRR). This requires identifying the different categories of Project benefits; estimating unit values (financial and economic) of benefits which are measurable; defining and estimating the different categories of Project costs (financial and economic); constructing the value flows of Project inputs and outputs; computing Project worth; and introducing sensitivity tests. Finally, Section 4 presents recommendations to improve estimates of Project worth, and to assist plans for Project monitoring and evaluation.

2. PROJECT CONTEXT

2.1 Project Time Horizon

Given the long-term aims of FORESTA's activities and the staged implementation of certain of its components, the minimum life of Project is seven years (PID, p. 6). However, streams of costs and benefits continue well beyond the period of Project disbursements. Earnings from the Project endowment (see 2.3) extend into the indefinite future. Payoffs from investments in forest protection and improved community relations are realized only through decades. Moreover, timber cutting cycles in natural forest management are 20-40 years (Nelson 1988; Tosi 1988).

This analysis examines financial cash flows and economic value flows over 20 years. Through this long time span great uncertainties characterize physical flows of inputs and outputs, their unit values, and institutional factors. Yet the production relationships for the outputs inherently demands the long-term perspective. The difficulty of estimating distant benefits and costs is to some extent compensated by their very small contributions to NPV at the relevant discount rates (see 2.2):

Present Value of \$1 in Benefits or Costs Accruing in:

		Year 10	Year 20
Discount			
Rate:	6%	.56	.31
	12%	.32	.10

2.2 Choice of Discount Rate

The discount rate to find the present value of future benefits and costs should reflect the time value of money in the Costa Rican economy. The discount rate represents the opportunity cost of Project funds, which in turn expresses (among other determinants) Costa Rica's preferences for present consumption versus investment to increase future consumption. Because FORESTA's benefits are realized far in the future compared with many alternative Projects, financial and economic returns are highly sensitive to the selection of the discount rate (see 2.1 above). Previous studies of forestry-related Projects in Costa Rica have applied discount rates of 10 per cent (Nelson 1988; Tosi 1988), 12 per cent (BID 1987), and 15 per cent (Flores Rodas 1985).

Different conceptual bases for the financial discount rate include: (1) lending rates by commercial banks and by other financial institutions, and (2) earnings on public and private investments comparable in scope and risk to the present Project. Due to monetary inflation and other features of Costa Rica's financial crisis of the early 1980s, credit availability in 1985 was only 49 per cent of what it had been in 1978. According to the Central Bank of Costa Rica (1986-1988) and other sources (Céspedes et al. 1986, pp. 95-106; U.S. Embassy 1988), real rates of interest have been positive only since 1983. For nonsubsidized bank loans, real interest rates for 1983-1988 ranged from 7-18 per cent for lending to agriculture, cattle, and industry.

"Softer" lending rates to small industries and small agriculturalists have been about 3/5 of the rates cited above, i.e. 4-11 per cent in real terms. Components in the proposed BID forestry project (BID 1987) are to be funded at different rates approximating 3/4 the Costa Rican bank rates. The lower rates can be rationalized on the basis of the production of public goods, positive external benefits, and prospects for demonstration potential. The anticipated benefits of FORESTA include a heavy weighting towards these effects. Although the existence of intangible and other non-quantifiable benefits is not a reason to apply a low discount rate (Gregersen and Contreras 1979, p. 104; Leslie 1987), the purpose of FORESTA suggests the appropriateness of a "conservation" discount rate. That is, the Project focuses on goals that many Costa Ricans might agree is in their collective long-term interest, even if individual rates of time preference (i.e. for households and businesses) are much higher. These ideas are reviewed and critiqued in Markandya and Pearce (1988, pp. 47-48).

Proceeding from these observations, the analysis assumes a financial discount rate of 12 per cent and an economic discount rate of 6 per cent. The financial rate approximates the post-1983 private cost of capital in Costa Rica, assuming that the recent trajectory will be maintained without new rounds of massive inflation. The economic rate assumes that GOCR is willing and able to give up present consumption in expectation of meeting long-term resource management aims which normally cannot be funded with market capital. The economic rate also approximates the social willingness to provide capital in GOCR's policy subsidizing favored borrowers, e.g. small agriculturalists, heavily represented among FORESTA's beneficiaries.

2.3 Project Endowment to Cover Recurrent Costs

The PID (pp. 19,22) proposes the establishment of an endowment (the Central Cordillera Trust Fund) to pay the perpetual costs of forest protection, infrastructure maintenance, training, and other recurrent expenditures. The objective is to generate an annual flow of funds that will continue well beyond the seven years of FORESTA's life of Project. Issues are the size of the endowment in relation to other Project needs; Costa Rica's management experience with endowments; the extent to which the endowment will include hard currency; and a number of other critical considerations which lie outside the present scope.

The cash flows for this analysis assume that the endowment will be successfully managed to protect the principal and (at a minimum) keep up with monetary inflation. In the financial and economic analyses, expenditures from endowment yields enter Project cash flows at the time they are incurred. The principal is excluded from cash flows on the premise that it remains a capital stock (not a flow).

3. FINANCIAL AND ECONOMIC ANALYSES

3.1 Categories of Project Benefits

The FORESTA Project produces four classes of measurable outputs plus important intangibles (i.e. outputs impossible to quantify in meaningful units). The four classes of measurable outputs are:

- a) increased recreational, educational, and scientific (RES) use of the three national parks, La Selva field station, and other public and private sites suitable for the production of RES services;
- b) increased production, consumption, and sale of trees from farms and ranches in the Project area;
- c) increased harvest volume and conversion efficiency of timber in the natural forests of the Project area; and
- d) reduced deforestation in the Project area.

Table 1 shows the physical flows of these outputs, with assumptions and explanations presented in the remainder of this section.

Production of RES services, timber, and wood products are direct outputs. They have market prices, and enter the cash flows for the financial analysis. Reduced deforestation, on the other hand, is an indirect output because its environmental services cannot be bought or sold in a market. Thus reduced deforestation has no identifiable financial worth. Yet reduced deforestation has economic value, even if estimation of that value presents difficulties (see 3.2.3). In the present framework, the benefits of controlled deforestation are treated as attributable to the FORESTA Project as a whole rather than to any of its components alone.

Intangible benefits enter neither the financial nor the economic accounting. FORESTA includes some intangibles that stand alone, and others co-produced in association with the measurable outputs (3.1.5).

3.1.1 Recreational, Educational, and Scientific (RES) Services

FORESTA strengthens the protection, management, and infrastructure of three national parks within short and easy driving distances of San José and other population centers of the Meseta Central. FORESTA enables these parks to accommodate increased visitation for RES purposes compared with the alternative of no project. Moreover, investments to improve the attractiveness of these parks will simultaneously expand the demand to visit them. Hence FORESTA's national parks component

should be regarded as both supply-augmenting (increasing "carrying capacity") and demand-enhancing.

The existence of FORESTA could be expected to increase the flow of students, researchers, tourists, and other visitors to existing and future private reserves in the Project area. Increased visits to these private sites will occur as a spillover from increased parks visitation, increased protection of the buffer zones from unwanted encroachment, and increased acceptance of this kind of visitation by the communities most affected by it.

For the last few years, the volume of nature-oriented visits managed by private tour operators has been increasing by perhaps 20-30 per cent annually (M. Kaye, pers. com.). Current visitation to the three national parks of Poas, Irazú, and Braulio Carrillo is probably about 200 thousand persons annually (Araya et al. 1988, p. 58). While total visitation to Costa Rican national parks has increased regularly and substantially since 1983, most of this growth has taken place at Manuel Antonio, Cahuita, and other parks. Visitation at Poas and Irazú appears to have remained fairly constant.

The La Selva field station of OTS sustained 10.5 thousand visitor-days of use in 1987, of which 13 per cent was by Costa Ricans and the rest by foreigners. Visitor use at La Selva has grown by over 40 per cent since 1985 (O. Camacho, pers. com.). Visitation at Rara Avis, a young nature-oriented enterprise near Horquetas, has been doubling each year from a small base. For 1989, Rara Avis tentatively projects 3 thousand visitor-days (A. Bien, pers. com.). Other private holdings with revenue from recreational, educational, or scientific visits include Finca Bejuco and Selva Verde (Holbrook Tours).

While many tourists on group or individual travel to or through the Project area are recorded as visitors at Poas and Irazú, many others are not. For example, the substantial flow of tourists and day visitors on the new highway through Braulio Carrillo is not monitored, even though much of that use presumably would not occur in the absence of the park. Other unmonitored use occurs at Volcán Barva, Bajo de Hondura (in Braulio Carrillo), Volcán Turrialba, Prussia (Irazú), and early in the morning at Poas (J. Barborak, pers. com.). Because the Project area is so close to Costa Rica's main population centers, it seems likely that a high percentage of RES visitors are not recorded in the national parks' statistics, are not clients of tour operators, and generally escape all statistical detection.

For present purposes, it will be assumed that the Project area currently generates 250 thousand visitor-days of RES services annually (40 per cent foreign). Annual growth in visitation is assumed to be 10 per cent without FORESTA, and 15 per cent with FORESTA. The margin of 5 per cent is probably conservative in view of the visitation impact FORESTA can have if it helps establish trails, transportation services, and other infrastructure (J. Barborak, personal communication). Growth in RES services levels off after 10 years, by which time visitation will be constrained by limits on carrying capacity unless much more is invested in physical and managerial infrastructure. The visitation flows which follow from these assumptions are shown in Table 1.

3.1.2 Production and Sale of Farm Trees

FORESTA aims to motivate farmers in the Project area to establish and manage trees, woodlots, and plantations on lands unsuitable for higher uses, and in association with other farm practices (i.e. agroforestry). This will be accomplished under the farm forestry component, and in conjunction with a number of other activities programmed therein.

The rate at which trees will be established, and the income effects of that establishment, are difficult to forecast. FORESTA would work through various kinds of agricultural cooperatives and community organizations. Each extension unit would combine managerial, technical, and manual labor with nurseries, field days, and other means of information transfer (G. Canet, pers. com.) It is assumed that FORESTA will support two such units in the Project area, each of which will produce and distribute 150 thousand seedlings annually. These will be fast-growing species, planted at low densities and in combination with other farm practices. It is assumed that full production of 300 thousand seedlings is reached in gradual steps over three years, beginning in Year 2 of the Project; that 150 thousand of these seedlings are successfully planted and properly maintained; and that production is 0.1 cubic meter per tree per year on a four-year cutting cycle. FORESTA's direct participation in this activity terminates in Year 7.

3.1.3 Sustained Yield and Sawmill Efficiency

The Project's forest management component produces two types of increased outputs of timber and wood products. The first is a greater total cut and utilizable conversion of timber in the natural forests by implementing a program of sustained yield harvests accompanied by the introduction of high-conversion

portable sawmills. The second is a credit line to improve the efficiency of a selected few existing stationary sawmills.

a) Sustained Yield: Principal issues for the financial and economic analyses concern the choice of system for natural forest management and harvesting, together with the question of processing options (PID, pp. 15-16). Two preparatory studies contracted by USAID/Costa Rica offer approaches which differ considerably in terms of timber volume extracted per hectare, silvicultural system, product mix, and technologies for wood processing, and a number of other details (Nelson 1988; Tosi 1988).

Nelson estimates an IRR (financial) of 25 per cent for a technical alternative comprising 11 high-conversion portable sawmills cutting 22 cubic meters of roundwood per hectare. A second alternative, comprising 6 portable sawmills extracting 12 cubic meters per hectare, generates an IRR (financial) of only 3 per cent. In both alternatives, three years are required for Project start-up and the achievement of full production.

Tosi estimates very high IRRs (72 per cent and 82 per cent) for two alternatives covering natural forest harvesting and management, as well as for two alternatives covering forest harvesting and management integrated with wood processing (75 per cent and 77 per cent). Tosi's models omit important initial costs (mainly fixed costs) of Project establishment and administration, possible road construction, delay required for installation of the processing centers, and the possible establishment of other infrastructure. Moreover, the forest industries models assume production of 8-18 different products starting at full capacity in the first year of the Project. The IRRs of Tosi's models can be expected to fall considerably if cash flows are adjusted to include Project start-up costs, likely infrastructure costs, and a realistic build-up of timber harvest and processing over a period of years. Further, it is not certain that the wide variety of products proposed in Tosi's industry models have viable markets in Costa Rica. An early priority is to clarify market demand in relation to the actual mixes of timber species and sizes found on specific timber tracts in the Project area.

The Nelson models, conservative in assumptions about product mix and harvestable volume, establish reasonable lower benchmarks of technical and financial possibilities. The Tosi models, as presently formulated, set upper benchmarks. All models give acceptable returns, with the exception of Nelson's low-harvest alternative (12 cubic meters per hectare). Neither Nelson nor Tosi assumes real price increases for wood products, even though that is a likely prospect (BID 1987, pp. 98-99; MAG 1987, p. 53). Hence even the least favorable model (Nelson's low-harvest alternative) understates IRR when considering increased timber scarcity in the region and in Costa Rica more generally.

The base case in the financial and economic analyses adopts the physical flows given by Nelson's Alternative I. Tosi's production possibilities are here regarded as upper limits to be tested for feasibility after actual timber harvesting begins, and after measurements of extracted and remaining volumes can be established. Production under Nelson's Alternative I is almost 7,000 cubic meters of sawnwood annually (produced from 13,000 cubic meters of roundwood) by Year 3 of the Project. This implies a conversion efficiency of 54 per cent. The flow of timber and sawnwood at this level is a crude estimate of the sustained yield that can be obtained in perpetuity under proper forest management.

Without FORESTA, timber cutting and utilization in the Project area will diminish as deforestation continues. Without FORESTA, deforestation outside of the national parks boundaries is assumed to occur at a rate of 10 per cent annually (see 3.1.4). A second assumption is that commercial logging takes place on half of the area where forests are being felled. A third assumption is that utilization mirrors national averages in Costa Rica: 54 per cent of commercial volume is removed after felling; 15 per cent of this is lost during log production and transport; and 46 per cent of log volume delivered to the sawmill is recovered as sawnwood. In the total process, only 21 per cent of sawlog volume becomes finished product (Flores Rodas 1985; Tosi 1988).

Comparing sawnwood production without FORESTA, the effect of the Project during the first four years is to reduce output (see Table 1). However, the combination

of sustained yield plus high conversion efficiency produces a net increase of 48 thousand cubic meters of sawnwood (Years 1-20) that otherwise would not have been obtained. FORESTA's shifting of timber cutting and conversion from present towards future calls attention to the importance of the Project discount rate (see 2.2).

b) **Sawmill Efficiency:** About half a dozen stationary sawmills have been identified as possibly qualifying for processing modernization (PID, p. 15). FORESTA provides credit to enable some of them to increase roundwood recovery and value-added. These benefits accrue to Costa Rica as a whole, although only a share accrues to residents in the Project area. Theoretically, improved sawmill utilization leads to higher prices for sales of standing timber, i.e. providing income to Project residents. In practice, Costa Rica's final processors and transport intermediaries could be expected to capture most of the economic rent arising from improved utilization.

Here it is assumed that FORESTA's technical assistance and credit assist three medium to large sawmills to increase product recovery by 5 per cent of roundwood input. Current annual roundwood input for the three mills together is 32 thousand cubic meters, implying that annual sawnwood production increases by 1.6 thousand cubic meters. This increase is achieved in successive increments over Years 2-5, after which time production is sustained through Year 10. Production increases attributable to FORESTA terminate after Year 10 due to technological obsolescence and equipment depreciation.

3.1.4 Reduced Deforestation

FORESTA attempts to stop illegal land clearing and illegal logging on the entire Project area (PID, p. 10). This generates protection benefits very difficult to quantify and even more difficult to value. The current forest cover in the Project area is estimated to be about 20 thousand hectares of forest outside the national parks' boundaries, and 45 thousand hectares within them. The PID (p. 21) assumes that, without FORESTA, all forest with commercial importance in the Project area will be destroyed and converted to extensive pasture. It is also reasonable to assume that, without FORESTA, encroachment pressures on the

national parks will increase as subsistence opportunities on lands outside parks boundaries become ever scarcer.

Here it is assumed that FORESTA's combination of increased patrol of the national parks and forest reserves, farm forestry activities, and land tenure activities will collectively bring unwanted deforestation to virtually nil by Year 5. This occurs in successive increments, beginning in Year 2.

Table 1 reports the difference in forest cover with versus without the FORESTA Project, based on the following assumptions:

- Without FORESTA, it is assumed that deforestation in the Project area outside park boundaries occurs at a rate of 10.0 per cent annually. This is higher than the national rate of 7.3 per cent reported for year 1983 (Sader and Joyce 1988), reflecting the particular social and institutional problems of maintaining forest cover on private lands and forest reserves in the Project area.
- With respect to forest cover within the national parks, current deforestation is negligible. Without FORESTA, it is assumed that deforestation in the parks would occur at a rate of 3.0 per cent annually, beginning in Year 5, due to encroachment pressures. The premise is that, without FORESTA, existing protection measures will be insufficient to head off illegal occupancy and land clearing. However, this clearing would take place at a rate which is considerably less than on surrounding private lands and forest reserves.
- FORESTA's influence on forest protection extends beyond the geographical limits of the Project area. A major objective is to create and implement an organization and strategy to more closely control forest cutting in all of Costa Rica (PID, pp. 14-15; PIO/T, pp. 12-13). To the extent that this succeeds, the figures in Table 1 underestimate protected forest at a national level. This is an important positive externality, but no attempt is made to include it in the economic analysis.

