

PD-ABN-133
91095

PROJECT ASSISTANCE COMPLETION REPORT

I. BACKGROUND DATA

A. Project Number and Title:	No. 515-0243 Forest Resources for a Stable Environment (FORESTA)
B. Implementing Agency:	Foundation for the Conservation of the Central Volcanic Cordillera (FUNDECOR)
C. PACD: Last Revised PACD	Original August, 31, 1993 March 31, 1996
D. Amount Obligated	\$7,425,973
E. Total Expenditures	\$7,425,973
F. Host Country Contribution:	\$10,000,000 (Local Currency equivalent deposited in a Trust Fund for Fundecor)

II. PROJECT GOAL AND PURPOSE

The goal of the Forest Resources for a Stable Environment (FORESTA) 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 purpose of the Project is to develop forestry and agroforestry as economically and ecologically appropriate land uses in the buffer zones around the Braulio Carrillo, Poas, and Irazu National Parks and other natural protected areas of the Central Cordillera, and to support management of these protected areas. This will be accomplished by creating an independent private authority which will provide direction, technical assistance, coordination and funding to (a) improve the management of the national parks and other natural protected areas of the Central Cordillera, (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.

III. PROJECT COMPONENTS

1. General Operations

This component supports the establishment of FUNDECOR as executing institution capable of influencing natural resource management in the ACCVC, the development of an overall strategy for the ACCVC, improvement of the forest and park protection system, establishment of multi-use operations centers for forestry and park activities in strategic locations throughout the project area, and the development of an environmental education program. As part of the institutional development of FUNDECOR, the GOCR and USAID have created a \$10 million endowment fund to ensure the financing of FUNDECOR's core budget needs once the FORESTA project has ended.

2. Management of Protected Areas

This component of FORESTA is designed to guide and support the management of the protected areas of the ACCVC to ensure the long-term stability of their ecological/biological values and to enhance the economic benefits derived from improved park management (chiefly visitor facilities and services) to local people.

The activities planned for this component include preparing management plans, marking protected area boundaries, purchasing private land through national and international fund-raising, improving visitor facilities and services, promoting nature-oriented tourism, and integrating local communities into protected area management activities.

3. Management of Natural Forests for Production

This component includes assisting in the preparation and implementation of forest management plans by developing guidelines for all aspects of forest harvesting operations (tree selection, logging practices, road construction, and postharvest silvicultural treatments to promote natural regeneration and growth). It also includes support for contracts for applied research to test selective cutting and strip cutting systems and to improved forest management guidelines. Finally, it provides technical assistance and financial incentives for the establishment of one or more private forest enterprises.

4. Integration of Trees on Farms

Through this component FUNDECOR will encourage reforestation and agroforestry on deforested lands and promote the participation of community and grassroots organizations in the conservation of the natural resources of the ACCVC.

FUNDECOR will also provide technical and material support for the establishment of communal, family, or commercial nurseries and ensure the availability of good quality seeds. It will arrange for short courses for tree planters and nursery operators and will contract two teams of extensionists to promote agroforestry.

FUNDECOR will include biological diversity and the creation of wildlife habitat among the criteria for selecting the species to be promoted in reforestation and agroforestry activities.

2

**FOUNDATION FOR THE DEVELOPMENT OF THE
CENTRAL VOLCANIC RANGE
(FUNDECOR)**

**FINAL REPORT
March 31, 1996**

PROJECT OUTPUTS AND ACCOMPLISHMENTS

A. Area-Wide activities

A.1 *FUNDECOR developing plan and implementing natural resources management projects.*

A new project denominated CARFIX was formulated by FUNDECOR which includes new approach for dealing with commercialization of environmental goods and services. Project CARFIX was presented at the United States Joint Implementation Office (USIJI). It was approved in February, 1995. The project started in January, 1996 and it combines the marketing of carbon fixation service and timber production. It also look upon the anticipate timber marketing as a mechanism for the producers to have annual income along the production cycles.

