PD-ABH-094
IN 72167

"THIS IS A PRIMARY OBLIGATING DOCUMENT THAT IS NOT PURSUANT TO A HANDBOOK 3 PROJECT AGREEMENT"

USAID

AGENCIA PARA
EL DESARROLLO
INTERNACIONAL

September 30, 1993

Mr. Víctor Zambrano Gonzáles
Secretary General
FADEMAD
28 de Julio, cuadra 4
Lima

Subject: FADEMAD - Participatory Land Use Classification and Sustainable Economic Development in Human Impacted Areas of the TCRZ
Grant No. 527-0780-G-00-3351-00

Dear Mr. Zambrano:

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development (hereinafter referred to as "A.I.D." or "Grantor") hereby grants to the Federación Agraria Departamental de Madre de Dios (hereinafter referred to as "FADEMAD" or "Grantee"), the sum of $108,859 to provide support for FADEMAD to carry out participatory land use classification and sustainable economic development in human impacted areas, as described in the Schedule of this Grant and the Attachment 2, entitled "Program Description."

This Grant is effective and obligation is made as of the date of this letter and shall apply to commitments made by the Grantee in furtherance of program objectives during the period beginning with the effective date and ending September 30, 1995.

This grant is made to the FADEMAD on condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment 1, entitled the Schedule, Attachment 2, entitled "Program Description," and Attachment 3 entitled "Standard Provisions," which have been agreed to by your organization.

Please sign the original and each copy of this letter to acknowledge your receipt of the Grant, and return the original and all but one copy to the Grant Officer.

Sincerely yours,

George A. Wachtenheim
Director

LARRABURE Y UNANUE 110, LIMA 1
TELÉFONO: 333200, FAX: 337034

Attachments:

1. Schedule
2. Program Description
3. Standard Provisions
4. FADEMAD Proposal
A. Logical Framework

ACKNOWLEDGED:

Federación Agraria Departamental de Madre de Dios

BY: _____
Víctor Zambrano Gonzáles

Title: Secretary General

Date: 10-08-93

FISCAL DATA

Allocation:

Appropriation	: 72-1131021
Budget Plan Code	: LDVA-93-25527-EG12
PIO/T No.	: 527-598-0780-3-30117
Project No.	: 598-0780
Total Estimated Amount	: $108,859
Total Obligated Amount	: $108,859

Funding Source: USAID/Peru

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Schedule

A. Purpose of Grant

The purpose of this Grant is to provide support for FADEMAD to carry out participatory land use classification and sustainable economic development in human impacted areas of the Tambopata Candamo Reserved Zone (TCRZ), as more specifically described in Attachment 2 to this Grant entitled "Program Description."

B. Period of Grant

The effective date of this Grant is the date of signature of the cover letter. The estimated completion date of this Grant is September 30, 1995.

C. Amount of Grant and Payment

1. A.I.D. hereby obligates the amount of $108,859 for purposes of this Grant.

2. Payment shall be made to the Grantee in accordance with procedures set forth in Attachment 3 - Optional Standard Provision No. 1, entitled "Payment - Periodic Advance."

D. Financial Plan

Table I of this Schedule comprises the Grant Budget, including local cost financing items, as authorized and FADEMAD contribution to the Project. Revisions to the Grant Budget shall be made in accordance with Mandatory Standard Provision No. 4 of this Grant, entitled "Revision of Grant Budget." Subject to a variance limit of 15%, Grantee may adjust budget line items to meet program requirements. Greater variances require Grant Agreement Officer approval. The total of funds obligated under the Grant Agreement by USAID shall not be exceeded. Table II presents projected expenditures of Grant Budget by Component and Project Year.