3.1.5 Intangible Benefits

The communities in the Project area will receive information and assistance to improve their self-reliance and their understanding of conservation management. It is anticipated that many individuals will be employed in the protection and

management of the national parks and forest reserves. Others will receive education and training in improvement of land use, logging guidelines, forest management, and forest industries. The benefits of self-reliance, understanding of conservation management, and education and training are regarded as intangibles not amenable to measurement.

Another group of immeasurable benefits is closely co-produced with reduced deforestation. The analysis can attempt to place an economic value on reduced deforestation through anticipating resulting positive impacts on water flow, reduced costs of infrastructure maintenance, and the like (see 3.2.3). Yet this does not capture truly elusive benefits related to maintenance of wildlife habitat, protection of biodiversity, contribution of forests to climate, and protection of existence values (i.e. psychological benefits accruing to persons both inside and outside Costa Rica who believe that tropical forests should exist). In theory, exercises in contingent valuation (e.g., questionnaires on willingness to pay or amount to be compensated) attempt to quantitatively assess some of these values. However, theory is well ahead of practice, and for present purposes this class of benefits will be considered intangible.

3.2 Unit Values of Measurable Outputs

Table 2 presents the estimated financial and economic unit values of the Project's measurable outputs. Brief explanations follow:

3.2.1 Recreational, Educational, and Scientific (RES) Services

In the conventional travel cost framework, the financial unit value of RES services is measured by direct expenditures per visitor-day. Rojas (1988) estimated expenditures of \$32 per day for nature-oriented tourists, and \$27 per day for students and researchers (at La Selva Biological Station). The first estimate is biased downward because it does not account for tour packages sold outside of Costa Rica, even though these packages are used to buy goods and services in the country. Laarman and Perdue (1987) estimated that former OTS participants spend \$48 daily while in Costa Rica on return trips. For foreign visitors to Monteverde Reserve and Poas National Park, Rovinski (1988) estimated mean expenditures of \$81 per day. Rovinski's estimates fall to \$49 per day if airfare is excluded. Prices for one-day nature tours conducted by private tour operators are

approximately \$60 per person (normally not including overnight lodging, dinner, or breakfast).

The mean expenditure per visitor-day reflects the mix of visitors (e.g. low-budget students vs. high-income travelers), as well as the number of Costa Ricans in relation to the number of foreigners. It also reflects methods to account for spending leakages abroad, methods to allocate airfare between Costa Rica and the visitor's home country, and a number of other difficult measurement issues. The present analysis assumes a financial unit value of \$45 per visitor-day for foreigners, and 800 colones (about \$10) per visitor-day for Costa Ricans.

The economic unit value exceeds the financial value by the amount of consumers' surplus, i.e. the willingness to pay for the visit above the price actually incurred. Estimation of consumers' surplus requires knowledge of the elasticity of demand, as could be obtained through the construction of travel cost models. Nothing like this exists for Costa Rica. Here it is assumed that the demand for RES visits in Costa Rica is moderately elastic (i.e. responds to the expense of travel, but not as a primary determinant). If the elasticity of demand is -1.0, then the economic conversion factor is 1.5. This results in economic values of \$67 and \$15 per visitor-day for foreigners and Costa Ricans, respectively. These figures are to be regarded as indicative of likely magnitudes rather than as empirical estimates.

3.2.2 Sales of Timber and Wood Products

The outputs of FORESTA's components on farm forestry and forest management are standing timber and processed wood, mainly sawwood. The financial unit values of standing timber (i.e. stumpage) and processed wood are their sales prices. Prices vary with species, sizes and other quality factors, transport distances, quantities sold, and other market determinants. The present framework simplifies by assuming regional averages, even though considerably more detail would be desirable.

The price analysis by BID (1987, Annex VI-4) observed stumpage prices of \$6.00 to \$8.50 per cubic meter for laurel, pochote, pine, and cypress. This was considerably less than the calculated residual value of \$18 per cubic meter when subtracting production costs from timber selling price. For present purposes, the market price is more relevant than the calculated residual value. This analysis assumes that standing trees produced through agroforestry and other farm forestry will have an average market stumpage price (or on-farm consumption value) of \$5.00 per cubic meter. The figure reflects the high proportion of farm

trees that will be used for fuel, posts and poles, and other relatively low-value products.

The financial unit value of sawnwood to be produced by the forest cooperative(s) is from Nelson (1988), who assumed that the estimated blend of roughsawn and planed sawnwood from portable sawmills will sell at \$118 per cubic meter. This compares with a range of \$154-201 per cubic meter in the estimates by BID (1987) for sawnwood from fixed installations. Here it is assumed that the financial unit value of sawnwood from the technically upgraded sawmills (i.e. using FORESTA credit and technical assistance) is \$220, slightly above the upper bounds of the current price range.

The economic unit values of standing timber and sawnwood are given by the import prices (c.i.f.) of logs and sawnwood, respectively, adjusted for transport costs within Costa Rica. The objective is to estimate "border prices" for FORESTA's logs and sawnwood regarded as import substitutes (Gregersen and Contreras 1979, p. 87). Despite Costa Rica's increasing shortage of commercial timber, the country's prices for timber and wood products continue to be relatively low in relation to prices of imports. In calculations by BID (1987, Annex VI-4), economic values exceeded financial values by factors of 1.46 for sawnwood and 2.95-3.68 for stumpage. The present analysis assumes conversion factors of 1.5 for sawnwood and 3.3 for stumpage.

3.2.3 Reduced Deforestation

The economic value of reducing deforestation presents severe challenges for both conceptualization and measurement. A principal source of benefits in maintaining forest cover in the Cordillera Central is the control of water flow, both for community use and for flood prevention and mitigation. Among the asset values at risk as forests are cleared or severely altered are the banana plantations and other agricultural enterprises of the Atlantic lowlands; water supplies of communities in and around Heredia on the south slopes of Volcán Barva, as well as aquifer recharge zones on Barva for water supplied to San José (Losilla et al. 1987); water flows from the catchments of Poas, Barva, Irazú, and Turrialba to hydroelectric plants; aquifers in the Guácimo-Pococí protection zone; and the new highway between San José and Guapiles (Route 32). The towns of Pocoro, Guácimo, Guápiles, and Puerto Viejo de Sarapiquí are particularly susceptible to destructive floods (CCT 1982, p. 106).

In Costa Rica, watershed deterioration as a result of deforestation is occurring above virtually every hydroelectric

plant. Case examples are Arenal and Cachi. At Cachi, lost revenue as a result of sedimentation is projected to be \$133 to \$274 million (Leonard 1987, p. 135).

Analytical work is needed to quantify a probabilistic damage function, with and without the FORESTA Project, for each of the assets at risk because of landslides, floods, and reduced supplies of potable water. FORESTA's contribution is then measured in terms of losses avoided (i.e. lessened repair, maintenance, and replacement). A second category of benefits is reduction of alternative costs (e.g. for new investments to supply drinking water to communities). Presently, very little is known about the damage functions, the inventory of assets exposed to risk, or mitigative measures and costs.

In the absence of this information, the present analysis makes the simplified assumption that each hectare not deforested has an economic value for watershed protection (i.e. not including other service and aesthetic functions) of \$20 per hectare per year. This is for illustrative purposes, and does not purport to be an estimate. The economics of FORESTA's contribution to watershed protection should be one of USAID/Costa Rica's highest priorities if further work is needed on Project viability.

3.3 Project Costs

Table 3 presents FORESTA's financial budget, with value flows disaggregated by Project component. The Project budget is tentative at the time of this analysis. Estimates are based largely on the PID. Timing of expenditures takes into account an early version of the FORESTA implementation plan. As budget details become clearer, the financial and economic analyses will need to be re-examined.

3.3.1 Financial Budget

Table 3 indicates a total financial input of \$37.2 million, Years 1-20, not including contingency or inflation. Most of this (\$29.4 million) will be generated by the Central Cordillera Trust Fund. A substantial proportion of these earnings are realized after the end of FORESTA's disbursement period (i.e. during Years 8-20). Here it is assumed that earnings from the trust fund are not available until Year 3. If annual financial yields on the Trust Fund are 20 per cent (nominal terms), then approximately \$8.1 million (excluding contingency and inflation) will be needed to capitalize it. An amount of \$7.8 million (excluding contingency and inflation) finances project administration,

start-up costs, infrastructure, technical assistance, other non-recurring costs, and recurring costs during Years 1-2.

3.3.2 Economic Conversion Factors

The social unit values of inputs to FORESTA differ from their financial prices by ignoring taxes and transfer payments, and by adjusting for price distortions caused by government intervention. Prices of imports, exports, agricultural products, petroleum products, and electricity are controlled or manipulated by GOCR (Briceno and Wong 1987; Quiros et al. 1987). However, few of FORESTA's important inputs fall into these categories. The major inputs to FORESTA are foreign exchange, forested land, a wide variety of labor and professional services, and infrastructure and construction.

a) Foreign Exchange

Due to policies which overvalued the colon, foreign exchange carried a shadow price ranging between 1.04-1.18 in the 1970s (Pucci 1979; Banco Central 1980). Costa Rica's economic collapse of the early 1980s was accompanied by an acute shortage of hard currency and a surge in the parallel market for dollars, although conditions during that brief period were abnormal. The current shadow price on dollars is low, as suggested by the small volume and low price of dollars in the parallel market. The margin between the parallel market and the official exchange rate has remained narrow and fairly stable in recent years (L.D. Molina, pers. com.). In light of Costa Rica's continuing large trade deficits, this departs from expectations. Various explanations (none of which is entirely satisfactory alone) include unrecorded inflows of dollars from drug traffic, large inflows of dollars from foreign assistance, and continuing expansion of Costa Rica's foreign credits.

The present economic analysis assigns foreign exchange a conversion factor of 1.1, even though the margin in the parallel market currently is three colones (i.e. roughly 4 per cent. or a factor of 1.04). It is assumed that GOCR will continue with mini-devaluations and other corrective measures, but that dollars will become substantially scarcer in the near future due to strong devaluation pressures over the next several years.

b) Forested Land

The shadow price of forested land, such as that to be acquired by FORESTA for addition to Costa Rica's national parks, is not easily estimated. The appropriate economic value is the highest discounted net income that would have been obtained from the land in the absence of the Project (Gregersen and Contreras 1979, p. 95). Forested land suitable only for forest cover, when converted for cattle grazing and other unsustainable uses, produces negative net returns (Tosi 1988). This suggests that purchase of fragile lands while still under forest cover has a negative shadow price, i.e. that their economic price is less than zero.

The actual situation is far more complex than a straightforward estimation of alternative returns. Complications arise from speculation value, initial cash generation (even if net income later turns negative), GOOCR agricultural subsidies, noneconomic motivations for owning land, social costs if current residents have to be relocated, and other institutional factors. Moreover, many of the properties to be purchased have genuine alternative uses in perennial crops or cattle raising.

Without further study, the present analysis applies an economic conversion factor of 0.5 for forested land to be acquired for expansion of the national parks. The opportunity costs of different forested tracts in the Project area merit considerably more attention than is possible within this exercise. One approach is to estimate land shadow prices from Costa Rica's system of land capability classes (CCT 1985) in combination with the inventory of parcels to be purchased. The factor used here is little more than an illustration until this or other empirical studies can be made.

c) Labor and Professional Services

FORESTA demands a wide range of services, varying from specialized technical assistance to manual labor. Salaries and wages differ from opportunity costs (in terms of foregone national output) if labor legislation obligates payment higher than productivity. In Costa Rica, labor markets have been relatively open and unconstrained, despite the social welfare tradition of GOOCR policies. Open unemployment does not rise above 10 per cent, and labor mobility is high.

Based on data of several years ago, the Central Bank (1980) observed no evidence of wage or salary distortions in the labor market. The same conclusion was derived by Pucci (1979), who found the only distortion to be relatively high employers' costs for employees' social benefits ("cargas sociales"). Currently, payment of social benefits increases employers' costs by about 39 per cent (L.D. Molina, personal communication). Because taxes for social benefits are a transfer payment, they should be omitted from the economic cost of labor and services.

The present analysis assumes a conversion factor of 0.7 for FORESTA's local costs of Project activities which are heavily labor-intensive or service-oriented. For services such as technical assistance provided by foreigners, the shadow price is the conversion factor for foreign exchange. No adjustment is made for Project elements which contain embodied labor, but which themselves are not labor (e.g. construction). These are treated separately (see below).

d) Infrastructure and Construction

A conversion factor of 0.9 is adopted, applying estimates from several years ago (Banco Central 1980). Infrastructure and construction comprise a relatively modest part of FORESTA's budget. A more current estimate is desirable but not critical.

3.3.3 Implicit Costs of Complementary Inputs

The production of goods and services through FORESTA requires inputs in addition to those purchased directly with Project funds. The production and consumption of RES services depends on a large base of public and private investment already in place. Sawmill improvement likewise builds on a base of existing investment. Production of farm trees depends on land, labor, and services not totally paid for by FORESTA. The portable sawmills to be operated by the forest cooperative(s) will likely use roads, land, timber, and labor not fully compensated by the Project. In each case, Project worth is overestimated if allowance is not made for the implicit costs of these complementary inputs. Implicit costs, as a percentage of direct Project costs, are assumed as follows: 10 per cent for project administration, and 30 per cent for each of national parks, farm forestry, and forest management.

3.4 Project Worth

Spreadsheets for the financial and economic analyses incorporate the preceding assumptions and estimates to compute measures of NPV and IRR. Results are presented in the "Base Case" of Table 4 (and in appended spreadsheets). Three primary conclusions are:

- 1) net benefits are substantial for both financial and economic analyses;
- 2) net benefits are considerably greater for economic than for financial analysis; and
- 3) inclusion of indirect benefits of reduced deforestation is not required for Project justification.

To the extent that the assumptions and estimates for the "Base Case" are valid, FORESTA appears to be highly attractive from financial and economic perspectives.

3.5 Sensitivity Analysis

The sensitivity of NPV and IRR to changed assumptions is shown in Table 4. In none of the tests does economic NPV become negative. However, financial NPV becomes negative when shortening the Project time horizon to 10 years (from 20 years in the base case). Financial NPV also turns negative when RES services are valued at only 50 per cent of expenditures assumed in the base case (\$10 and \$45 per visitor-day for Costa Ricans and foreigners, respectively, in the base case). Finally, financial NPV is unacceptable for various combinations of shortened time horizon plus delayed benefits (Test #8), shortened time horizon plus increased costs (Test #9), and decreased outputs from forest management plus decreased value of RES services (Test #10). In isolation, the effect of reduced output in the forest management component (Test #6) has little impact on overall Project viability.

3.6 Summary and Conclusions

In view of incomplete information and many untested assumptions, financial and economic estimates are preliminary. They tentatively indicate that FORESTA has a high payoff for

Costa Rica. Because most benefits in the current model arise from visitation to the national parks and other wildlands, further exploration of Project worth should concentrate on that component as a priority. If careful reappraisal of those benefits should show them to be substantially lower than indicated here, then Project viability might be questioned.

Another focal point of continued analysis should be Project time horizon, perhaps in relation to a worst-case scenario in which earnings from the Project trust fund are overtaken by inflation. That scenario could make it impossible to meet recurrent costs at the intended level on a perpetual basis. USAID/Costa Rica and GOCR must assure that this cannot happen (e.g. by holding a minimum proportion of the endowment in hard currency).

Within the given framework, the economic argument in favor of FORESTA can be made without requiring the inclusion of indirect benefits from reduced deforestation. This is a great advantage from a decision-making viewpoint, since the nominal value now in the economic model (\$20 per ha. per year) is purely illustrative. Analysis of forest protection values, especially regarding water flow and maintenance of soil cover, will be particularly critical if later estimates of RES services lead to downward adjustments in the Project's NPV and IRR. In light of protection values and intangibles not recognized in the formal analysis, the measures of Project worth contained in this report are decidedly conservative.

4. RECOMMENDATIONS

- 4.1 Budget categories and estimates, preliminary at the time of this analysis, need to be refined and verified.
- 4.2 Budget estimates should be tightly linked with the Project implementation plan, which in turn must be tightly linked with estimated quantities of expected outputs.
- 4.3 Shadow prices of Project inputs and outputs require a rigorous evaluation. The subjectively most important shadow prices are for forested land, professional services (e.g. technical assistance, extension services, etc.), visitor-days in the national parks and wildlands, and stumpage and sawnwood.

- 4.4 Conceptual and measurement bases for valuing visitation to the national parks and other wildlands must be carefully critiqued, perhaps by different analysts working independently of each other.
- 4.5 USAID/Costa Rica and GOCR should initiate analytical models assessing benefits and costs of reduced deforestation in the Project area, with emphasis on water and watersheds. The analysis will prove critical for decisionmaking if subsequent estimates reduce FORESTA's net benefits in other categories (e.g. see 4.3 above).
- 4.6 FORESTA's viability will be affected by possible debt swap to acquire land, financial performance of the Central Cordillera Trust Fund, and interrelationships with natural resources Projects being proposed or studied by BID. The financial and economic significance of these factors for FORESTA is not easily incorporated in a spreadsheet or other model. Yet a number of contingencies could alter Project economics dramatically. This suggests a periodic reassessment of Project worth as the critical contextual factors are better understood.