The project will include 1878 forest and forest plantation owners and its goal is the sustainable management of 20.502 ha. of natural forest, 10.570 ha. of secondary forest, and 5.533 ha of native tree plantations. The project also look upon the consolidation of the National Parks of the ACCVC through land acquisition within the park limits that still are private properties. The project began in January, 1996 and its goals are based on the continuous work that the Foundation has been performing, and they allow the achievement of the mission and strategical objectives of the organization.

A.2 *FUNDECOR accepting and administrating donations (grants) using sound business procedures.*

Several donations were received from public sector as well as from private sector. Among them, the Planning Ministry donated 10 million colones from the PL-480 Program to be used in land purchase at the Pocosí and Guácimo Aquifers; FUNDEX donated 20 million colones to pay expenses of the International Forestal Certification for FUNDECOR, and 5000 dollars were received as a donation from the Aerial Tram to support the actions toward the protection of the ACCVC.

A.3 *Global strategy developed/serving as basis for natural resources management decision in the conservation area*

Global strategy was developed. The strategy presented the Environmental and Socioeconomic Diagnosis of the ACCVC, the one that has served as a basis for the decision taking on conservation and natural resource management in the ACCVC. In its formulation personnel of

ACCVC, as well as personnel of FUNDECOR and AID took part, the ones that constituted the so called **BASE GROUP**. This GROUP was formed by the Director and the person in charge of the Planning Unit of the ACCVC, the Executive Director and the Department directors of FUNDECOR, and the AID representative. It constitutes an organism for advise, planning, discussion of technical-administrative, legal and economical aspects related with the ACCVC, and decision making. The GROUP will continue working as an instance for coordination between the ACCVC and FUNDECOR.

A.4 Multi-purpose operational centers in use.

FUNDECOR performed important investment in infrastructure, vehicles, and equipment in the National Parks located in the ACCVC in order to improve the administration, the protection and tourist service at these areas. The Operational Centers (O.C.) improved were O.C. Poás Volcano, where the Visitor Center, the house for park keepers, and the parking lots were built; the O.C. Irazú Volcano where it will be build a house for park keepers, the ticket office, the parking lot, and the boulevard; at the O.C. Guayabo, part of the restoration of the path and the archaeological inventory was financed; at the O.C. Zurquí the investment was in the formation of the Order Unit, and the Laboratory of Geographic Information and Investigation; O.C. Quebrada González, and O.C. Barva Volcano.

A.5 Improved and more efficient forest protection and control

In only three years that the Protection and Control Program has been operating, significant achievements have been obtained. The rate of deforestation and the irrational and illegal use of the natural resources of the ACCVC, have been noticeably reduced and controlled. This is demonstrated, first in the monthly reports that the protection crews have regularly submitted on their field supervision tours, and secondly in the prestige that they have among the judges of the ACCVC who take on the cases, when an infraction, (who is caught infringing the law), is taken to court.

The traditional working scheme by which the guards would protect the national parks inside the ACCVC only, has been changed and a new one is practiced. Now-a-days, almost 65% of the protection crews' job is the buffer zones, around the parks, where most of the illegal activities, such as illegal tree cutting and hunting, tend to concentrate.

B. Subproject Activities

B.1. Management of Protected Areas

B.1.1. Prepare/apply management plans

Management plans were prepared for each one of the National Parks in the ACCVC. However, with the transition suffered by the MIRENEM, now MINAE, during 1995 and 1996, the management approach has changed. The Area prepared Quinquennial Plans which present as a whole, management and protection goals as well as for the central point area as for the buffer zone.

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B.1.2. Establish/demarcate critical boundaries

Another activity that has contributed to the consolidation of the National Parks of the ACCVC is the establishment of boundaries of the Braulio Carrillo National Park, which has an extension of 47506 ha. Landmarks and signs with the legend National Park were situated along 52 km.