Table I
Financial Plan

	Grant Budget			FADEMAD Contribution		
SUMMARY BUDGET	**FX**	**LC**	**TOTAL**	**FX**	**LC**	**TOTAL**
Personnel	-	39,600	39,600	45,600	-	45,600
Operational Costs	-	21,340	21,340	2,200	47,225	49,425
Equipment Purchase	-	13,277	13,277	4,800	-	4,800
Consultants	-	8,700	8,700	10,115	-	10,115
Materials	-	11,042	11,042	-	-	-
Fuel and Lubricants	-	10,900	10,900	-	-	-
Construction Materials	-	4,000	4,000	-	-	-
Medicines	-	-	-	-	1,000	1,000
Unforeseen Costs	-	-	-	11,228	-	11,228
Rotating Fund	-	-	-	40,000	-	40,000
TOTAL	-	108,859	108,859	113,943	48,225	162,168

Table II
Projected Expenditures of A.I.D. Grant

By Project Component and Project Year

	YEAR 1	YEAR 2	LIFE OF PROJECT TOTAL
Personnel	-	39,600	39,600
Operational Costs	8,550	12,790	21,340
Equipment Purchase	12,687	590	13,277
Consultants	3,000	5,700	8,700
Materials	10,542	500	11,042
Fuel and Lubricants	5,450	5,450	10,900
Construction Materials	-	4,000	4,000
TOTAL BUDGET	40,229	68,630	108,859

E. Reporting and Evaluation

1. Financial Reporting

a. Financial reporting requirements shall be in accordance with the Optional Standard Provision of the Grant entitled "Payment - Periodic Advance" as shown in Attachment 3.

b. The original and two copies of all financial reports shall be submitted to USAID/Peru, Office of the Controller, Larrabure y Unanue 110, Lima 1, Peru.

2. Annual Work Plans

FADEMAD shall provide USAID with Annual Work Plans covering both FADEMAD and Grant funds. The first Annual Work Plan will cover the period October 1, 1993 through September 30, 1994. The second Annual Work Plan will cover the remaining LOP. Annual Work Plans will be submitted annually for USAID review by mid-October, and will consist of the following elements:

- Introduction
- General Information on the Project
- Implementation Plan
- Financial Plan (broken down by component, month, and funding source)
- Training Plan
- Short-term Technical Assistance Plan
- Procurement Plan

3. Program Progress Reporting

The Grantee will submit to USAID regular Progress Reports within fifteen days prior to the end of the first full FY quarter following the effective day of the grant, and each FY quarter thereafter, whenever the corresponding Semi-annual and Annual Reports are not due.

a. Quarterly Reports

Quarterly Reports will indicate (a) progress achieved towards goal, (b) implementation problems encountered, (c) estimated expenditures during the previous quarter, (d) expected expenditures during the following quarter, (e) proposed actions for the ensuing quarter, (f) plans to resolve implementation problems encountered, (g) an illustrative budget for the quarter, (h) an informative schedule of short-term consultants during the following quarter, and (i) additional information required for the Semi-Annual Reviews as required by the Mission Project Officer.

b. Semi-Annual Reports

Semi-Annual Reports will include items (a) through (i) of the Quarterly Reports plus a report on cumulative progress towards goals and expenditures for the semester. The Project Logical Framework (Attachment A) shall be an annex of this report and accomplishments shall be reported on it.

The original and two copies of all Annual Work Plans and Progress Reports shall be submitted to USAID/Peru, Office of Rural Development.

4. Environmental Review

The ecological consultant(s) will ensure that ecological effects of non-timber forest products is made in a sustainable manner.

If the Integrated Pest Management (IPM) team recommends pesticide use against, for example, petilla infestation of rice, the ecological effects of this possibility will be examined by an Environmental Assessment conducted with assistance from the entomologist in charge of the IPM monitoring system.

5. Evaluation and Audit

A.I.D./W, through the LAC Bureau, will cover the costs and perform a final evaluation.

Project Audit should be performed in accordance with Mandatory Standard Provision No. 2, "Accounting, Audit, and Records." Funds for audits are included in the Grant Budget (Table I) under the Services Component.

F. Special Provisions

1. As set forth in Attachment 3, all Mandatory Standard Provisions for Non-U.S. Non-Governmental Grantees apply to this Grant. Applicable Optional Standard Provisions are indicated in the checklist in Attachment 3.

2. To assist in the implementation of the project, USAID from time to time will issue implementation letters furnishing additional information on requirements about matters stated in this Grant. Such letters shall not modify the terms of the Grant.