CEPETA - Financial Analysis

ASSUMPTIONS:
Discount rate (%) 12
Project Period (year) 20

	UNITS	UNIT VALUE	Y0-1	Y0-2	Y0-3	Y0-4	Y0-5	Y0-6	Y0-7	Y0-8	Y0-9	Y0-10	Y0-11	Y0-12	Y0-13	Y0-14	Y0-15	Y0-16	Y0-17	Y0-18	Y0-19	Y0-20
	THOUSANDS	USD																				
OUTPUTS, QUANTITY																						
A. RES Services																						
	visitor-days		0.0	0.0	10.0	20.0	42.0	60.0	81.0	107.0	139.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
	C. Escano																					
	visitor-days		0.0	3.0	11.0	19.0	29.0	40.0	54.0	71.0	92.0	116.0	116.0	116.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
	Parqueiros																					
B. Fera Foresta																						
	03 stonew							3.0	15.0	30.0	45.0	60.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
C. Forest Management																						
	Sustained Yield		-3.2	-2.4	-0.9	-0.7	0.1	0.0	1.4	2.0	2.5	2.9	3.2	3.7	4.0	4.3	4.6	4.8	5.1	5.2	5.4	5.4
	Small Efficiency		0.0	0.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D. Reduced Deforestation																						
	Inside Parts	ha	0.0	0.0	0.0	0.0	1.3	2.7	3.0	3.2	4.0	7.5	8.4	9.7	10.0	11.0	12.0	13.0	14.7	15.0	16.5	17.4
	Outside Parts	ha	0.0	0.7	1.0	1.2	1.3	1.5	2.2	3.2	4.1	4.8	5.5	6.2	6.7	7.2	7.7	8.1	8.5	8.9	9.1	9.4
OUTPUTS, DOLLAR VALUE																						
A. RES Services																						
	USD		0.0	305.0	653.0	1175.0	1725.0	2400.0	3240.0	4262.0	5520.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0	6960.0
	C. Escano	USD	10.0	0.0	80.0	160.0	280.0	420.0	600.0	810.0	1070.0	1380.0	1740.0	1740.0	1740.0	1740.0	1740.0	1740.0	1740.0	1740.0	1740.0	1740.0
	Parqueiros	USD	45.0	0.0	225.0	495.0	825.0	1305.0	1890.0	2420.0	3195.0	4140.0	5220.0	5220.0	5220.0	5220.0	5220.0	5220.0	5220.0	5220.0	5220.0	5220.0
B. Fera Foresta																						
	USD		3.0	0.0	0.0	0.0	0.0	25.0	75.0	150.0	225.0	300.0	375.0	375.0	375.0	375.0	375.0	375.0	375.0	375.0	375.0	375.0
C. Forest Management																						
	USD		-412.0	-147.2	157.0	267.4	365.0	446.4	517.2	588.0	647.0	623.0	587.4	636.6	672.0	587.4	542.0	566.4	601.0	627.4	627.2	660.0
	Sustained Yield	USD	110.0	-412.0	-203.2	-186.2	-82.6	11.0	94.4	163.2	236.0	293.0	342.2	390.4	436.6	472.0	387.4	342.0	366.4	401.0	427.2	460.0
	Small Efficiency	USD	220.0	0.0	170.0	264.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0	352.0
D. Reduced Deforestation																						
	USD		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Inside Parts	USD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Outside Parts	USD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E. Total Value																						
	USD		-412.0	197.0	612.0	1404.4	2000.0	2571.4	3032.2	3602.0	4392.0	5082.0	5720.4	5771.6	5887.0	5842.4	5877.0	5901.4	5926.0	5950.4	5974.2	5998.0
INPUTS, COST																						
A. National Parts																						
	USD		823.0	1437.0	1447.0	884.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0	384.0
	Management Plans	USD	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Local Cost	USD	10.0	10.0																		
	Foreign Exchange	USD	10.0	10.0																		
	Part Boundary	USD	13.0	13.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Local Cost	USD	13.0	13.0	13.0																	
	Foreign Exchange	USD																				
	Land Acquisition	USD	231.0	400.0	400.0	400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Local Cost	USD	231.0	400.0	400.0	400.0																
	Foreign Exchange	USD																				
	Part Protection	USD	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0
	Local Cost	USD	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0	244.0

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	UNITS	UNIT VALUE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	THOUSANDS	US\$																			
Foreign Exchange	US\$		50.0	50.0																	
Visitor Infrastructure	US\$		200.0	375.0	275.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0
Local Cost	US\$		100.0	175.0	125.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0
Foreign Exchange	US\$		100.0	200.0	150.0																
Environmental Ed.	US\$		75.0	75.0	75.0	75.0	60.0	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Cost	US\$		25.0	25.0	25.0	25.0	20.0	20.0	20.0												
Foreign Exchange	US\$		50.0	50.0	50.0	50.0	40.0	40.0	40.0												
B. Fore Forest	US\$		870.0	870.0	870.0	870.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
Grasslands	US\$		175.0	175.0	175.0	175.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Local Cost	US\$		150.0	150.0	150.0	150.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
Foreign Exchange	US\$		25.0	25.0	25.0	25.0															
Conservation Area	US\$		220.0	220.0	220.0	220.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Local Cost	US\$		200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Foreign Exchange	US\$		20.0	20.0	20.0	20.0															
Part Management	US\$		175.0	175.0	175.0	175.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Local Cost	US\$		150.0	150.0	150.0	150.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
Foreign Exchange	US\$		25.0	25.0	25.0	25.0															
Land Use	US\$		300.0	300.0	300.0	300.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
Local Cost	US\$		280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
Foreign Exchange	US\$		20.0	20.0	20.0	20.0															
C. Forest Management	US\$		285.0	470.0	745.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0	580.0
Protection	US\$		130.0	220.0	250.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Local Cost	US\$		100.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Foreign Exchange	US\$		30.0	20.0	50.0																
Logging Guidelines	US\$		20.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Local Cost	US\$		10.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Foreign Exchange	US\$		10.0	5.0	5.0																
Management Guidelines	US\$		25.0	25.0	240.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0
Local Cost	US\$		25.0	25.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Foreign Exchange	US\$		20.0	0.0	200.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Forest Conservation	US\$		40.0	100.0	80.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Local Cost	US\$		40.0	40.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Foreign Exchange	US\$		0.0	60.0	60.0																
Land Tenure	US\$		70.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Cost	US\$		45.0	45.0																	
Foreign Exchange	US\$		25.0	25.0																	
Forest Industry	US\$		175.0	460.0	275.0	-170.0	-170.0	-170.0	-170.0	-170.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Local Cost	US\$		25.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Foreign Exchange	US\$		150.0	440.0	255.0	-190.0	-190.0	-190.0	-190.0	-190.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D. Project Administration	US\$		125.0	125.0	125.0	125.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Local Cost	US\$																				
Foreign Exchange	US\$		125.0	125.0	125.0	125.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
E. Total Costs	US\$		2115.0	2777.0	3227.0	2404.0	1764.0	1667.0	1767.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0	1667.0
IMPLICIT COST OF COMPLEMENTARY INPUTS	US\$		600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0	600.0
National Parks	US\$		200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Fore Forests	US\$		200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Forest Management	US\$		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Project Administration	US\$		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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	UNITS	UNIT VALUE	Y0-1	Y0-2	Y0-3	Y0-4	Y0-5	Y0-6	Y0-7	Y0-8	Y0-9	Y0-10	Y0-11	Y0-12	Y0-13	Y0-14	Y0-15	Y0-16	Y0-17	
		USD																		
NET VALUE FLOW																				
Netural Parks	USD		-1882.0	-1587.1	-1252.1	89.0	1219.2	1894.2	2754.2	3877.2	5092.2	6322.2	6532.2	6722.2	6822.2	6822.2	6722.2	6522.2	6222.2	5822.2
Fore Forestry	USD		-1121.0	-1121.0	-1121.0	-1121.0	-940.0	-892.0	-872.0	-740.0	-692.0	-619.0	-522.0	-422.0	-322.0	-222.0	-122.0	-22.0	22.0	22.0
Forest Management	USD		-782.5	-718.2	-654.7	-484.6	-390.2	-347.4	-254.0	-188.0	-107.0	-17.2	24.0	117.0	222.0	322.0	422.0	522.0	622.0	722.0
Project Administration	USD		-177.5	-165.0	-157.5	-145.0	-130.0	-122.0	-110.0	-97.0	-82.0	-67.0	-52.0	-37.0	-22.0	-7.0	8.0	13.0	18.0	23.0
Direct Project Benefits	USD		-3134.0	-3277.3	-3257.3	-1490.0	-190.0	491.7	1322.5	2711.3	4300.2	5792.1	5622.7	5479.0	5312.2	5150.7	4982.1	4813.5	4644.9	4476.3
Reduced Deforestation	USD		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Project	USD		-3134.0	-3277.3	-3257.3	-1490.0	-190.0	491.7	1322.5	2711.3	4300.2	5792.1	5622.7	5479.0	5312.2	5150.7	4982.1	4813.5	4644.9	4476.3
NET PRESENT VALUE (USD000)																				
Project		6792.2																		
Direct + Deforestation		6792.2																		
INTERNAL RATE OF RETURN (%)																				
Project		0.10																		
Direct + Deforestation		0.10																		

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FORESTA - Economic Analysis

WORLD BANK
Date: 1984/04/29

SUBSYS. BENEFIT	UNITS	UNIT VALUE USD	ECONOMIC CONVERSION FACTORS	W-1	W-2	W-3	W-4	W-5	W-6	W-7	W-8	W-9	W-10	W-11	W-12	W-13	W-14	W-15	W-16	W-17	W-18	W-19	W-20
				0.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
A. RES Services	visitor-days			0.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
C. Parks	visitor-days			0.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
Foreigners				0.0	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
B. Fore Forests	aj storage			0.0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
C. Forest Management	aj summed			-1.5	-2.4	-4.0	-6.7	0.1	0.0	1.0	2.0	2.0	2.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustained Yield	aj summed			0.0	0.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Small Efficiency																							
D. Reduced Deforestation	%			0.0	0.0	0.0	0.0	1.1	2.1	2.0	1.2	0.4	1.1	0.4	0.1	0.0	11.0	12.0	11.0	14.1	11.1	14.1	11.0
Inside Parks	%			0.0	0.0	0.0	0.0	1.1	2.1	2.0	1.2	0.4	1.1	0.4	0.1	0.0	11.0	12.0	11.0	14.1	11.1	14.1	11.0
Outside Parks	%			0.0	0.0	0.0	0.0	1.1	2.1	2.0	1.2	0.4	1.1	0.4	0.1	0.0	11.0	12.0	11.0	14.1	11.1	14.1	11.0
SUBSYS. GROSS VALUE	USD			0.0	437.3	982.3	1742.3	2387.3	3000.0	3600.0	4200.0	4800.0	5400.0	6000.0	6600.0	7200.0	7800.0	8400.0	9000.0	9600.0	10200.0	10800.0	11400.0
A. RES Services	USD	10.0	1.3	0.0	130.0	240.0	420.0	630.0	900.0	1200.0	1600.0	2100.0	2600.0	3100.0	3600.0	4100.0	4600.0	5100.0	5600.0	6100.0	6600.0	7100.0	7600.0
C. Parks	USD	43.0	1.3	0.0	137.3	240.0	420.0	630.0	900.0	1200.0	1600.0	2100.0	2600.0	3100.0	3600.0	4100.0	4600.0	5100.0	5600.0	6100.0	6600.0	7100.0	7600.0
Foreigners																							
B. Fore Forests	USD	5.0	2.1	0.0	0.0	0.0	0.0	0.0	62.5	125.0	187.5	250.0	312.5	375.0	437.5	500.0	562.5	625.0	687.5	750.0	812.5	875.0	937.5
C. Forest Management	USD			-419.3	-160.0	236.7	404.1	593.7	800.0	1000.0	1200.0	1400.0	1600.0	1800.0	2000.0	2200.0	2400.0	2600.0	2800.0	3000.0	3200.0	3400.0	3600.0
Sustained Yield	USD	110.0	1.3	-619.3	-424.0	-159.3	-121.0	17.7	141.0	271.0	330.0	422.0	520.0	620.0	720.0	820.0	920.0	1020.0	1120.0	1220.0	1320.0	1420.0	1520.0
Small Efficiency	USD	230.0	1.3	0.0	204.0	396.0	570.0	820.0	1100.0	1400.0	1800.0	2300.0	2900.0	3500.0	4100.0	4700.0	5300.0	5900.0	6500.0	7100.0	7700.0	8300.0	8900.0
D. Reduced Deforestation	USD			0.0	14.0	20.0	24.0	32.0	40.0	47.0	54.0	61.0	68.0	75.0	82.0	89.0	96.0	103.0	110.0	117.0	124.0	131.0	138.0
Inside Parks	USD	20.0		0.0	0.0	0.0	0.0	24.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	
Outside Parks	USD	20.0		0.0	14.0	20.0	24.0	32.0	40.0	47.0	54.0	61.0	68.0	75.0	82.0	89.0	96.0	103.0	110.0	117.0	124.0	131.0	138.0
E. Total Value	USD			-419.3	310.7	1279.2	2130.0	3105.2	4400.0	5900.0	7600.0	9400.0	11300.0	13300.0	15400.0	17600.0	19900.0	22300.0	24800.0	27400.0	30100.0	32900.0	35800.0
SUBSYS. COST	USD			640.0	1000.0	1007.0	1100.0	1200.0	1300.0	1400.0	1500.0	1600.0	1700.0	1800.0	1900.0	2000.0	2100.0	2200.0	2300.0	2400.0	2500.0	2600.0	2700.0
A. National Parks	USD			640.0	1000.0	1007.0	1100.0	1200.0	1300.0	1400.0	1500.0	1600.0	1700.0	1800.0	1900.0	2000.0	2100.0	2200.0	2300.0	2400.0	2500.0	2600.0	2700.0
Management Plans	USD			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Local Cost	USD	0.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Foreign Exchange	USD	1.1		11.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Park Boundaries	USD			0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Local Cost	USD	0.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Foreign Exchange	USD	1.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Land Acquisition	USD			113.5	200.0	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Local Cost	USD	0.3		113.5	200.0	200.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Foreign Exchange	USD	1.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Park Infrastructure	USD			212.0	400.0	375.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Local Cost	USD	0.1		170.0	300.0	300.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0

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TABLE 1. PHYSICAL FLOWS OF MEASURABLE OUTPUTS
FORESTA PROJECT

Project Year	A		B	C		D	
	National Parks RES. Services Co. Parks (thousand visitor-days)	Forecasts	Fore Forestry Tree Production (thousand to stumpage)	Forest Management Sustained Yield (thousand m ³)	Sawmill Efficiency (thousand m ³ sawnwood)	Reduced Deforestation: Inside Parks (thousand ha.)	Outside Parks
1	0	0		-3.5	0	0	0.4
2	8.0	5.0		-2.4	0.0	0	0.7
3	16.0	11.0		-0.9	1.2	0	1.0
4	28.0	19.0		-0.7	1.6	0	1.2
5	42.0	29.0		0.1	1.6	1.3	1.3
6	60.0	40.0	5.0	0.8	1.6	2.7	1.5
7	81.0	54.0	15.0	1.4	1.6	3.9	2.2
8	107.0	71.0	30.0	2.0	1.6	5.2	3.2
9	138.0	92.0	45.0	2.5	1.6	6.4	4.1
10	174.0	116.0	60.0	2.9	1.6	7.5	4.8
11	174.0	116.0	75.0	3.3		8.6	5.5
12	174.0	116.0	75.0	3.7		9.7	6.2
13	174.0	116.0	75.0	4.0		10.8	6.7
14	174.0	116.0	75.0	4.3		11.8	7.2
15	174.0	116.0	75.0	4.6		12.8	7.7
16	174.0	116.0	75.0	4.8		13.8	8.1
17	174.0	116.0	75.0	5.1		14.7	8.5
18	174.0	116.0	75.0	5.2		15.6	8.8
19	174.0	116.0	75.0	5.4		16.5	9.1
20	174.0	116.0	75.0	5.6		17.4	9.4

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TABLE 2. UNIT VALUES OF MEASURABLE OUTPUTS

FORESTA PROJECT

Project Component	Unit Values	
	Financial	Economic
	US\$	
A. National Parks		
FES Services (per visitor-day)		
Costa Ricans	10	15
Foreigners	45	67
B. Farm Forestry		
Tree Sales (per m ³ stumpage)	5	16
C. Forest Management		
Sustained Yield (per m ³ sawnwood)	118	177
Sawmill Efficiency (per m ³ sawnwood)	220	330
D. Reduced Deforestation		
Inside Natl. Parks (per ha.)	0	20
Outside Natl. Parks (per ha.)	0	20

TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY
FORESTA PROJECT

COMPONENT: NATIONAL PAPERS

Project Year	MANAGEMENT CLANS		RESEARCH DEPRECIATION		LAND ACQUISITION		PAPER PROCESSIONS	
	..LC..	..FX..	..LC..	..FX..	..LC..	..FX..	..LC..	..FX..
	US\$000		US\$000		US\$000		US\$000	
1	10	10	13		231		244	50
2	10	10	13		400		494	50
3			13		600		494e	
4					400		244e	
5							244e	
6							244e	
7							244e	
8							244e	
9							244e	
10							244e	
11							244e	
12							244e	
13							244e	
14							244e	
15							244e	
16							244e	
17							244e	
18							244e	
19							244e	
20							244e	

LC = Local Costs
 FX = Foreign Currency
 e = All or partly funded by FOPSTA endowment fund

TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY

FORESTA PROJECT

COMPONENT: NATIONAL PAPERS

Project Year	VISITEE INFRASTRUCTURE		ENVIRONMENTAL EDUCATION		LC	FC	LC	FC
	LC	FC	LC	FC				
	US\$000		US\$000		US\$000		US\$000	
1	100	100	25	50				
2	185	200	25	50				
3	185 ^e	100	25	50				
4	85 ^e		25	50				
5	85 ^e		20	40				
6	85 ^e		20	40				
7	85 ^e		20	40				
8	85 ^e							
9	85 ^e							
10	85 ^e							
11	85 ^e							
12	85 ^e							
13	85 ^e							
14	85 ^e							
15	85 ^e							
16	85 ^e							
17	85 ^e							
18	85 ^e							
19	85 ^e							
20	85 ^e							