B.1.3. Construct/operate Visitor infrastructure

In order to improve the services offered by the N.P. of the ACCVC to the visitors, it was built a Visitor Center at the Poás Volcano where a Nature's Shop, an Exposition Room, a cafeteria, an auditorium and a parking lot are functioning. For N.P. Irazú Volcano, a Ticket office, parking lots, and the park keeper house were designed, the ones that will be build during 1996.

B.1.4 Monitor visitor use

The ACCVC has visitor control in each one of the N.P. of the area.

B.1.5. Increase public visits, information and education.

A guide for the National Parks of the ACCVC was published. Also a Book of Rainforest Birds was published, and during the second semester of 1996 will be publish a Book of Mammals of the ACCVC.

B.1.6. Improved and efficient park management.

The project effectively contributed to strengthen the administrative organization of the ACCVC through the formulation of Technical-Administrative handbooks. One aspect that made easier the joint work between the ACCVC and FUNDECOR, was the establishment and consolidation of the BASE GROUP.

The management of the National Parks was improved through the formulation of Quinquennial Plans and Annual Operative Plans (PAO). Also, in order to guarantee financial autosufficiency in the management of the national parks in the ACCVC, the Foundation has a **CONCESSION SYSTEM** in the National Parks of the ACCVC. This is link with the construction works such as the parking lot and the Visitor Center at the Poás Volcano National Park, and the infrastructure to improve visitor's attention at the Irazú Volcano National Park. This system has the following advantages: Allows real and effective participation of the communities in the economical profits that tourism afford (private enterprises granting a concession within the National Parks, and generating employment through these enterprises); liberates the administration of the National Parks from the execution of some activities for which it is not prepare like the attention of tourists; generates economical profits for the National Parks themselves, that are easily available because they are in a special account at FUNDECOR. Because the private enterprises are the ones that develop these activities, it is possible for these tourism services to evolved according with the necessities of the activity.

B.1.7. Document biodiversity and promotion of conservation of the biodiversity

Several publications have been made which describe the natural wealth of the ACCVC. Every six months, with the National Museum, it is published the magazine "Trees and Seeds from the Neotropics". Through this publication it has been divulged predominating forestry species in the rainforest of the area. Through the publication of the book "Birds of the Rainforest" and the later publication of Mammals of the ACCVC, it is made evident the diversity of wildlife existing in the rainforest of the country.

B.2. Management of the Natural Forest

B.2.1. Forest management based on land use capability

One of the main strategical objectives established by FUNDECOR is "Conservation under technical management of natural forest areas in the ACCVC". In order to achieve it, it was necessary to identify remanent forest areas and the areas of forestal vocation with potential for natural regeneration of forests.

The selection of the priority areas for forest management and reforestation, was based on a spatial model of deforestation. This model was constructed based on an analysis of **satellite imagery (LANDSAT)** for 1986 and 1992. The information referred to change in land use during this period and the identification of the factors contributing the process of deforestation, allows the location of great pressure sites and, therefore, concentrate FUNDECOR's actions in this areas.

The **System for Geographical Information (SIG)** that the Foundation has, is one of its most important achievements and one of its great strengths for the planning and following of the operations it performs. At a macro level, this System allows the following of the change in use within the ACCVC and gives information that permits the evaluation of the effectiveness of the actions taken by the Foundation. At farm level, the System allows the exact location of the productive areas and the protection areas at the riversides and in steep slopes, of the trees to extract, of the trees that will remain in the forest, and the ones considered of great ecological value because of its seed contribution to the ecosystem. It also facilitates the design of paths and carrying trails for the timber in the farm.

B.2.2. Forestal Resources Inventory in ACCVC

Knowing the forestal resources in the ACCVC throughout five years of experience in forest inventory and management and protection plans, has permitted the development of a Management Protocol that includes all the normative on harvesting and the silviculture that must be applied at the forest under management to assure its conservation and, therefore, the conservation of biodiversity. FUNDECOR has elaborated a Manual for the execution of forest harvesting, assuring the minimal impact on the ground and the remaining vegetation.