3. The USAID Project Officer is authorized to issue all approval documents which can clearly and reasonably be considered within the terms of the Grant.

4. Project funds will not be used for:

   a. Supporting timber extraction;

   b. Procurement or use of pesticides; or

   c. Activities which have a negative effect on endangered/threatened species or critical habitats.

Should the Grantee be unable to comply with any one of these conditions during the implementation of the Project, it will become necessary to conduct further environmental review per 22 CFR 216 to determine if an environmental assessment or further mitigations are required.

5. Local Cost Financing

   a. Costs qualifying as local costs are eligible for financing under the grant in accordance with the terms of this special provision. Local costs are defined as (i) indigenous goods, (ii) imported shelf items, and (iii) services provided by suppliers meeting the requirements contained in subparagraph b.

      Indigenous goods are those that have been mined, grown or produced in the cooperating country through manufacture, processing or assembly. In the case of produced goods containing imported components, to qualify as indigenous a commercially recognized new commodity must result that is substantially different in basic characteristics or in purpose or utility from its components. Imported items are eligible for financing under the following situations:

      (1) All locally financed procurement must be covered by source/and nationality waivers as set forth in Chapter 5 of Handbook 1, Sup. B, with the following exceptions:

         (a) Locally available commodities of U.S. origin, which are otherwise eligible for financing, if the value of the transaction is estimated not to exceed the local currency equivalent of $100,000 (exclusive of transportation costs).

         (b) Commodities of geographic code 935 origin if the value of the transaction does not exceed 5,000.

         (c) Professional services contracts estimated not to exceed $250,000.

         (d) Construction services contracts estimated not to exceed $5,000,000.

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

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

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

- Rental costs for housing and office space;

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

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

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

(2) When local procurement of U.S. origin commodities is planned under a project, such a decision should be supported by an analysis of the prices of goods expected to be procured, and a determination that the prices ar reasonable, taking into account comparable delivery terms and prices from the United States, and the implementation schedule of the project.

b. To qualify as local costs, goods and services must also meet the following additional requirements:

(1) They must be paid for in local currency.

(2) The supplier must be located in the cooperating country and must be of cooperating country nationality as defined in A.I.D. Handbook 1B, Chapter 5.

(3) Any component from a country not included in A.I.D. geographic code 935 renders a commodity ineligible for financing.

c. Ineligible Goods and Services: Under no circumstances shall the grantee procure any of the following under this grant:

(1) Military equipment,

(2) Surveillance equipment,

(3) Commodities and services for support of police or other law enforcement activities,

(4) Abortion equipment and services,

(5) Luxury goods and gambling equipment, or

(6) Weather modification equipment.

d. Ineligible Suppliers: Funds provided under this grant shall not be used to procure any goods or services furnished by any firm or individual whose name appears on A.I.D.'s Consolidated List of Debarred, Suspended, or Ineligible Awardees (A.I.D. Regulation 8, (22 CFR 208). A.I.D. will provide the grantee with this list upon request.

e. Restricted Goods: The grantee shall not procure any of the following goods and services without the prior written authorization of the grant officer:

(1) Agricultural commodities,

(2) Motor vehicles,

(3) Pharmaceuticals,

(4) Pesticides,

(5) Rubber compounding chemicals and plasticizers,

(6) Used equipment,

(7) U.S. Government owned excess property, or

(8) Fertilizer.

f. If A.I.D. determines that the grantee has procured any of the restricted or ineligible goods and services specified in subparagraphs (c) through (e) above, or has received reimbursement for such purpose without the prior written authorization of the grant officer, the grantee agrees to refund to A.I.D. the entire amount of the reimbursement.

G. Title of Property

Title to property purchased under this Grant shall vest in the Grantee.

H. Authorized Geographic Code

Except for motorcycles, the authorized geographic code under this Grant shall be the United States (000) and Peru (subject to local cost financing provisions above). Motorcycles shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing.

I. Close-Out Procedures

This section prescribes uniform procedures for this grant.