LC = Local Costs
 FC = Foreign Currency
 e = All or partly funded by FORESTA endowment fund

TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY
FORESTA PROJECT

(COMPONENTS: US\$ EQUIVALENT)

Project Year	SUPPORT STAFF/STATION COSTS		CONSERVATION AWARENESS		PARTICIPATION IN FAC. MANAGEMENT		TREE PLANTING AND LAND USE	
	LC	FX	LC	FX	LC	FX	LC	FX
	US\$000		US\$000		US\$000		US\$000	
1	150	25	200	20	150	25	200	100
2	150	25	200	20	150	25	200	100
3	150e	25	200e	20	150e	25	200e	100
4	150e	25	200e	20	150e	25	200e	100
5	150e		200e		150e		200e	
6	150e		200e		150e		200e	
7	150e		200e		150e		200e	
8	150e		200e		150e		200e	
9	150e		200e		150e		200e	
10	150e		200e		150e		200e	
11	150e		200e		150e		200e	
12	150e		200e		150e		200e	
13	150e		200e		150e		200e	
14	150e		200e		150e		200e	
15	150e		200e		150e		200e	
16	150e		200e		150e		200e	
17	150e		200e		150e		200e	
18	150e		200e		150e		200e	
19	150e		200e		150e		200e	
20	150e		200e		150e		200e	

LC = Local Costs
 FX = Foreign Currency
 e = All or partly funded by FIDES' A endowment fund

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TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY
FORESTA PROJECT

COMPONENT: FOREST MANAGEMENT

Project Year	FOREST RESEARCH		GOING 6. GUIDELINES		MANAGEMENT PLANS GUIDELINES		TRAINING & ASSIST. FOR COMMUNITATIVE	
	LC	FX	LC	FX	LC	FX	LC	FX
	US\$000		US\$000		US\$000		US\$000	
1	100	30	10	10	25	20	40	50
2	200	30	20	25	25	30	40	60
3	200e	50	20e	25	40e	350e	20e	60
4	200e		20e		40e	300e	20e	
5	200e		20e		40e	300e	20e	
6	200e		20e		40e	300e	20e	
7	200e		20e		40e	300e	20e	
8	200e		20e		40e	300e	20e	
9	200e		20e		40e	300e	20e	
10	200e		20e		40e	300e	20e	
11	200e		20e		40e	300e	20e	
12	200e		20e		40e	300e	20e	
13	200e		20e		40e	300e	20e	
14	200e		20e		40e	300e	20e	
15	200e		20e		40e	300e	20e	
16	200e		20e		40e	300e	20e	
17	200e		20e		40e	300e	20e	
18	200e		20e		40e	300e	20e	
19	200e		20e		40e	300e	20e	
20	200e		20e		40e	300e	20e	

LC = Local Costs
 FX = Foreign Currency
 e = All or partly funded by FORESTA encounter fund

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TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY
FORESTA PROJECT

COMPONENTS (ESTIMATED)

Project Year:	Local Costs		Foreign Exchange	
	LC	FX	LC	FX
	US\$000	US\$000	US\$000	US\$000
1	45	25	25	90
2	45	25	20	440
3			20e	253
4			20e	-194
5			20e	-194
6			20e	-194
7			20e	-194
8			20e	-97
9			20e	
10			20e	
11			20e	
12			20e	
13			20e	
14			20e	
15			20e	
16			20e	
17			20e	
18			20e	
19			20e	
20			20e	

8 Includes loan of US\$700 divided between YR-2 and YR-3, repaid by equal annual payments over 5 years at real rate of interest of 12%.

LC = Local Costs
FX = Foreign Exchange
e = All or partly funded by FORESTA endowment fund

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TABLE 3. FINANCIAL FLOWS OF INPUTS, BY COMPONENT AND ACTIVITY
 FORESTA PROJECT
 COMPONENT: PROJECT ADMINISTRATION

Project Year	PROJECT ADMINISTRATION		EVALUATION, AUDITS & REVIEWS		
	LC	FI	LC	FI	LC
	LS000		US000		US000
					LS000
1		100		25	
2		100		50	
3		100		25	
4		100		50	
5		100			
6		100		100	
7		100			
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

LC = Local Costs
 FI = Foreign Currency
 e = All or partly funded by FORESTA account fund

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TABLE 4. FINANCIAL AND ECONOMIC MEASURES OF NET BENEFITS

FORESTA Project

Assumptions	NPV		IRR	
	Financial --(million US\$)--	Economic	Financial --(90)--	Economic
1. Base Case				
Direct Benefits	6.8	57.6	18	34
Direct & Deforestation	6.8	59.9	18	35
2. Time horizon in 10yrs.				
Direct Benefits	-3.7	13.1	4	25
Direct & Deforestation	-3.7	13.7	4	26
3. Benefit streams delayed by 2 yrs.				
Direct Benefits	5.4	51.3	17	33
Direct & Deforestation	5.4	53.3	17	34
4. Implicit costs double base case				
Direct Benefits	3.5	54.6	15	31
Direct & Deforestation	3.5	56.8	15	31
5. All costs 20% higher than base case				
Direct Benefits	2.8	53.0	14	30
Direct & Deforestation	2.8	55.3	14	30
6. Output in forest management 50% base case				
Direct Benefits	5.7	54.5	17	34
Direct & Deforestation	5.7	56.8	17	34
7. RES services valued at 50% base case				
Direct Benefits	-5.1	23.6	6	21
Direct & Deforestation	-5.1	25.9	6	22
8. Combination 2 + 3				
Direct Benefits	-5.7	1.9	-16	12
Direct & Deforestation	-5.7	2.2	-16	13
9. Combination 2 + 4				
Direct Benefits	-6.9	9.8	-2	19
Direct & Deforestation	-6.9	10.4	-2	20
10. Combination 5 + 6				
Direct Benefits	-6.1	20.6	4	19
Direct & Deforestation	-6.1	22.8	4	20

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FORESTA PROJECT (515-0243) -- AID & GOER DISBURSEMENT PLAN

		YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL		
-CODE--	ITEM	UNIT	COST/	NO.	PROJECT													
5/Colones		UNIT	UNIT	UNITS	YEAR	UNITS	COST											
1/2		US\$000																
COMPONENT 1: GENERAL OPERATIONS																		
OUTPUT 11 -- Overall strategy																		
1	Planning consultants	po	1.90	9	17.1											9	17.1	
1	Studies to fill info gaps				10.0												10.0	
2	Print & distribute strategy				3.0								3.0				6.0	
2	Planning workshops	number	1.00	3	3.0	1	1.0	1	1.0	1	1.0	1	1.0	3	3.0	1	1.0	
1	GIS contract				10.0		5.0		3.0		2.0		1.0		1.0		23.0	
OUTPUT 12: Infrastructure for op. centers																		
3	From Worksheet (DU012.WK1)				267.6		754.2		110.1		96.4		46.9		41.2		23.4	
OUTPUT 13: Protection of nat. areas & forests																		
5 2	From Worksheet (DU013.WK1)				210.6		424.9		480.9		539.8		553.4		290.4		2500.1	
5 3	From Worksheet (DU013.WK1)												265.3		558.3		823.4	
5 2	Travel & per diem	per-day	0.008	1860	14.9	3645	29.2	4140	33.1	4740	37.9	4860	38.9	4860	38.9	4860	38.9	
5 3	Vehicle O & M	veh.-yr	0.400	54	21.6	160	72.0	192	76.8	192	76.8	192	76.8	192	76.8	192	76.8	
5 3	Motorcycle O & M	mot.-yr	0.10	45	4.5	192	19.2	264	26.4	264	26.4	264	26.4	264	26.4	264	26.4	
OUTPUT 14: Environ. education & extension																		
1	Survey of educ. and rec. needs						2.0										2.0	
5 2	Training courses	each	2.50	1	2.5	1	2.5		1	2.5			1	2.5			4	
5 3	Equipment & materials				3.0		5.0		2.0								10.0	
1	Contract educational materials						3.0		3.0		1.0		1.0		1.0		9.0	
1	Contracts for education & ext.								2.0		2.0		2.0		2.0		9.0	
TOTAL COMPONENT 1: GENERAL OPERATIONS					567.8		1318.9		738.3		785.8		747.4		751.3		728.8	3637.5

TA PROJECT (S13-0243) -- A13 & BSCR DISBURSEMENT PLAN

CODE-- ITEM /Colonos	UNIT	COST/ UNIT US\$0000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL	
			NO. UNITS	COST/ YEAR US\$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	COST/ YEAR US$0000	NO. UNITS	PROJECT COST US\$0000
COMPONENT A: MANAGEMENT OF PROTECTED AREAS																		
OUTPUT A1 -- Management plans																		
1	Consultant MP planning (locality)	1.900		6	11.4		6	11.0									12	22.9
2	Print & Distr. of plans				1.0			2.0										3.0
2	Planning Workshops	each 0.500	4	2.0	2	1.0			2	1.0	1	0.5			2	1.0	11	5.5
1	Studies for improved mgt.				20.0			10.0										40.0
OUTPUT A2 -- Natural area boundaries																		
2	Map nat. area boundaries	to 0.300	100	30.0													100	30.0
2	Maintain boundaries	to 0.060	140	8.4	140	10.4	140	8.4	140	8.4	140	8.4	140	8.4	140	8.4	980	68.8
2	Compile info on land for expansion				10.0			5.0										15.0
OUTPUT A3 -- Private encroaches																		
2	Identify properties & status				10.00													10.0
3	Land appraisal																	
3	Legal costs																	
3	Land purchase	to 0.250																
OUTPUT A4 -- Nat. Areas visitors infrastructure																		
Brasil Carrillo NP:																		
3	Highway overlooks (2)									62.5								62.5
3	Camping & picnic at Buenavista							60.0										60.0
3	Camping & picnic at Bajo la Nubosa									25.9								25.9
Iriza NP:																		
3	Water supply at crater									163.0								163.0
3	Roadside sanitation, trails, cafeteria, etc.									62.5								62.5
Paco NP:																		
3	Roadside visitors center							66.7										66.7

dated on 13-Jan-69

Letter BUDY1.001

Source of funds: CINE 1 - US Dollars; CINE 2 - US Dollars converted to Colonos; CINE 3 - CWF Colonos.

FORESTA PROJECT (515-0243) -- AID & GOCR DISBURSEMENT PLAN

-CODE--	ITEM	UNIT	COST/ UNIT US\$0000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL		
				NO. UNITS	COST/ YEAR US\$0000	NO. UNITS														
1/2																				25.0
3	Recreational areas of public use																			
	Greco Forest Reserves																			10.0
3	Recreational visitors cl., sanitation, picnic, etc.																			
5 2	OUTPUT A3: Nat. Areas visitors services																			3
	Short courses for guides	each	2.500			1	3.0	1	3.0		3.0	1	3.0		3.0					23.0
	OUTPUT A4: Community Benefits																			
5 2	Training courses for volunteers	each	0.500					1	1.0	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0	9
5 2	Volunteers associated costs	vol.-yr	1.000				25.0		50.0		70.0		100.0		100.0		100.0		100.0	442.0
5 3	Equipment and materials						3.0		4.0		3.0		3.0		3.0		3.0		3.0	21.0
	TOTAL COMPONENT A: MANAGEMENT OF PROTECTED AREAS				93.5		80.6		216.5		407.3		127.9		117.4		113.4			1158.8

WESTA PROJECT (S15-0243) -- AID & BOCR DISBURSEMENT PLAN

-CODE--	ITEM	UNIT	COST/ UNIT US\$000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL		
				NO. UNITS	COST/ YEAR US\$000	NO. UNITS														
COMPONENT B: NATURAL FOREST MANAGEMENT																				
OUTPUT B1 -- Control Mechanisms																				
1	Consultant	pc	5.000	1	5.0														1	5.0
OUTPUT B2 -- TECHNICAL GUIDELINES																				
1	Consultant	pc	5.000	2	10.0	1	5.0					1	5.0						4	20.0
1	Silvicultural research contract				20.0		20.0		15.0		10.0		5.0				3.0			80.0
OUTPUT B3 -- FOREST ENTERPRISE																				
1	Consultant				10.0															10.0
1	Feasibility study				30.0															30.0
OUTPUT B4 -- FOREST USER MANAGEMENT																				
1	Contract layout dem plots								10.0											10.0
1	Consultant	pc	5.000			1	5.0												1	5.0
5	2	Short courses in forest org.	each	2.500		2	5.0	1	2.5	1	2.5		1	2.5					5	12.5
OUTPUT B5 -- FOREST INDUSTRY																				
3	Credit for forest enterprise				1000.0															1000.0
TOTAL COMPONENT B: NATURAL FOREST MGT.					1075.0		35.0		27.5		12.5		10.0		7.5		5.0			1172.5

FORESTA PROJECT (S15-0243) -- AID & SOCR DISBURSEMENT PLAN

-CODE--	ITEM	UNIT	COST/ UNIT US\$000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL		
				NO. UNITS	COST/ YEAR US\$000	NO. UNITS														
COMPONENT C1: INTEGRATION OF TREES IN FARMS																				
OUTPUT C1 -- REFORESTATION																				
5	3	Forester	pe	1.000	6	6.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	78	78.0
5	3	Forest technician	pe	0.400			12	4.8	24	9.6	24	9.6	24	9.6	24	9.6	24	9.6	132	52.8
5	2	Short courses for farmers	each	0.500			1	0.5	1	0.5	1	0.5			1	0.5			4	2.0
5	3	Nursery materials, seeds, etc.						5.0		4.0		3.0		2.0					2	32.0
5	3	Vehicles	each	16.000	1	16.0						1	16.0							2
5	3	Vehicle D & H	veh.-no	0.400	6	2.4	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	78	31.2
OUTPUT C2 -- AGROFORESTRY																				
5	3	Forester	pe	1.000	6	6.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	78	78.0
5	3	Forest technician	pe	0.400			12	4.8	24	9.6	24	9.6	24	9.6	24	9.6	24	9.6	132	52.8
5	2	Short courses for farmers	each	0.500			2	1.0	3	1.5	3	1.5	2	1.0	2	1.0	1	0.5	13	6.5
5	3	Nursery materials, seeds, etc.						5.0		6.0		3.0		2.0					2	14.0
5	3	Vehicles	each	16.000	1	16.0						1	16.0						2	32.0
5	3	Vehicle D & H	veh.-no	0.400	6	2.4	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	78	31.2
OUTPUT C3 -- GRASS-ROOTS GROUPS																				
1		Survey of groups						2.0											6	2.0
2		Courses, workshops	each	0.500			2	1.0	2	1.0	1	0.5			1	0.5			6	3.0
5	1	Educational materials						3.0		3.0		2.0		1.0		1.0		1.0		11.0
TOTAL COMPONENT C1: INTEGRATION OF TREES IN FARMS :					48.8		60.7		66.8		63.3		90.8		55.8		54.3			440.

ORESTA PROJECT (S15-0243) -- AID & GOER DISBURSEMENT PLAN

-CODE--	ITEM	UNIT	COST/ UNIT US\$000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL	
				NO. UNITS	COST/ YEAR US\$000														
ADMINISTRATION																			
Salva Foundation Staff:																			
5	2	General Manager	pe 1.500	9	13.5	12	18.0	12	18.0	12	18.0	12	18.0	12	18.0	12	18.0	81	121.5
5	2	Chief of Operations	pe 1.300	9	11.7	12	15.6	12	15.6	12	15.6	12	15.6	17	15.6	12	15.6	81	105.3
5	2	Chief Administrative Services	pe 1.300	9	11.7	12	15.6	12	15.6	12	15.6	12	15.6	12	15.6	12	15.6	81	105.3
5	2	Assistant Accountant	pe 0.400			6	2.4	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	66	26.4
5	2	Personnel Officer	pe 1.000	9	9.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	12	12.0	81	81.0
5	2	Assistant Personnel Officer	pe 0.400			6	2.4	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	66	26.4
5	2	Procurement Officer	pe 0.500	9	4.5	12	6.0	12	6.0	12	6.0	12	6.0	12	6.0	12	6.0	31	40.5
5	2	Secretary	pe 0.350	18	6.3	48	16.8	48	16.8	48	16.8	48	16.8	48	16.8	48	16.8	306	107.1
5	2	Driver	pe 0.450	9	3.6	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	12	4.8	81	32.4
5	2	Messengers, Laborers, etc.	pe 0.250	18	4.5	36	9.0	36	9.0	36	9.0	36	9.0	36	9.0	36	9.0	234	58.5
Planning & Evaluation Offices																			
5	2	Chief Planning & Eval.	pe 1.300	9	11.7	12	15.6	12	15.6	12	15.6	12	15.6	12	15.6	12	15.6	81	105.3
5	2	Technician Planning & Eval.	pe 9.800	12	9.8	24	19.2	24	19.2	12	9.8	12	9.8	12	9.8	12	9.8	108	84.4
5	2	Draftsman	e 0.400	6	3.6	12	7.2	12	7.2	12	7.2	12	7.2	12	7.2	12	7.2	78	46.8
Office installations & operations																			
5	2	Rent, utilities	0.850	9	7.7	12	10.2	12	10.2	12	10.2	12	10.2	12	10.2	12	10.2	81	68.9
	3	Furnishings			4.0		4.0		1.0										9.0
5	3	Vehicles	16.000	2	32.0	1	16.0					2	32.0	1	16.0				96.0
5	3	Vehicle O&M	veh.-mo 0.400	9	3.6	24	9.6	24	9.6	24	9.6	24	9.6	24	9.6	24	9.6	153	61.2
5	2	Travel & per diem	per-day 0.008	225	1.8	420	3.4	420	3.4	420	3.4	420	3.4	420	3.4	420	3.4	2745	22.0
5	3	Office operations			2.0		2.0		2.0		2.0		2.0		2.0		2.0		14.0
	3	Office equipment, computers			10.0		10.0		2.0		1.0		1.0						24.0

Issued on 13-Jan-87

Label SUBST. MK1

Source of funds: CODE 1 = US Dollars; CODE 2 = US Dollars converted to Colonies; CODE 3 = ESP Colonies.