The Foundation has identify the zones where the forest is suffering great pressure in the change of use, and based on the spatial model of deforestation, has identified the prorater areas where the forest management must be stimulated. The efforts are concentrated in these areas and the results are a total of 13.487 ha under agreement with private owners, for the conservation of these forest masses, through the absolute protection and through sustainable management of forests with production capacity.

B.2.3. 5,000 hectares under improved forest management techniques.

FORESTA's goals were more than achieved despite serious regional problems on land tenure and constantly changing forest regulation procedures. At the beginning, and according to the Project Paper, the Foundation, through FORESTA, was going to put under management 5,000 ha. of natural forest in the ACCVC. That figure was three folded and some 15,000 ha of natural forest in this region are under some kind of management at this moment. More important yet, is that, according to the legal contract signed between FUNDECOR and the owner, Costa Rica can be sure that in the central valley there will be that much forest, at least, for the next 10 years, which is the validity of the contract.

Through the use of its own modern technology with computers and the Geographical Information System, in combination with field work, FUNDECOR has been able to accumulate in its data base valuable and extensive field data which enable the Foundation to produce more realistic and efficient forest management plans at more lower price/ha which at the end is charged and paid by the owner of the forest. The Foundation is leader in using this technology in Costa Rica for forest management activities.

B.2.4. At least one industry using improved forest industrial techniques

It was not worked at forest industry level

B.2.5. Establish ownership rights to forest resources

The support to the owners in the legalization of their properties has been one of FUNDECOR's great achievements.

FORESTA provided training and equipment to this program also. These were necessary in order to establish clear and definite procedures of land acquisition for the expansion of some parks of the ACCVC. FORESTA was instrumental for the drafting of strategies for fund raising to help pay for that land.

Through this program, all the boundaries of the Braulio Carrillo Park were delimited and marked. Furthermore, a surveying and land registering study was financed in order to register all that unoccupied land, inside the park, as national heritage.

B.2.6. Three communities involved in forest management and protection

It was worked at Puerto Viejo, in the communities of Colonia Cubujuquí and Colonia Virgen del Socorro, and in Guápiles.

The promotion of reforestation and natural forest management through visits to the farm owners and of the permanent analysis with them of the benefits of the forest activities, has permitted the signature of 142 agreements from 1991 to March, 1996. These agreements present three kinds: forest protection, forest management, and reforestation. The first agreements were signed in 1991, and until 1995 there were 14546.3 ha under agreement. Another mechanism used by FUNDECOR for reforestation with small and medium producers, is the joint work with the Agricultural Cantonal Center of Sarapiquí (CACSA, Centro Agrícola Cantonal), and through it, 112 agreements have been established. The existence of 254 agreements shows the actions of the Foundation in the buffer zone of the ACCVC.

B.2.7. Increase income to forest owners

FUNDECOR is responsible for activating the forestry and sustainable forest management "culture" in the region. This activity, including reforestation as well, generated a much needed direct or contracted employment for local dwellers. Also very important, is that the activity generated cash income directly to the forest owners and indirectly to the nearby communities for more than \$1 million.

B.2.8. Increase value added to forest products

FUNDECOR assisted forest owners in finding better markets and consequently better prices for their standing timber. This was achieved by getting directly involved, on behalf of the owner, in the entire process, including financing the forest management plan, acting as the intermediary between the owner and the logger, and by designing and promoting new marketing schemes such as public auction of standing timber ran directly by FUNDECOR. The latest methodology promoted by the Foundation is the auctioning of their timber through the "Bolsa de Productos Agrícolas".

B.2.9. Reduce environmental impacts of forest harvesting

In the region, FUNDECOR is credited for introducing and spreading the practice "low environmental impact harvesting techniques". Therefore, the Foundation has design a methodology to evaluate the impact due to logging activities.

Furthermore, through the Foundation's field activities and experience, the "Dirección General Forestal (DGF)" reviewed, updated, and improved some of its forestry/technical regulations, procedures and guidelines. For example, a study financed by FUNDECOR was the basis for the DGF to allow changes in the "Minimum Cutting Diameter" (MCD) by species, whereas before, the MCD was fixed for all species irrespectively of their natural behavior.