1. The following definitions shall apply for the purpose of this section:

a. Close-out: The close-out of a grant is the process by which A.I.D. determines that all applicable administrative actions and all required work of the grant have been completed by the Grantee and A.I.D.

b. Date of Completion: The date of completion is the date on which all work under grants is completed or the date on the award document, or any supplement or amendment thereto, on which sponsorship ends.

c. Disallowed Costs: Disallowed costs are those charges to a grant that A.I.D. or its representative determines to be unallowable in accordance with the applicable Federal cost principles or other conditions contained in the grant.

2. A.I.D. close-out procedures include the following requirements:

a. Upon request, A.I.D. shall make prompt payments to a Grantee for allowable reimbursable costs under the grant being closed out.

b. The Grantee shall immediately refund any balance or unobligated (unencumbered) cash that A.I.D. has advanced or paid and that is not authorized to be retained by the Grantee for use in other grants.

c. A.I.D. shall obtain from the Grantee within 90 calendar days after the expiration of the Grant all financial, performance and other reports required as a condition of the grant. A.I.D. may grant extensions when requested by the Grantee.

d. In the event a final audit has not been performed prior to the close-out of the grant, A.I.D. shall retain the right to recover an appropriate amount after fully considering the recommendations on questioned costs resulting from the final audit.

Program Description

I. Purpose of the Grant

The purpose of this Grant is to provide support for FADEMAD to carry out participatory land use classification and sustainable economic development in human impacted areas of the Tambopata Candamo Reserved Zone (TCRZ).

II. Goal, Objectives and End of Project Status Indicators

The goal of the Project is to support the ecological conservation of the 1,498,942 ha. Tambopata Candamo Reserved Zone (TCRZ), a rainforest area recognized as possessing one of the highest degrees of biodiversity on earth.

The major Project objectives are:

(1) strengthening the institutional capacity of FADEMAD;

(2) land use classification of approximately 130,000 ha. and the implementation of several pilot production systems (sustainable agriculture, agroforestry, and forestry systems) based on this classification; and

(3) training of 130 farmers in land use capability classification survey.

The anticipated results of the Project may be described as follows:

(1) FADEMAD will be an applied research organization by its own right, thus lessening the time lag between the development of technical solutions to destructive land use and their application by farmers.

(2) The Project will provide FADEMAD with a number of technical tools including: geographic information systems (GIS) infrastructure, integrated pest management monitoring system, accessible interactive computer data base detailing management for agroforestry species, and tree nurseries and seed production facilities.

(3) A local Geographic Information Systems infrastructure, administered by FADEMAD in cooperation with National Parks-Peru and the local Ministry of Agriculture office. This infrastructure will be used to track land use, land tenure, and natural resource issues in the TCRZ area.

(4) An interactive computer data base detailing management and ecological characteristics of tree and agricultural crop species, which will help farmers to construct ecologically sustainable agrosilvopastoral systems on their lands.

(5) Genetic resource infrastructure capable of producing a great variety of tree seedlings and certified seed, as well as preserving valuable genetic resources in the process of extinction.

(6) The training of some 130 farmers in land use classification survey and tropical ecology, so that they will have the technical background necessary to communicate with conservation and development planners.

(7) Land use classification of some 130,000 ha. in the TCRZ, detailing production alternatives on a multitude of different land types, providing the knowledge necessary for informed land use decisions at the farmer and planning levels.

(8) Implementation of several alternative production systems appropriate to the ecological, social, and economic characteristics of major land types in the area of the TCRZ.