FORESTA PROJECT (S15-0243) -- AID & GOCP DISBURSEMENT PLAN

-CODE-- ITEM s/Colonos 1/2	UNIT	COST/ UNIT US\$000	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL	
			NO. UNITS	COST/ YEAR US\$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	COST/ YEAR US$000	NO. UNITS	PROJECT COST US\$000
1	Contract for admn. startup			187.6		338.8		122.7		71.7								720.8
USAID related administration																		48
1	Technical advisor	pe 10.000	9	90.0	12	120.0	12	120.0	12	120.0	3	30.0						480.0
1	Evaluations	each 50.000		20.0	1	45.0	1	50.0		20.0		20.0		20.0	1	50.0		145.0
1	Audits	each		20.0		20.0		20.0		20.0		20.0		20.0		20.0		140.0
TOTAL ADMINISTRATION				428.3		458.6		545.2		357.7		228.0		181.0		290.0		2688.7
PROJECT SUBTOTAL				2215.3		2153.1		1594.3		1626.7		1204.0		1113.1		1191.4		11098.0
5	1 INFLATION & CONTINGENCY	FX (10%)		221.5		215.3		159.4		162.7		120.4		111.3		281.8		1272.5
5	3 INFLATION & CONTINGENCY	LC													94.3			94.3
3 TRUST FUND LC				10000.0														10000.0
PROJECT TOTAL				12456.9		2433.4		1698.7		1809.3		1344.4		1244.5		1512.8		22500.0

ANNEX C

HOST COUNTRY REQUEST

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ANNEX D

PROJECT CHECKLIST

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5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded with Development Assistance loans; and B(3) applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1989 Appropriations Act Sec. 523; FAA Sec. 636A. If money is sought to 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?

A Congressional notification has been issued.
2. FAA Sec. 611(a)(1). 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?

Financial Plans are included in the Project Paper. A reasonably firm estimate of costs has been made.
3. FAA Sec. 611(a)(2). If legislative action is required within recipient country, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance?

No legislative action is required.

4. FAA Sec. 611(f); FY 1989 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.) Construction activities are not "water-related land resource construction".
5. FAA Sec. 611(e). If project is capital assistance (e.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
6. FAA Sec. 209. Is project susceptible to execution as part of regional or ~~interregional~~ projects? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. No
7. 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. The Project will directly foster private participation in national park management and improve the technical efficiency of the local wood processing industry.
8. FAA Sec. 601(h). 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). N/A

9. FAA Secs. 612(b), 636(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. Most country contributions to the Project will total approximately \$13 million in LC.
10. 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
11. FY 1989 Appropriations Act Sec. 521. 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? Commodity production for export is not a direct output of the Project.
12. FY 1989 Appropriations Act Sec. 549. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel? N/A
13. FAA Sec. 119(g)(4)-(6) & (10). 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
- a) Yes
b) Yes
c) Yes
d) No

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?

14. FAA Sec. 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)? N/A
15. FY 1989 Appropriations Act. 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? N/A
16. FY 1989 Appropriations Act Sec. 538. 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.? The CDF, which will be a private, non-profit foundation, will be created by the Project. No other assistance is specifically designated for a PVO.
17. FY 1989 Appropriations Act Sec. 514. If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained? N/A
18. State Authorization Sec. 139 (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. LEG 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 3, Appendix 6G for agreements covered by this provision). Not required per Handbook 3, Appendix 6G; the ProAg is less than \$25 million and is covered by the general bilateral agreement.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FY 1989 Appropriations Act Sec. 548
(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 (a) 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 (b) in support of research that is intended primarily to benefit U.S. producers?

N/A

- b. FAA Secs. 102(b), 111, 113, 281(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) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life, and otherwise encourage democratic private and local governmental

The Project will develop employment opportunities for area residents who are relatively poor. It will also greatly increase small farmer participation in forestry-related production and income generation.

Institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

- c. FAA Secs. 103, 103A, 104, 105, 106, 120-2: FY 1989 Appropriations Act (Development Fund for Africa). Does the project fit the criteria for the source of funds (functional account) being used? Yes
- d. FAA Sec. 107. Is emphasis placed on use of appropriate technology (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
- e. 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)? Yes
- f. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if 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? Yes

- g. FAA Sec. 281(b). Describe extent to which program 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 civil education and training in skills required for effective participation in governmental processes essential to self-government.
- Forest protection benefits everyone and improve forest use and management provides jobs and resources. Communities will be educated in environmental education and in improved technology of wood processing.
- h. FY 1989 Appropriations Act Sec. 536. 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
- 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
- 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
- i. FY 1989 Appropriations Act. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization?
- No
- If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?
- N/A

j. FRA Sec. 101(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes

k. FY 1989 Appropriations Act. 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)?

All procurement will be through full and open competition.

l. FRA Sec. 116(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) 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; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded by helping to increase

- a) Yes
- b) Yes
- c) Yes
- d) Yes
- e) Yes

production on lands already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) 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, degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

- f) Yes
- g) Yes
- h) Yes
- i) Yes
- j) Yes (indirectly)
- k) to the extent possible.

m. FAA Sec. 118(c)(1). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?

- a) Yes
- b) Yes

- n. FAA Sec. 110(c)(14). Will assistance be used for (a) the procurement of 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; or (b) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?
- a) The environmental assessment indicates that project activities will be done in an environmentally sound manner.
- b) No
- o. FAA Sec. 110(c)(15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water control structures which flood relatively undegraded 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?
- a) No
- b) Yes (see (a) above)
- c) No
- d) No
- p. FY 1989 Appropriations Act. 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) being provided in accordance with the policies contained in section 102 of the FAA;
- N/A

(c) being provided, when consistent with the objectives of such assistance, through African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the renewable natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

- g. FY 1989 Appropriations Act Sec. 501. Yes
To pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel?
- h. FY 1989 Appropriations Act Sec. 505. Yes
To pay U.N. assessments, arrearages or dues?
- i. FY 1989 Appropriations Act Sec. 506. Yes
To carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)?
- ~~FY 1989 Appropriations Act Sec. 510.~~ Yes
~~To finance the export of nuclear equipment, fuel, or technology?~~
- k. FY 1989 Appropriations Act Sec. 511. Yes
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?
- l. FY 1989 Appropriations Act Sec. 516; State Authorization Sec. 109. Yes
To 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?
5. FY 1989 Appropriations Act Sec. 584. Yes
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?

9. FY 1989 Appropriations Act Sec. 515. N/A
If deob/reob 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 general region as originally obligated, and have the Appropriations Committees of both Houses of Congress been properly notified?

2. Development Assistance Project Criteria N/A
(Loans Only)

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

FIA Sec. 122(c). 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?

- c. FIA 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?

1. Economic Support Fund Project Criteria

- a. PAA Sec. 531(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 PAA? Yes
- b. PAA Sec. 531(e). Will this assistance be used for military or paramilitary purposes? No
- c. PAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. PROCUREMENT

1. FAA Sec. 602(a). Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? Yes
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? Yes
3. 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
4. FAA Sec. 604(e); ISDC of 1980 Sec. 705(a). 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.) N/A
5. 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 No

countries which receive direct economic assistance under the PAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

6. PAA 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
7. PAA 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 facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? Yes
8. 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, to the extent it is financed with the U.S. dollar grant.
9. FY 1989 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? Yes
10. FY 1989 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)? Yes

B. CONSTRUCTION

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used? N/A
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? N/A
3. 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 CP), or does assistance have the express approval of Congress? N/A

C. OTHER RESTRICTIONS

1. FAA Sec. 122(b). If development loan 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 3 percent per annum thereafter? N/A
2. 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
3. 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

4. Will arrangements preclude use of financing:

- a. FAA Sec. 104(f); FY 1989 Appropriations Act Secs. 525, 536. (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for ~~any biomedical research which~~ relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion? Yes
- b. FAA Sec. 403. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? Yes
- c. FAA Sec. 620(g). 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
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes
- e. FAA Sec. 662. For CIA activities? Yes
- f. FAA Sec. 636(j). 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

- g. FY 1989 Appropriations Act Sec. 503. Yes
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4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). 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.) N/A
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2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? N/A
3. 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 CP), or does assistance have the express approval of Congress? N/A

C. OTHER RESTRICTIONS

1. FAA Sec. 172(b). If development loan 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 3 percent per annum thereafter? N/A
2. 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
3. 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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- b. FAA Sec. 403. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? Yes
- c. FAA Sec. 620(g). 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
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes
- e. FAA Sec. 662. For CIA activities? Yes
- f. FAA Sec. 636(j). 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

ANNEX E

INSTITUTIONAL ANALYSIS

(See PDO or RDO for this Annex)

ANNEX F

TECHNICAL ANALYSIS

(See PDO or RDO for this Annex)

ANNEX G

SOCIAL SOUNDNESS ANALYSIS

(See PDO or RDO for this Annex)

ANNEX H

FINANCIAL AND ECONOMIC ASSESSMENT

FINANCIAL AND ECONOMIC ASSESSMENT

by

Jan G. Laarman

Submission to the
Forest Resources for Sustainable Development Project (FORESTA)
(515-0243)

United States Agency for International Development
San José, Costa Rica

Tropical Research and Development, Inc.
519 N.W. 60th Street - Suite D
Gainesville, Florida 32607

September 1988

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FORWORD

This report is one in a series of ten which have been prepared by a team assisting in the design of the USAID/Costa Rica Forest Resources for Sustainable Development Project (FORESTA). These are:

- Environmental Assessment
- Forest Protection
- Deforestation in Costa Rica
- Project Area Protection Plan
- Technical Analyses of:
 - o Parks Management Component
 - o Forestry Management Component
 - o Farm Forestry Component
- Social Soundness Analysis
- Financial and Economic Assessment
- Monitoring and Evaluation Plan

ACRONYMS AND MEASURES

BID	Inter-American Development Bank
GOCR	Government of Costa Rica
ha	hectares
IRR	internal rate of return
NPV	net present value
PID	project identification document (of USAID)
RES	recreational, educational, and scientific services (of national parks and associated wildlands)

Exchange Rate (Aug./Sept. 1988): 77 colones = US\$1

ANNEX I

ENVIRONMENTAL ASSESSMENT

(See PDO or RDO for this Annex)

ANNEX J

MONITORING AND EVALUATION PLAN

(See PDO or RDO for this Annex)

ANNEX K

IMPLEMENTATION PLAN

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
COMPONENTE 1: ACCIONES BAJALES								
PRODUCTO 11: Una estrategia global de desarrollo del area del proyecto, que incluya los limites definitivos del area protegida y la propuesta de las categorias de manejo, asi como planes de adquisicion de tierras, y pautas generales de manejo.								
11.1 Establecer una oficina permanente de planificacion y evaluacion.	xx							FUNDEC-Serente General
11.2 Recopilar y analizar los diversos planes y tipos de informacion existentes.	xx							FUNDEC-Of. Planif. y Evaluacion
11.3 Negociar y planificar el proceso de alimentacion y recuperacion de informacion cartografica mediante un sistema de informacion geografica computarizado (SIG).	xx							FUNDEC-Serente General
11.4 Introducir las copias existentes al SIG.	xx							FUNDEC-Of. Planif. y Evaluacion
11.5 Contratar la toma de nuevas fotos areas del area del proyecto.	xx							FUNDEC-Of. Planif. y Evaluacion
11.6 Llenar las lagunas de informacion indispensable para elaborar la estrategia global.	xx							FUNDEC-Of. Planif. y Evaluacion
11.7 Preparar y discutir la estrategia global.	xxxx							NIRENEN
11.8 Aprender la estrategia como herramienta orientadora de las actividades dentro del area del proyecto.					xxxxx			FUNDEC-Of. Planif. y Evaluacion
11.9 Evaluar y actualizar la estrategia global.					xxxxx			FUNDEC-Serente General
11.10 Diseñar un mecanismo y aplicarlo para integrar algunos de los actuales funcionarios del SPM y la DGF a la organizacion que administrara la Cordillera Central.	xxxxx	oooooooooooo	oooooooooooo	oooooooooooo	oooooooooooo	oooooooooooo	oooooooooooo	FUNDEC-Serente General
11.11 Elaborar planes anuales operativos para dirigir las actividades.	xx	xx	xx	xx	xx	xx	xx	FUNDEC-Serente General

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO 12: El area del proyecto con las facilidades administrativas y apoyo logistico debidamente construidas y equipadas (centros de operaciones que comprenderan alojamiento para el personal de proteccion, uso publico y administracion, asistencia tecnica, extension; facilidades para la investigacion cientifica y para la administracion en general).								
12.1 Contratar el diseno y los presupuestos de los nuevos centros de operacion en Marquetas, Cubujuqui, Bajo La Honda, Vara Blanca, San Gerardo, Crater del Irazu ???, Cerro Congo, Nagasay, Alto La Palma, Boqueron del Rio Seco, Bonilla Arriba, Rio Blanco, Cariblanco-Lagunas de Male, Tapibi, Reserva Grecia, Volcan Torralba, Guacimo-Pococi. (OO A REVISAR OO)	XXXXXXXXXX	XXXXXXXXXX						FUNDEC-Gerente General
12.2 Adquirir el terreno para los centros de operacion en Marquetas, Cubujuqui, Vara Blanca, San Gerardo, Cerro Congo, Nagasay y Alto la Palma (OO AVERIGUAR OTROS OO)	XXXXXXXXXX	XXX						FUNDEC-Gerente General
12.3 Contratar los disenos de remodelacion y los presupuestos en los siguientes centros de operacion: crater del Volcan Poas, Volcan Barba, Quebrada Gonzalez, Monte de la Cruz, y Bajos del Toro.	XXXXXX							FUNDEC-Gerente General
12.4 Contratar y supervisar las construcciones y remodelaciones propuestas en todos estos centros de operaciones.	XXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX			XXXXXXXXXXXX		FUNDEC-Gerente General
12.5 Equipar todos estos centros de operaciones.		XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXX				FUNDEC-Gerente General
12.6 Dar mantenimiento a los centros de operacion.	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX	FUNDEC-Administradores

PROYECTO 13: Un sistema eficiente de protección y control para el área del proyecto, financiado a largo plazo, para prevenir acciones ilegales tales como tala, precarismo, caza, y extracción de plantas y otros productos.

- 13.1 Elaborar un plan de control y vigilancia para toda el área del proyecto, el cual combina las áreas naturales protegidas, las áreas de producción forestal y las áreas de integración de árboles en fincas.
- 13.2 Contratar los funcionarios adicionales de los centros de operación (permanentes y temporales) y equiparlos.
- 13.3 Ofrecer cursos periódicos de orientación y mejorar la capacitación del personal de protección con énfasis especial en educación ambiental y relaciones con la comunidad.
- 13.4 Desplegar el personal de protección de acuerdo con el plan de control y vigilancia.
- 13.5 Realizar la cobertura forestal del área del proyecto e efectuar el monitoreo periódico, utilizando imágenes Landsat.