FUNDECOR is highly accredited for promoting forestry policy changes such as simplification of the forest management plan. Four years ago, the management plan was just a document written only to get the cutting permission. It was long, inaccurate, and no one used it after logging. Today's plans are technically less complicated, more meaningful, realistic, and efficient. The cost per hectare of making the management plan, which is paid by the owner of the forest, is also lower now.

With financing from the Central American Forestry Action Plan (PAFCA), CATIE was contracted to coordinate the simplification efforts and to introduce FUNDECOR's original idea proposed for Costa Rica, to the entire Central America territory. Costa Rica, Guatemala, and Honduras have introduced changes and simplified their management plans.

B.2.10. Reduce environmental impacts of forest industrial operations

There were no industrial operations performed.

B.3. Reforestation and Agroforestry

B.3.1. Reforest 4.000 ha

Early October, 1992, the new Administrative Board of Directors of FUNDECOR decided that some of FORESTA's goals had to be reviewed if the Foundation wanted to stop the deforestation rate in the ACCVC. As a result of this "60-days" process, the reforestation goals were carefully re-evaluated. It was concluded first of all, that this activity was very expensive, and that planting 4000 ha would really not address too much in stopping deforestation, knowing that the rate of destruction of the natural forest in the ACCVC was very significant.

The general agreement was that deforestation will be stopped by putting more area under sustainable management, but that the reforestation program should continue with a reduced goal. Therefore, it was agreed that the initial 4000 ha of reforestation goal were reduced to 1000 ha, and that the forest management goal will be increased and that more funds transferred for this latter activity. Results have started to show that indeed, this was a very wise decision.

At this point in time, FUNDECOR has promoted and reforested some 1100 ha with native trees species, in cooperation with the "Centros Agrícolas Cantonales" of Sarapiquí and Siquirres. More important, yet, is that in the region, there is a "culture" for planting native tree species and there are several good examples of good reforestation projects with native species in the region.

The Foundation has become the regional leader in promoting and in reforesting with native tree species.

FUNDECOR first promoted and financed, initially, up to eight family tree nurseries in the region. The three left, are real family business and are fully owned by the respective families. Improved nursery production technology has been used in order to improve plant quality at lower costs. Under a contract with the Organization for Tropical Studies (OTS), FUNDECOR has control

on the quality and on the provenance of the seeds used in producing the plants for various reforestation projects.

B.3.2. Introduce agroforestry in farm production systems for 35% of participating population

There were no works with agroforestry systems because in the reviewing of the Cooperative Agreement, it was established as priority the protection of the existing forest coverage through the preservation or forest management and this activity demanded all FUNDECOR's efforts.

B.3.3. Management of 200 hectares of secondary growth forest on farms.

The forest area under agreement (13,487.3 ha) includes some areas that are clearly secondary forest in late state of regeneration. However, for the agreement's effects, all the area is under forest category. FUNDECOR's management approach has been toward the development of forest activities at the farms as a whole, and considering the capacity of use of the terrains. Therefore, it is wanted that the farms that has natural forest areas and natural regenerated areas, manage their resources in a sustainable manner and, that if there are areas with capacity for the establishment of forest plantations, these ones could be planted with native species.

Linked with the accomplishment of strategical objectives, other achievements that can be identified are:

The Foundation has been transformed in an organization of obligatory consultation in forest matters in the ACCVC and at national level. The credibility that FUNDECOR has, facilitates the relationship with the farm owners in the zone, achieving the signature of contracts for forest protection and management and the reforestation of lands with forest aptitude. At the economic level, a Patrimonial Fund was consolidated, that will allow the Foundation to continue with its long-term operations assuring the achievement of its mission.

Personnel Training

Several training sessions and events were financed such as: short courses, personnel interchange, technical meetings, and formal instruction of currently 20 guards in environmental education at the "Universidad Estatal a Distancia". Besides the self motivation that these activities produce among the employees, the quality of the personnel has been improved as well.

10