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
13.1	xxxxx							FUNDEC-Gerente General
13.2	xxxxxxxxxxxxxxxxxxxxxxxx							FUNDEC-Gerente General
13.3	pppppppppppppppppppppppp	FUNDEC-Gerente General						
13.4	pppppppppppppppppppppppp	FUNDEC-Gerente General						
13.5								

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO 14: Programas de educacion ambiental y extension con enfasis en el bienestar de las comunidades vecinas, aprovechando las actividades y facilidades que ofrece el proyecto.								
14.1 Efectuar un diagnostico de las necesidades de educacion y recreacion que las acciones y facilidades en el arca del proyecto podria ayudar a satisfacer.		xxxxxx						
14.2 Diseñar programas para comunidades vecinas de educacion ambiental, recreacion y extension.		xxx'xxxx						FUNDEC-Dpto. Operaciones
14.3 Capacitar el personal del proyecto (guardas, guias, tecnicos, administradores) en relaciones humanas, tecnicas de educacion y extension a comunidades.		ppp'oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	FUNDEC-Dpto. Operaciones
14.4 Comprar los equipos y materiales necesarios.				oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	FUNDEC-Dpto. Operaciones
14.5 Confeccionar los materiales educativos.				oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	FUNDEC-Dpto. Operaciones
14.6 Llevar a cabo actividades para estrechar las relaciones con las comunidades e involucrarlas en los programas de la Org.CC.				oooooooooooo'	oooooooooooo'	oooooooooooo'	oooooooooooo'	FUNDEC-Dpto. Operaciones

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
COMPONENTE A: MANEJO DE AREAS NATURALES PROTEGIDAS								
PRODUCTO A1: Un plan de manejo integrado para el area natural protegida (parques nacionales, zonas protectoras, y parte de las actuales Reservas Forestales) aceptado oficialmente por MIRENEM y disponible para su distribucion.								
21.1 Definir los criterios del marco de referencia del plan de manejo integrado para el area protegida.	xxxx							
21.2 Revisar, actualizar y compatibilizar los planes de manejo existentes.		xxxxxxxxxxxx						
21.3 Recopilar la informacion necesaria en las areas que no cuentan con planes.		xxxxxxxxxxxx						
21.4 Redactar el plan de manejo integrado.		xxxxxx						
21.5 Discutir el borrador del plan con las instituciones respectivas.		xxxxxx						
21.6 Aprobar el plan de manejo.			xx					MIRENEM
21.7 Reproducir copias del plan y distribuirlos a los interesados.			xxx					FUNDEC-Of. Planif. y Evaluacion
21.8 Llevar a cabo las investigaciones necesarias para mejorar el manejo de las areas naturales protegidas tales como impacto de los desarrollos, impactos y dinamica de los recursos, restauracion biologica).		oooooooo	oooooooo	oooooooo	oooooooo	oooooooo	oooooooo	FUNDEC-Of. Planif. y Evaluacion
21.9 Actualizar el plan de manejo de las areas naturales protegidas.						xxxxxxxx		FUNDEC-Of. Planif. y Evaluacion
21.10 Aprobar el plan actualizado.							xx	MIRENEM

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE	
PRODUCTO A2: Los límites de las áreas naturales protegidas legalmente establecidos de acuerdo con el plan de manejo, y marcados en el campo.									
A2.1 Identificar las secciones de límites no marcados donde no se prevén cambios (PNBC=39Ka, PMP=10Ka).	xx							FUNDEC-Of. Planif. y Evaluación	
A2.2 Contratar cuadrillas (topógrafos & obreros) para demarcar secciones ya identificadas.		xxxxx						FUNDEC-Gerente General	
A2.3 Recopilar e interpretar información ecológica y de tenencia de tierras, incluyendo el valor de la tierra, en las áreas propuestas para expansión de los parques o como zonas protectoras en el plan operativo del primer año.	xxxxxx	xxxxxx						FUNDEC-Of. Planif. y Evaluación	
A2.4 Elaborar borrador de decretos ejecutivos o proyectos de ley para los nuevos límites de los parques, preparar la documentación que los justifica y los presupuestos.		xxxxxxxx						FUNDEC-Of. Planif. y Evaluación	
A2.5 Firmar decretos ejecutivos o leyes para nuevos límites.								Ministro MIRENEM	
A2.6 Contratar cuadrillas de topógrafos para demarcar los límites aun no marcados donde esto se requiera.			xxxxxx		xxxxxx			FUNDEC-Gerente General	
A2.7 Preparar un plan de mantenimiento de los límites de las áreas naturales protegidas y ejecutarlo.			xxxxx	ppppppp	ppppppppppppp	ppppppppppppp	ppppppppppppp	ppppppppppppp	Administrat. Areas Nat. Protegidas

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO A3: el GOCR tendrá la propiedad de los terrenos privados enclavados dentro de los parques.								
A3.1 Clasificar los terrenos privados en orden de prioridad para su adquisición, poniendo en primer lugar terrenos que contienen ecosistemas vitales para la integridad de los parques y aquellos que presentan impedimentos al control estricto de los asaos.		xxx						FUNDEC-Gerente General
A3.2 Hacer los avalúos respectivos.		xxxxxx						FUNDEC-Gerente General
A3.3 Negociar las opciones de compra.		xxxxxx						FUNDEC-Gerente General
A3.4 Conseguir los fondos adicionales a través de campañas de recaudación de fondos o del Estado, en caso de que esto sea necesario.		xxxxxx	xxxxxxxxxxxx					FUNDEC-Gerente General
A3.5 Formalizar las compras.			xxxxxxxxxxxx	xxxxxx				FUNDEC-Gerente General
A3.6 Traspasar las propiedades al MIREMEX.			xxxxxx	xxxxxxxxxxxx				FUNDEC-Gerente General

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO A4: Infraestructura y servicios necesarios para la atención de visitantes a los parques, construidos y en operación.								
A4.1 Contratar el diseño, planos constructivos y presupuestos de los siguientes desarrollos en PN Braulio Carrillo:	XXXXXX							FUNDEC-Gerente General
-2 miradores en la carretera que atraviesa el PNBC,								
-area de acampar y de picnic en el sitio Quebrador del Iru Sucto, incluyendo un centro de visitantes y senderos.								
-area de acampar y de picnic, y senderos en Bajo La Hondura.								
A4.2 Contratar el diseño, planos constructivos y presupuestos de los siguientes desarrollos en PN Volcan Izapa:		XXXXXX						FUNDEC-Gerente General
-sistema permanente de abastecimiento de agua para áreas del cráter.								
-recondicionamiento de la cafetería, servicios sanitarios, senderos y miradores.								
A4.3 Contratar el diseño, planos constructivos y presupuestos de los siguientes desarrollos en PN Volcan Poas:	XXXXXX							FUNDEC-Of. Planif. y Evaluación
-recondicionamiento del Centro de Visitantes, servicios sanitarios, refugios, áreas de picnic, miradores y senderos.								
A4.4 Contratar el diseño, planos constructivos y presupuestos de los siguientes desarrollos en la Reserva Forestal de Grecia:		XXXXXX						
-recondicionamiento del Centro de Visitantes, servicios sanitarios, refugios, áreas de picnic, miradores, senderos y acceso al Bosque del Niño.								

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
24.5 Contratar y supervisar los desarrollos propuestos.		XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXX			FUNDEC-Degto. Administrativo
24.6 Equipar las construcciones.		XXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX			FUNDEC-Degto. Administrativo

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PROYECTO RS: Un sistema eficiente de atencion de visitantes a las areas naturales protegidas, financiado a largo plazo.								
AS.1 Como parte del plan de manejo (ver A1), elaborar un plan de uso publico para las areas naturales protegidas (integrado con las areas de produccion forestal).	xxxx							FUNDEC-Of. Planif. y Evaluacion
AS.2 Contratar guias y otros funcionarios necesarios para atender a los visitantes.	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx					FUNDEC-Depto. Administrativo
AS.3 Dirigir cursos periodicos de orientacion y para mejorar la capacitacion del personal de atencion de visitantes, con énfasis en técnicas de interpretacion.	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	FUNDEC-Depto. Operaciones
AS.4 Diseñar programas y actividades de interpretacion.	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	FUNDEC-Depto. Operaciones
AS.5 Desplegar el personal de atencion de visitantes segun el plan de uso publico.	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	FUNDEC-Depto. Operaciones
AS.6 Contratar y supervisar los servicios a dar en concesion.	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto. Operaciones

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO 04: Comunidades vecinas a las áreas naturales protegidas participando en el manejo de los bosques y en consecuencia, recibiendo ingresos u otros beneficios.								
4.1 Identificar aquellos puestos del proyecto que podrían ser ocupados por personas de las comunidades vecinas.	XXXXXXXXXXXXXXXXXXXX							FUNDEC-Of. Planif. y Evaluación
4.2 Anunciar las vacantes.	XXXXXXXXXXXXXXXXXXXX							FUNDEC-Depto. Administrativo
4.3 Llenar los puestos dando preferencia a personas de las comunidades vecinas.	XXXXXXXXXXXXXXXXXXXX							FUNDEC-Depto. Administrativo
4.4 Identificar aquellos trabajos y servicios que pueden ser realizados por medio de contratos o concesiones.	XXXXXXXXXXXX							
4.5 Elaborar las especificaciones de los contratos.	XXXXXXXXXXXX							
4.6 Diseñar y poner en marcha sistemas de licitación y selección.	XXXXXXXXXXXX							FUNDEC-Depto. Administrativo
4.7 Contratar los trabajos y servicios, y supervisar su cumplimiento.	XXXXXXXXXXXX							FUNDEC-Depto. Administrativo
4.8 Identificar actividades que se pueden realizar con la participación de personas o grupos de voluntarios.	XXXXXXXXXXXX							
4.9 Diseñar un programa de voluntariado que incluya incentivos y pago de gastos básicos de transporte, alojamiento, alimentación / seguros contra riesgos y accidentes.	XXXXXXXXXXXX							FUNDEC-Of. Planif. y Evaluación
4.10 Redactar un reglamento en servicios voluntarios.	XXXX							
4.11 Promocionar el programa de voluntariado.	XXXXXXXXXXXX							FUNDEC-Depto. Operaciones
4.12 Seleccionar los grupos o individuos voluntarios, capacitarlos y supervisar sus servicios.	XXXXXXXXXXXX							FUNDEC-Depto. Operaciones

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
COMPONENTE B. MANEJO DE BOSQUES NATURALES PARA PRODUCCION								
PRODUCTO B1: Reglamentos, guias practicas y mecanismos de control y tramite para el aprovechamiento forestal, que fomentan la regeneracion del bosque, el aprovechamiento optimo y el impacto ambiental reducido.								
B1.1 Asesorar y apoyar la revision de los reglamentos y mecanismos de control de la DGF, con la finalidad de hacerlos mas eficientes y simples.	xxxxxx							DGF con consultores
B1.2 Ensayar y evaluar dichos mecanismos innovativos en el area del proyecto bajo una supervision estricta.	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx					DGF con consultores
B1.3 Establecer canales de consulta con los propietarios forestales, industriales forestales, madereros y comunidades, y utilizarlos para mejorar los mecanismos de control.	xxxxxxxxxxxx	xxxxxxxxxxxx						DGF
B1.4 Redactar y aprobar los reglamentos y mecanismos mejorados definitivos.				xxx				DGF
B1.5 Hacer conocer los reglamentos de control entre las personas interesadas del area del proyecto.				xxxxxxxxxx	xxxxxxxxxxxx			DGF
B1.6 Evaluar el control forestal con la finalidad de mejorarlo y expandir los mecanismos mas eficaces a otras areas del pais.							xxx	DGF con consultores

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO B2: Normas tecnicas de manejo forestal, que fundamentan la preparacion de los planes de manejo y facilitan su ejecucion y control.								
B2.1 Definir las normas tecnicas preliminares estandarizadas para el manejo forestal en area del proyecto, cubriendo la construccion de caminos de aprovechamiento, la seleccion de arboles para el aprovechamiento, la tecnica de extraccion de madera, y las intervenciones silviculturales.	xxxxxx							DGF con consultores
B2.2 Preparar una guia preliminar estandarizada para la preparacion de los planes de manejo en funcion de las normas tecnicas.	xxx:xxx							DGF con consultores
B2.3 Ensayar las normas y guias en fincas seleccionadas bajo monitoreo detallado.	xxxxxxxxxxxx	xxxxxxxxxxxx						DGF
B2.4 Contratar el establecimiento y seguimiento de investigaciones de silvicultura y manejo.	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	Inst. de investigacion en C.R.
B2.5 Capacitar los tecnicos de las empresas y los propietarios de bosques en las nuevas normas.		xxxxxx:xxxxxx						DGF
B2.6 Proponer ajustes periodicos a las normas y guias de acuerdo a los resultados del monitoreo.			pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp		
B2.7 Evaluar los resultados del proceso y redactar las normas y la guia mejoradas.						xxx:xxx		DGF con consultores

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO B3: Una o varias empresas u otras organizaciones forestales que combinan el manejo del bosque con su industrializacion, debidamente constituidas y operando eficientemente de tal manera que el bosque aporta beneficios sostenidos a la poblacion local.								
B3.1 Motivar y asesorar a propietarios y usuarios forestales, y a industriales forestales en cuanto la estructura, funcion, financiamiento y operacion de una empresa o otra organizacion forestal.	xxxxxx							FUNDEC-Gerente General
B3.2 Constituir la empresa.	xxx							Sector privado
B3.3 Explorar el interes y la factibilidad de otras asociaciones de productores forestales y determinar su relacion con la empresa.	xxxxxxxx							FUNDEC-Gerente General
B3.4 Realizar un estudio de factibilidad de manejo e industrializacion forestal a ser llevado a cabo por la empresa y posibles otras organizaciones relacionadas.	xxx							Empresa forestal
B3.5 Negociar las condiciones de credito y abrir una linea de credito accesible a la empresa y otras organizaciones afines.		xxx						AID
B3.6 Realizar estudios legales de tenencia de la tierra como paso previo a la incorporacion de bosques a la empresa.		xxxxxxxx	xxxxxxxx					Empresa forestal
B3.7 Adquirir bosque para la empresa.		xxxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx			Empresa forestal
B3.8 Elaborar los planes de manejo.		xxxxx	xxxxx	ppppp	ppppp	ppppp	ppppp	Empresa forestal

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO B4: Por lo menos 5000 ha de aquel bosque clasificado como apto para producción forestal, bajo manejo sostenible a través de planes debidamente aprobados.								
4.1 Revisar y aprobar los planes de manejo presentados por la empresa, por los productores a través de las otras organizaciones, y por productores individuales.	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	DGF
4.2 Establecer y documentar parcelas demostrativas de aprovechamiento y silvicultura, dentro de los bosques bajo manejo.		xxxxxxxxxx						Inst. de investigación en C.R.
4.3 Utilizar las parcelas demostrativas para motivar y capacitar a los productores.			pppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Dept.Operaciones
4.4 Asesorar a los técnicos, operarios y líderes de la empresa y de las organizaciones en la ejecución de los planes de manejo.	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	FUNDEC-Dept.Operaciones
4.5 Ofrecer cursos cortos y otros eventos de capacitación en manejo forestal para los técnicos, operarios y miembros de las organizaciones de productores.			pppppp	pppppppppp	pppppppppp	pppppppppp		FUNDEC-Dept.Operaciones
4.6 Inspeccionar los bosques bajo manejo para verificar el cumplimiento de los planes de manejo.	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	DGF
4.7 Evaluar los resultados técnicos y financieros del manejo forestal, proponer mejoras y darlas a conocer en otras áreas.						xxxxxx		FUNDEC-Dept.Operaciones

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO 75: Una o mas industrias viables, como parte integral de la nueva empresa forestal, que permitan utilizar el maximo de especies y de volumen.								
B5.1 Con base en el estudio de factibilidad (ver B3.4), negociar la incorporacion a la empresa de una o mas aserraderos existentes selectas.	xxxxxx							Empresa forestal
B5.2 Integrar el aserradero seleccionado a la empresa y contratar operarios.	xxx							Empresa forestal
B5.3 Operar el aserradero con base en sus fuentes habituales de trozas, pero con una proporcion creciente derivado de los bosques de la empresa y de las organizaciones de productores.		xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	Empresa forestal
B5.4 Llevar a cabo investigaciones, demostraciones y construccion de prototipos para aumentar el uso de especies y tamanos no tradicionales.		xxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx			ITCR
B5.5 Mejorar la eficiencia del aserradero y su uso de especies no tradicionales.				xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	Empresa forestal
B5.6 Con base en estudios de factibilidad, ampliar la gama de productos, inclusive productos secundarios.					xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	Empresa forestal

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
COMPONENTE C: INTEGRACION DE ARBOLES EN LOS SISTEMAS AGROPECUARIOS								
PRODUCTO C1: El reestablecimiento de cobertura arborea económicamente productiva, por parte de los agricultores, en aquellos terrenos deforestados que se clasifican como no aptos para uso agropecuario.								
C1.1 Recopilar la experiencia existente en cuanto a selección de especies, sitios y prácticas de manejo, referente al área del proyecto.	xx							FUNDEC-Depto.Operaciones
C1.2 Determinar el monto de los incentivos para reforestación (CAF) disponible para el área del proyecto.	xxx							MINIREM-DGF
C1.3 Seleccionar las organizaciones y líderes comunales más interesados en iniciar la reforestación de sus propiedades, dando énfasis al valor demostrativo.	xxxxx	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C1.4 Ofrecer cursos de viveros y establecimiento de plantaciones.	pp!pp	pp!pp	pp!pp	pp!pp	pp!pp	pp!pp	pp!pp	FUNDEC-Depto.Operaciones
C1.5 Elaborar con cada propietario participante un plan de reforestación para su finca.	xxx	xxxxxxxxxxx	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C1.6 Adquirir y coleccionar las semillas forestales.								
C1.7 Ayudar a los agricultores en establecer viveros familiares, comunitarios y comerciales, y asesorar en su operación.	xxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	FUNDEC-Depto.Operaciones
C1.8 Asignar los Certificados de Abono Forestal (CAF) entre los participantes.	xx!xx	xx!xx	xx!xx	xx!xx	xx!xx	xx!xx	xx!xx	DGF
C1.9 Producir plantas en los viveros.	!xxxxxx	!xxxxxx	!xxxxxx	!xxxxxx	!xxxxxx	!xxxxxx	!xxxxxx	FUNDEC-Depto.Operaciones
C1.10 Establecer plantaciones.		xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	FUNDEC-Depto.Operaciones
C1.11 Mantener y manejar las plantaciones.		pppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C1.12 Utilizar las plantaciones exitosas para fines demostrativos y educativos.		!pppppppppp	!pppppppppp	!pppppppppp	!pppppppppp	!pppppppppp	!pppppppppp	FUNDEC-Depto.Operaciones

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	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO C2: La integracion de arboles de uso multiple en sistemas agroforestales en aquellos terrenos que se clasifican como aptos para uso agropecuario.								
C2.1 Identificar los grupos promotores para colaborar en el fomento de arboles en sistemas agroforestales (asociaciones de desarrollo, cooperativas, asentamientos IDA, etc.) (En combinacion con C3.1)	xxxxx	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C2.2 Preparar un plan de extension y capacitacion que incluye las especies, tecnicas, uso de incentivos y estrategia.	xxx							FUNDEC-Depto.Operaciones
C2.3 Contratar dos equipos de extension compuesto de tecnicos locales (c/u con 1 Ing.For. + 2 Peritos)	xx							FUNDEC-Gerente General
C2.4 Identificar promotores forestales en comunidades selectas.	xxx							FUNDEC-Depto.Operaciones
C2.5 Capacitar los equipos de tecnicos y promotores mediante el Proyecto MADELENA de la DGF.	xxxxxx							
C2.6 Motivar y capacitar los grupos en manejo de viveros y en el cultivo de arboles de uso multiple.		pppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C2.7 Asesorar el establecimiento y la operacion de viveros familiares.		xxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	FUNDEC-Depto.Operaciones
C2.8 Asesorar la plantacion y el manejo de los arboles.			pppppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C2.9 Establecer y mantener parcelas experimentales y de comportamiento en tierras de los agricultores, en colaboracion con el Proyecto MADELENA.			pppppp	pppppppppp	pppppppppp	pppppppppp	pppppppppp	FUNDEC-Depto.Operaciones
C2.10 Llevar a cabo dias de campo, demostraciones de aprovechamiento y otros eventos de extension que aprovechan los arboles plantados localmente.				pppppppppp	pppppppppp	pppppppppp	pppppppppp	

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PROYECTO "FORESTA" (515-0243)

Plan de Trabajo

	ANO 1	ANO 2	ANO 3	ANO 4	ANO 5	ANO 6	ANO 7	RESPONSABLE
PRODUCTO C3: Las comunidades con organizaciones de base activas en fomentar el uso apropiado de los recursos naturales en las zonas que las afecta.								
C3.1 Hacer un inventario y una caracterizacion de los grupos existentes con potencial para involucrarse en mejorar el uso de los recursos naturales.	xxxxxx							FUNDEC-Depto.Operaciones
C3.2 Preparar una estrategia de apoyo a los grupos mas prometedores.	xxx							FUNDEC-Depto.Operaciones
C3.3 Llevar a cabo sesiones de trabajo con los grupos mas prometedores con la finalidad de conocer a fondo sus necesidades y capacidades y de presentar el proyecto.	xxxxxxxxxxxx	xxxxxxxxxxxx						FUNDEC-Depto.Operaciones
C3.4 Llevar a cabo cursos, talleres y otros eventos de capacitacion para fortalecer los grupos.	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	pppppppppppp	FUNDEC-Depto.Operaciones
C3.5 Fomentar el establecimiento de vinculos y la colaboracion entre los diversos grupos.		xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxxxxx	FUNDEC-Depto.Operaciones

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ANNEX L

**DESCRIPTION OF THE ADMINISTRATIVE STRUCTURE
AND THE ENDOWMENT**

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ANNEX L

DESCRIPTION OF THE ADMINISTRATIVE STRUCTURE AND THE ENDOWMENT

1. BACKGROUND

The proposed design of an organizational scheme for the FORESTA Project makes maximum use of private entities. The purpose of this document is to describe the nature, function and financing of the organization that will execute the FORESTA project and carry on after the Project's termination. This design is the result of several months of close collaboration between MIRENEM and USAID, assisted by several outside consultants.

In summary, the key element of the organizational scheme is the new private entity, the Foundation for the Development of the Central Volcanic Cordillera (herein referred to as the "Cordillera Development Foundation" (CDF) and the "Foundation"), which will implement many, but not all, of the land management actions in the area of the Central Cordillera and its buffer zones. For its first seven years this Foundation will grow gradually, receiving assistance and most of its financing from the FORESTA Project. Thereafter it will continue as a permanent private institution, with a continuous stream of income provided by an endowment fund established at the beginning of the FORESTA Project.

2. THE FOUNDATION FOR THE DEVELOPMENT OF THE CENTRAL VOLCANIC CORDILLERA (CDF)

The Foundation was created in March, 1989, under Costa Rican law (Ley de Fundaciones, No 5338 of 28 August 1973). A foundation in Costa Rica is strictly a private entity, even though its founder and board members might be government officials. In this particular case the founder was the Attorney General of Costa Rica. The Minister of MIRENEM, per an agreement with the Attorney General appointed three members of the Board of Directors (a representative of the Minister of Natural Resources, Energy and Mines, a representative of the SPN, and a representative of the DGF), the municipality where the Authority is established (Puerto Viejo) appointed one member, and the Executive Branch of the GOCR appointed the fifth.

3. FUNCTION OF THE FOUNDATION

The general objective of the Foundation is to assist the MIRENEM, DGF, SPN and other institutions in the management of the natural resources of the Central Cordillera and its buffer zones (see Fig. 1 of the PP). Specifically its functions are:

3.1 Plan overall land use in its geographic area of responsibility, with special consideration of sustainable uses which are compatible with the protected areas.

3.2 Protect and manage the natural protected areas of the Central Cordillera.

3.3 Promote sustainable forest management in the buffer zones around these protected areas, integrated with efficient industrial processing of wood.

3.4 Control deforestation and promote reforestation.

3.5 Carry out programs of extension, environmental education and training.

3.6 Carry out administrative tasks necessary for management of the natural resources, such as contracting of permanent and temporary personnel, procurement of equipment, supplies and land, contracting the construction of infrastructure, purchase of goods and services, and allocation of concessions.

3.7 Contract national and international consultants.

3.8 Contract applied scientific research needed to improve natural resource management.

3.9 Promote scientific and nature tourism.

It should be noted that the mandate of the CDF goes beyond the FORESTA Project in duration, in geographical coverage and in function. Specifically, the FORESTA Project will last seven years while the CDF is a permanent institution. The Project does not include the land west of the Poás National Park except for planning purposes, whereas this land is covered by the CDF. The FORESTA Project is designed to produce the outputs stipulated in the Project Paper, but the CDF could conceivably engage in other activities if it finds the financing from other sources to do so.

Another important point, and actually one of the justifications for its creation, is the fact that the Foundation combines functions which have traditionally been dispersed among several agencies, especially the DGF and SPN. It is expected that this combination will lead to greater impact and cost effectiveness.

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4. STRUCTURE OF THE FOUNDATION

Initially the CDF will consist of the entities described below. Over the years, as the institution matures and widens its activities, it might become desirable to add other units.

4.1 Board of Directors

The members of the Board of Directors of the Foundation are those described in Sec. 2, above. Its functions are the following:

- set the basic guidelines for management of the natural resources of the CDF area, based on SPN and DGF policies;
- designate the General Manager of the CDF;
- approve the annual work plans and budgets;
- evaluate the progress and efficiency of operations;
- promote coordination with other relevant institutions.

The Minister of Natural Resources, Energy and Mines (or his representative) will function as President of the Board. The Manager of the CDF will serve as secretary. The fact that representatives of the Directors of SPN and DGF, as well as the Minister are on the Board should help increase collaboration with and between these agencies.

4.2 General Manager

The General Manager of the CDF will be appointed by the Board. His functions are:

- draft the annual work plans and budgets for approval by the Board of Directors;
- organize, supervise and monitor the activities needed to implement the work plans of the CDF;
- approve contracts for all personnel and services;
- supervise personnel;
- cultivate productive working relations with other relevant institutions;
- carry out other tasks assigned by the Board, within the mandate of the CDF.

4.3 Office of Planning and Evaluation

The Office of Planning and Evaluation is responsible for

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preparing the overall strategy for the Central Cordillera and the subsequent management plans for the protected areas. It will have a major role to play in planning operations and in preparing the annual work plans and budgets. The technical aspects of contracts for design and construction of infrastructure will be the responsibility of this Office.

This Office will monitor progress of CDF activities and environmental impacts. It will use this and other information to carry out periodic internal evaluations, and to formulate recommendations for corrective actions.

This Office will be headed by one professional qualified in natural resource planning, who will be assisted by a junior professional and support personnel. Much of the work in the first two years will be contracted to consultants who are supervised by this office.

4.4 Department of Operations

The Department of Operations combines all field operations under one supervisor. In terms of personnel this will be the largest unit within the CDF. This Department will be responsible for the functioning of all operational centers and all field activities, be they related to protected areas, buffer zones or communities. These activities will be carried out in close collaboration with the SPN and DGF.

This Department will be headed by a professional with ample experience in implementing field activities. Staff will be built up gradually during the life of the Project, so as to include technical personnel specialized in natural area management, reforestation, forest management and other fields.

4.5 Department of Administration

The Department of Administration will be responsible for all management of funds and personnel as this responsibility is gradually transferred to the CDF (see Section 5). It will build up a unit for personnel matters and one for accounting and finance.

This Department will be headed by an experienced administrator, who will be assisted by a gradually increasing support staff.

4.6 Advisors

The General Manager will be assisted by a number of advisers, who will vary in accordance with the current needs of the CDF. Most will be short-term consultants contracted for very specific tasks. The Project will also provide funds for a Mission-contracted Project Advisor. The Advisor will serve as the primary liaison between the CDF and the Mission Project Officer (RDD). He/she will advise on AID procedures and provide day-to-day oversight. The contract will be for four years. The Mission, the GOCR, and the CDF will then decide if continued assistance is beneficial.

5. ADMINISTRATION AND FINANCING OF THE FOUNDATION

5.1 Provision of U.S. Dollar Financed Resources

Once the ProAg is signed, A.I.D. will execute a HB13 grant agreement with the CDF to fund two CDF staff positions, a General Manager and a Financial Controller. The Board of Directors of the Foundation will then hire a General Manager to direct the day-to-day operations of the Foundation reporting to the Board and a Financial Controller reporting to the General Manager.

At the same time A.I.D., in coordination with the Foundation, will contract an NGO to assist the Foundation in building up the Foundation (seeking, hiring and training staff, etc.) controlling project funds, and in implementing the Project. The contract will provide for the General Manager of the Foundation to provide day-to-day supervision to the contractor with policy direction from MIRENEM. Vouchers from the contractor will be paid by A.I.D. Once the support contractor is on board, A.I.D./CONT will assess the ability of the Foundation (with its staff and contracted support) to control funds, etc.

Upon the successful completion of the assessment, USAID will expand the scope of the sub-grant (HB-13) with the Foundation to include all of its implementation responsibilities and will commit approximately \$6 million for these purposes. The Foundation will submit vouchers directly to A.I.D. for grant-related costs.

In essence, at the beginning this Contractor will do all administrative staff work for the CDF, based on prior approval of the CDF General Manager. The contractor will assist the Foundation in accounting for A.I.D. funds. Disbursements for project implementation costs of both dollars and local currency will be tied to the annual budgets prepared by the Foundation (for each year after the first year of project implementation). These budgets must be approved by A.I.D. for expenditures from the dollar grant and agreed to ("Visto Bueno") by MIRENEM for expenditures from the local currency contribution.

In the name of the Foundation and after due approval by its General Manager, the Contractor will assist the Foundation to recruit and contract personnel, contract construction of infrastructure, procure equipment and supplies, contract services and carry out other needed administrative functions. (For detailed terms of reference see Attachment A.)

Gradually over about a four year period increasing administrative responsibility will be transferred to the staff of the CDF. Since it will take between two and three years for the Foundation to become fully operational, including the use of acceptable procedures for the accounting and control of funds, this contract is budgeted for at least three years.

5.2. Provision of Host Country Local Currency Financed Resources

All of the HCOLC, both for the Foundation's local currency program costs, and for the endowment will be assigned to the Foundation by the HB3 Project Assistance Agreement or amendment thereto. That same

Agreement will impose upon the Foundation audit requirements, per diem limitation, and currency exchange restrictions, all with respect to the local currency.

A.I.D. and the GOOCR have already agreed to program C400 million from ESR VI and intend to further program C800 million from ESR VIII for the Project. Of that total C1,200 million, C390 million will fund program costs and C810 million will fund the Foundation's endowment. The C400 million derived from ESR VI has been programmed by A.I.D. and the GOOCR (more specifically, the BCCR) in Implementation Letter No. 32. All of these funds will be used for the endowment. Pursuant to the HB3 Agreement, which the BCCR will sign, it will transfer on written request by A.I.D. first C400 million and later C800 million to an interest-bearing account in the BCCR, and agree that all interest earned will be transferred to the Foundation for Project uses. The BCCR will agree to disburse funds upon instructions of the Foundation's fiscal agent, once one has been named.

The fiscal agent, in turn will be hired by the Foundation. A.I.D. and MIRENEM will approve the Foundation's contract with the fiscal agent.

The C810 million for the endowment will remain in the BCCR interest-bearing account until the Foundation establishes the endowment (prior to the PACD of the Project) at which time the fiscal agent may request the BCCR to disburse the funds (including all interest earned) to the endowment account. These funds will not be monetized prior to the PACD of the Project. The C390 million for project implementation costs will be progressively disbursed from this BCCR interest-bearing account by the BCCR on written request of the fiscal agent. The rate of disbursement will be limited by local currency monetization agreements.

The C390 million may be disbursed either to an interest-bearing account outside the BCCR and from there to the Foundation, or directly to the Foundation without an intermediate account. This will be determined in the contract executed by the fiscal agent and the Foundation.

The fiscal agent will act in accordance with the approved contract.

The contract with the fiscal agent will defined:

a) the fiscal agent's responsibility to manage and account for the funds and disburse the funds to the Foundation in accordance with certain conditions, including:

- prior submission by the Foundation to the fiscal agent of periodic approved budgets;
- evidence of MIRENEM's "visto bueno" of each budget;
- the provision by the Foundation to the fiscal agent of periodic certified expense statements and cash requests in a defined format;

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-- MIRENEM's periodic certification to the fiscal agent that the Foundation's programs are proceeding satisfactorily;

b) the manner in which the endowment fund will be established and the fiscal agent's responsibilities for managing it, if any; and

c) the audit rights of the Foundation with respect to the fiscal agent and the fiscal agent's responsibility to provide audited financial statements to the Foundation, to MIRENEM, and to A.I.D.

6. ESTABLISHMENT OF THE CENTRAL CORDILLERA TRUST FUND

In order to ensure the long-term viability of the CDF, the Project includes the provision of an endowment fund for the Foundation with sufficient (or nearly sufficient) income to cover at least the minimum recurrent costs of the Foundation after project funding has terminated.

The endowment will be created from approximately \$10.0 million local currency equivalent contribution from the host country contribution. Additional grants from other donors are also being pursued.

Funds for the endowment will be jointly programmed by A.I.D. and the GOCR to grant them to the CDF for the specific purpose of establishing the endowment. Immediately after signing the ProAg, the BCCR will transfer the local currency directly into an interest bearing account in the BCCR or in GOCR Economic Stabilization Bonds during the life of the Project. Any additional funds will be kept in foreign exchange or dollar denominated government guaranteed securities preferably in Costa Rica for the life of the Project.

Prior to the PACD, the Board of Directors of the Foundation will select and contract a fiduciary to manage the Trust Fund for the CDF. USAID and MIRENEM must both approve the selection. The primary responsibility of the fiduciary will be to manage the investments of the funds of the endowment. Selection of a fiduciary much prior to the PACD is not essential since all funds will remain in secure interest bearing units capitalizing the endowment fund for the entire LOP so no decisions need to be made. Although the counterpart colon contribution to the fund will not be monetized during the LOP, no such restriction will continue after the PACD. The fiduciary will also handle disbursements from the endowment fund upon the request of the Board of the CDF. Under no circumstances can disbursements be made from the principal of the endowment (the original U.S.\$10 million equivalent). The Central Bank will submit semi-annual account statements to the CDF Board, to A.I.D., and to the GOCR's representative (and to the other donors who decide to participate).

Current tax laws may affect the earnings of the endowment fund. The earnings from the counterpart colon investment may be subject to an 8% income tax. To the extent that another donor grant is given to the CDF, it may also be subject to the income tax. However, as long as the funds remain in the Central Bank earnings are not subject to the tax. At the decision of the CDF or its fiscal agent(s) the endowment may remain in the Central Bank indefinitely or transferred to other investments after LOP for greater return.

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Although the initial contribution to the endowment will be made through the FORESTA Project, increase of its capital through contributions from other sources are to be encouraged. It is conceivable that U.S. conservation organisations or bilateral assistance agencies could be motivated to increment the fund. However, it is more likely that the existence of the fund, which assures financing for protection and management to perpetuity, will motivate these institutions to finance purchase of land or construction of infrastructure for consolidation of the national parks in the project area.

7. MANAGEMENT OF THE TRUST FUND

7.1 During the life of the FORESTA Project

During the seven years of the Project, the endowment fund requires no outside management. Periodically the Central Bank will submit routine statements of the account to USAID, the GOCR, the CDF and to the Trustee.

7.2 After termination of the FORESTA Project

Before year eight, the CDF, in consultation with USAID and MIRENEM, will select a fiduciary to manage the fund. The legal agreements for these arrangements will be negotiated and signed, at the latest, during the last year of the FORESTA project.

Beginning in year eight, the flow of income derived from the Trust Fund will be available to the CDF to finance the following:

- costs of personnel needed for effective management of the Central Cordillera and the buffer zones, with emphasis on personnel for protection (forest and park rangers), extension, environmental education and services for visitors to the natural areas;
- acquisition of equipment and materials needed to manage the natural resources of the Cordillera;
- maintenance and operation of equipment and infrastructure;
- contracting of services; such as maintenance of boundaries, trails and visitor sites; studies and research; and educational programs;
- administrative costs of the CDF.

7.3 Cash flow after the end of FORESTA

It is estimated that, as a minimum, in order to survive from year eight onward, the CDF will require an annual income equivalent to US \$1.07 million.

Attachment B shows the income which will be generated by the endowment:

If the \$10 million (local currency equivalent) trust fund is established at the beginning of FORESTA, capitalizing at 22.5% interest for seven years (but at only 4% in real terms), then the endowment will cover all expected operating costs of the CDF plus continue to grow for the next twelve and a half years (140 months) assuming no additional contributions are made to the fund beyond the initial \$10 million (Attachment B).

Additional income which can be expected for the CDF after the end of the Project (estimated at \$190,000 annually) will come from user fees which include: fees for operating concessions in the protected areas and nominal admission fees. The amount of this income will exceed \$190,000 in value in year eight and is expected to increase at about 10% annually (see Financial and Economic Assessment, Annex H). The GOCR will covenant to provide all visitor-derived income from the CDF area to the Foundation. This income will go into the endowment fund.

In addition, the CDF will be seeking donations from within and outside of Costa Rica during the life of the Project with the primary intent of purchasing private inholdings within the protected areas, and after the termination of the Project to increase the endowment. This additional income is not included in the cash flow analysis because it is too early to speculate on the amounts that will be donated.

ATTACHMENT A

TERMS OF REFERENCE

CONTRACT FOR ASSISTANCE TO THE CDF

The purpose of the contract is to assist the Cordillera Development Foundation (CDF) in building up its organization and administrative capability. Initially under the direction and with the authorization of the Board of Directors of the CDF and under the General Manager of the CDF, the Assistance Contractor will carry out the following tasks:

- establish and operate separate accounts and books for funds from the FORESTA Project and submit periodic accounting reports;
- submit requests to USAID for advances of funds;
- disburse funds in accordance with authorization received from the CDF and maintain appropriate accounting records;
- advertise positions, screen candidates and negotiate contracts with personnel;
- select office facilities, negotiate rent contract and assist in installation of office;
- procure equipment and materials;
- draft specifications and negotiate contracts for services to be provided;
- draw up specifications, select firms, negotiate and supervise contracts for design and construction of infrastructure, especially the operational centers in the natural protected areas;
- train CDF staff in organizational and administrative matters and gradually turn over responsibilities as determined by the Board of the CDF;
- stimulate support for and collaboration with the CDF, among national and international conservation organizations;
- provide specific technical assistance as needed and agreed upon.

Duration of contract: Four years, with gradually decreasing responsibilities.

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FORESTA ENDOWMENT FUND
INCOME AND RECURRENT COST ANALYSIS

The following assumptions underlie the calculation of endowment fund earnings.

1) This analysis shows the endowment situation or position from the beginning of the eighth year (when the life of the FORESTA Project ends) and on, in order to determine if the level of the endowment is adequate to sustain the CDF minimum recurrent costs.

2) The endowment will consist of a deposit to a special interest bearing account in the BCCR, which would pay an interest rate equal to the rate paid by the Monetary Stabilization Bonds (Bonos de Estabilización Monetaria).

3) The funds programmed for establishing the endowment are C810 million, therefore all calculations are made in this currency.

4) It is estimated that the recurrent costs will be approximately \$1,076,500. At the current (1989) exchange rate of 80 colones per dollar, this represents C86,120,000, which is the figure to be used in analysing the adequacy of the endowment.

5) The endowment will be capitalized with the interest generated over the seven project years. No withdrawals of interests or principal will be made until the eighth year.

6) An interest rate of 22.5% (actual rate which we assume the BCCR could pay for this type of investment) is used to calculate the endowment growing (capitalization) and a 18.5% (inflation rate) to calculate the growth of the recurrent cost. Accordingly, a 4% real growth rate for the endowment is used.

7) The same interest and inflation rates are used after the seventh year to calculate the endowment income and to determine the growth of costs.

8) A first transfer of C400 million from ESR VI is assumed to be made in April, 1989 and the remainder four months later.

RESULTS

Calculations presented in Table 1 to this attachment, indicate that the endowment will provide, by the first month of the eighth year, monthly interest flows of approximately C69,700,000 against monthly recurrent costs of C25,950,000.

Beginning in the eighth year, the monthly capitalization available to preserve the endowment is reduced by the difference between the interest and the costs, therefore a moment will arrive in which this difference will turn negative and no capitalization will be possible. It will then be necessary to use the increased principal to cover the costs.

This moment will occur in the middle of the eleventh year after the PACD, as calculated in Table 2 to this Attachment.

CONCLUSION

Our conclusion is that the level of the endowment is adequate to sustain the CDF with the interests generations, without touching the principal, during approximately eleven years after the PACD of the Grant Agreement. After that period of time it would be necessary to withdraw funds from the principal if no additional funds are provided to the endowment.

TABLE 1

	ENDOWMENT	COSTS
Initial figures	400,000,000.00	7,174,666.67
Growing compound rate for 4 months	1.0771	
Endowment at the end of June	430,854,346.31	
2nd transfer	410,000,000.00	
Growing compound rate	840,854,346.31 4.4199	3.6151
Results at the end of the 7th year:		
Endowment	3,716,468,988.08	
Monthly costs		25,944,357.67
Results for the 1st month of the 8th year		
Endowment income	69,683,793.53	
Recurring costs	25,944,357.67	
Available for capitaliza- tion of the Endowment	43,739,435.86	

TABLE 2

MONTH	ENDOWMENT	MONTHLY EARNINGS (22.5%)	MONTHLY COSTS (18.5)	AVAILABLE FOR CAPITALIZATION
1	3,716,469,988.08	69,683,793.53	25,944,357.67	43,739,435.86
2	3,750,208,423.94	70,503,907.95	26,344,333.18	44,159,574.77
3	3,804,367,998.71	71,331,899.98	26,750,474.98	44,581,424.99
4	3,848,949,423.70	72,167,801.69	27,162,878.14	45,004,923.55
5	3,893,954,347.26	73,011,644.01	27,581,639.18	45,430,004.83
6	3,939,384,352.09	73,863,456.60	28,006,956.11	45,856,600.49
7	3,985,240,952.58	74,723,267.86	28,438,628.48	46,284,639.38
8	4,031,525,591.96	75,591,104.85	28,877,057.34	46,714,047.51
9	4,078,239,639.47	76,466,993.24	29,322,245.30	47,144,747.94
10	4,125,384,387.41	77,350,957.26	29,774,296.58	47,576,660.68
11	4,172,961,048.09	78,243,019.65	30,233,316.99	48,009,702.66
12	4,220,970,750.75	79,143,201.58	30,699,413.96	48,443,787.62
13	4,269,414,538.37	80,051,522.59	31,172,696.59	48,878,826.00
14	4,318,293,364.37	80,968,000.58	31,653,275.66	49,314,724.92
15	4,367,608,089.29	81,892,651.67	32,141,263.66	49,751,388.01
16	4,417,359,477.30	82,825,490.20	32,636,774.81	50,188,715.39
17	4,467,548,192.68	83,766,528.61	33,139,925.09	50,626,603.52
18	4,518,174,796.20	84,715,777.43	33,650,832.27	51,064,945.16
19	4,569,239,741.36	85,673,245.15	34,169,615.93	51,503,629.22
20	4,620,743,370.58	86,638,938.20	34,696,397.51	51,942,540.69
21	4,672,685,911.26	87,612,860.84	35,231,300.31	52,381,560.53
22	4,725,067,471.79	88,595,015.10	35,774,449.52	52,820,565.58
23	4,777,888,037.37	89,585,400.70	36,325,972.28	53,259,428.42
24	4,831,147,465.78	90,584,014.98	36,885,997.69	53,698,017.29
25	4,884,845,483.08	91,590,852.81	37,454,656.82	54,136,195.99
26	4,938,981,679.06	92,605,906.48	38,032,082.78	54,573,823.70
27	4,993,555,502.76	93,629,165.68	38,618,410.72	55,010,754.95
28	5,048,566,257.72	94,660,617.33	39,213,777.89	55,446,839.44
29	5,104,013,097.16	95,700,245.57	39,818,323.63	55,881,921.94
30	5,159,895,019.10	96,748,031.61	40,432,189.45	56,315,842.15
31	5,216,210,861.25	97,803,953.65	41,055,519.04	56,748,434.61
32	5,272,959,295.86	98,867,986.80	41,688,458.29	57,179,528.50
33	5,330,138,824.36	99,940,102.96	42,331,155.36	57,608,947.60
34	5,387,747,771.96	101,020,270.72	42,983,760.67	58,036,510.05
35	5,445,784,282.02	102,108,455.29	43,646,426.98	58,462,028.31
36	5,504,246,310.32	103,204,618.32	44,319,309.40	58,885,308.92
37	5,563,131,619.24	104,308,717.86	45,002,565.42	59,306,152.44
38	5,622,437,771.69	105,420,708.22	45,696,354.97	59,724,353.25
39	5,682,162,124.94	106,540,539.84	46,400,840.44	60,139,699.40
40	5,742,301,824.34	107,668,159.21	47,116,186.73	60,551,972.48
41	5,802,853,796.82	108,803,508.69	47,842,561.27	60,960,947.42
42	5,863,814,744.24	109,946,526.45	48,580,134.09	61,366,392.36
43	5,925,181,136.60	111,097,146.31	49,329,077.83	61,768,068.48
44	5,986,949,205.08	112,255,297.60	50,089,567.78	62,165,729.82
45	6,049,114,934.90	113,420,905.03	50,861,781.95	62,559,123.08
46	6,111,674,057.98	114,593,888.59	51,645,901.09	62,947,987.50
47	6,174,622,045.48	115,774,163.35	52,442,108.73	63,332,054.62
48	6,237,934,100.10	116,961,639.38	53,250,391.24	63,711,048.14

49	6,301,665,148.24	118,156,221.53	54,671,537.85	64,084,683.68
50	6,365,749,831.92	119,357,809.35	54,965,140.73	64,452,668.62
51	6,430,202,500.54	120,566,296.89	55,751,594.99	64,814,701.90
52	6,495,017,202.44	121,781,572.55	56,611,098.74	65,170,473.81
53	6,560,187,676.25	123,003,518.93	57,463,853.18	65,519,665.75
54	6,625,707,342.00	124,232,012.66	58,370,062.58	65,861,950.08
55	6,591,569,292.00	125,466,924.23	59,269,934.36	66,196,989.85
56	6,757,766,281.94	126,706,117.79	60,183,679.20	66,524,438.59
57	6,324,290,720.52	127,955,451.01	61,111,510.92	66,843,940.09
58	6,891,134,660.61	129,208,774.89	62,053,646.71	67,155,128.17
59	6,958,289,788.79	130,467,933.54	63,010,307.10	67,457,626.44
60	7,025,747,415.23	131,732,764.04	63,981,716.00	67,751,048.03
61	7,093,498,463.26	133,003,096.19	64,969,100.79	68,034,995.40
62	7,161,533,458.66	134,278,752.35	65,969,692.34	68,309,060.01
63	7,229,842,518.67	135,555,547.22	66,986,725.10	68,572,822.12
64	7,298,415,340.79	136,845,287.64	68,019,437.11	68,825,850.53
65	7,367,241,191.32	138,135,772.34	69,068,070.10	69,067,702.24
66	7,436,308,893.55	139,430,791.75	70,132,869.52	69,297,922.24
67	7,505,606,815.79	140,730,127.80	71,214,084.59	69,516,043.21
68	7,575,122,859.00	142,033,553.61	72,311,968.39	69,721,585.22
69	7,644,844,444.22	143,340,833.33	73,426,777.90	69,914,055.43
70	7,714,758,499.64	144,651,721.87	74,558,774.06	70,092,947.81
71	7,784,851,447.45	145,965,964.64	75,708,221.83	70,257,742.81
72	7,855,109,190.26	147,283,297.32	76,875,390.25	70,407,907.07
73	7,925,517,097.33	148,603,445.57	78,060,552.52	70,542,893.06
74	7,996,059,990.39	149,926,124.92	79,263,986.03	70,662,138.79
75	8,066,722,129.17	151,251,039.92	80,485,972.49	70,765,067.44
76	8,137,487,196.61	152,577,884.94	81,726,797.89	70,851,087.04
77	8,208,338,283.65	153,906,342.82	82,986,752.70	70,919,590.12
78	8,279,257,873.78	155,236,085.13	84,266,131.80	70,969,953.33
79	8,350,227,827.11	156,566,771.76	85,567,234.66	71,001,537.09
80	8,421,229,364.20	157,898,050.58	86,884,365.37	71,013,685.21
81	8,492,243,049.42	159,229,557.18	88,223,832.66	71,005,724.51
82	8,563,248,773.93	160,560,914.51	89,583,950.09	70,976,964.43
83	8,634,225,738.35	161,891,732.59	90,965,035.98	70,926,696.61
84	8,705,132,434.97	163,221,608.16	92,367,413.62	70,854,194.54
85	8,776,006,629.50	164,550,124.30	93,791,411.25	70,758,713.06
86	8,846,765,342.56	165,876,850.17	95,237,362.17	70,639,488.00
87	8,917,404,830.56	167,201,340.57	96,705,604.84	70,495,735.74
88	8,987,900,566.30	168,523,135.62	98,196,482.91	70,326,652.71
89	9,058,227,219.00	169,841,760.36	99,710,345.36	70,131,415.00
90	9,128,358,634.00	171,156,724.39	101,247,546.51	69,909,177.87
91	9,198,267,811.88	172,467,521.47	102,808,446.19	69,659,075.28
92	9,267,926,887.16	173,773,629.13	104,393,409.74	69,380,219.40
93	9,337,307,106.56	175,074,508.25	106,002,808.14	69,071,700.11
94	9,406,378,806.67	176,369,602.63	107,637,018.09	68,732,584.53
95	9,475,111,391.20	177,658,338.59	109,296,422.12	68,361,916.46
96	9,543,473,307.66	178,940,124.52	110,981,408.63	67,958,715.89
97	9,611,432,023.55	180,214,350.44	112,692,372.01	67,521,978.43
98	9,678,954,001.98	181,480,387.54	114,429,712.75	67,050,674.79
99	9,746,004,676.77	182,737,587.69	116,193,837.49	66,543,750.20
100	9,812,548,426.97	183,985,283.01	117,985,159.15	66,000,123.86
101	9,878,548,550.83	185,222,785.33	119,804,097.02	65,418,688.31
102	9,943,967,239.14	186,449,385.73	121,651,076.85	64,798,308.89
103	10,008,765,548.02	187,664,354.03	123,526,530.95	64,137,823.08
104	10,072,903,371.10	188,866,938.21	125,430,898.30	63,436,039.91

105	10,136,339,411.01	190,056,363.96	127,364,624.65	62,691,739.31
106	10,199,031,150.31	191,231,834.07	129,328,162.61	61,907,671.46
107	10,260,934,821.77	192,392,527.91	131,321,971.79	61,070,556.12
108	10,322,005,377.89	193,537,600.84	133,346,516.85	60,191,081.98
109	10,382,196,459.87	194,666,183.62	135,402,277.68	59,263,905.94
110	10,441,460,365.81	195,777,381.86	137,489,729.47	58,287,652.39
111	10,499,748,018.21	196,870,275.34	139,609,362.79	57,260,912.55
112	10,557,008,930.75	197,943,917.45	141,761,673.90	56,182,243.65
113	10,613,191,174.40	198,997,334.52	143,947,166.28	55,050,168.24
114	10,668,241,342.65	200,029,525.17	146,166,351.76	53,863,173.42
115	10,722,104,516.06	201,039,459.68	148,419,749.68	52,619,710.00
116	10,774,724,226.06	202,026,079.24	150,707,887.49	51,318,191.75
117	10,826,042,417.82	202,988,295.33	153,031,300.75	49,956,994.58
118	10,875,999,412.40	203,924,968.98	155,390,533.30	48,534,455.69
119	10,924,533,868.08	204,835,010.03	157,786,137.36	47,048,872.67
120	10,971,582,740.74	205,717,176.39	160,218,673.64	45,498,502.75
121	11,017,081,243.49	206,570,273.32	162,688,711.53	43,881,561.79
122	11,060,962,805.27	207,393,052.60	165,196,829.17	42,196,223.43
123	11,103,159,028.71	208,184,231.79	167,743,613.61	40,440,618.17
124	11,143,599,646.88	208,942,493.38	170,329,660.99	38,612,832.39
125	11,182,212,479.27	209,666,483.99	172,955,576.60	36,710,907.39
126	11,218,923,386.66	210,354,813.50	175,621,975.07	34,732,838.43
127	11,253,656,225.09	211,006,054.22	178,329,480.52	32,676,573.70
128	11,286,332,798.79	211,618,739.98	181,078,726.68	30,540,013.30
129	11,316,872,812.09	212,191,365.23	183,870,357.05	28,321,008.18
130	11,345,193,820.26	212,722,384.13	186,705,025.05	26,017,359.08
131	11,371,211,179.34	213,210,209.61	189,583,394.19	23,626,815.42
132	11,394,837,994.77	213,653,212.40	192,506,138.18	21,147,074.22
133	11,415,985,068.99	214,049,720.04	195,473,941.15	18,575,778.90
134	11,434,560,847.88	214,398,015.90	198,487,497.74	15,910,516.16
135	11,450,471,365.04	214,696,338.11	201,547,513.33	13,148,824.78
136	11,463,620,190.83	214,942,878.58	204,654,704.16	10,288,174.42
137	11,473,908,365.25	215,135,781.85	207,809,797.51	7,325,984.33
138	11,481,234,349.58	215,273,144.05	211,013,531.89	4,259,612.16
139	11,485,493,961.74	215,353,011.78	214,266,657.18	1,086,354.61
140	11,486,580,316.35	215,373,380.93	217,569,934.81	(2,196,553.88)

ANNEX M

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