III. Nature of Project Activities

The Project "Participatory Land Use Classification and Sustainable Economic Development in Human Impacted Areas of the Tambopata Candamo Reserved Zone" will be implemented by FADEMAD in two phases:

1. Participatory Land Use Classification

This phase (applied land use classification) has a variety of activities, such as bibliographic revision, creation of a data base concentrating on management of useful plant species in the context of sustainable production, market research, anthropological studies concentrating on gender issues and the socio-economic relationships of local agriculture and forest production, and a survey of genetic resources. The main activity, however will be land use classification surveying of approximately 130,000 ha. in three areas of the TCRZ (see map; km. 28-141 Puerto Maldonado-Cusco highway, lower Tambopata River, and lower Madre de Dios River). Survey methods will follow land use classification methodology successfully developed by CATIE in Costa Rica, with significant differences. The training of local farmers for field surveying is one such difference. Another difference will be the actual land use classification process. Unadapted analysis methods derived from the CATIE methodology practiced previously in the Peruvian Amazon have designated vast areas suitable for cattle ranching and extensive rice agriculture proven to be ecologically destructive and economically non-sustainable land uses in the Amazon. To avoid these pitfalls, the land use classification analysis will utilize the results of the complementary research mentioned above, as well as farmer input to design new land use categories suggesting production that is ecologically and economically sustainable, as well as practical given local social organization.

2. Sustainable Production Pilot Project Design and Implementation

The second phase will concentrate on the design and implementation of pilot production and marketing projects based upon the results of the land use classification

performed in the first phase. Projects will be in the areas of integrated agricultural, agroforestry, forest management, and commercialization activities which have met the criteria of being ecologically sustainable and economically beneficial to FADEMAD farmers.

The following is a description of Project Components:

A. Computerized Data Base

FADEMAD will be responsible for the creation of a computerized data base which will include data about possible species (native and exotic) and varieties which could be integrated into agrosilvopastoral and forestry systems in the TCRZ. Each entry about species/varieties will include data about its use, management, natural ecological role, soils where it occurs naturally, nutritional value of edible parts, economic value, rate of growth, morphology, and productive cycle.

B. Classification Survey Method Workshops

FADEMAD will organize two workshops on Classification Survey Methods. One of the workshops will include farmers from the lower Madre de Dios and Tambopata River areas. The other workshop will include farmers from the Puerto Maldonado-Cusco highway area. Land use classification methods presented will include compass skills, soil characterization (color, texture, structure, internal drainage, degree of erosion, degree of flooding, and Ph measurement), land form description, vegetation description (species identification, forest structure, species densities, and dbh), and data organization.

At the end of each workshop, Project staff will identify farmer technicians particularly knowledgeable about local forests and their uses, so that they can give special assistance to the development of the computerized data base containing information about useful plant species. Identification of these key informants will be through the use of the anthropological method known as "culture as consensus".

C. Technical Assistance and Training

FADEMAD will contract the services of the following consultants:

1. An Agricultural Economist who will perform a market study and investigate the following subjects:

(a) Existing market relations: Profits and costs of production incurred by farmers in the area using different technologies will be determined for the following products: rice, plantains, maize, manioc, sachapapa, citrus, brazil nuts, cattle, sheep, chickens, small animals, timber, palm roofing sheaves, other extracted forest products, and gold. Seasonal fluctuations in access to markets and market prices will be described and a typology of existing marketing forms will be developed.

(b) Agro-industrial potential: Profits, operation costs, retail prices, and market demand for agro-industrial products will be described. These products include: plantain flour, manioc flour and starch, peach palm (*Bactris gasipae*) flour and canned hearts, canned fruits, dried fruits, cashew, aguaje (*Mauritia flexuosa*) products, vanilla, oils derived from various species, balanced animal feeds, wood products, and other products.

(c) Transport to other markets: These markets include Cusco, Lima, Puno, Bolivia, Brazil, and other international markets.

(d) Alternative types of marketing: Investigation of the economic feasibility of cooperative forms of marketing and product warehousing.

2. An Entomologist experienced in integrated pest management (IPM), will be contracted in order to identify common pests encountered in local agriculture and pilot production systems. He will elaborate management strategies and provide data on the ecology of local pest populations.

3. A Seed Production Specialist will be contracted to supervise the installation of tree nurseries and certify seed production and quality.

Additionally, FADEMAD will contract the following technical and administrative staff:

1. A Specialist in Forest Management, who, in conjunction with the Specialist in Agriculture/Anthropology will assure the quality and comparability of the data collected by different survey teams. They will also be responsible to survey areas not covered by farmer technicians survey teams. Also, he will be in charge of the design of forest management strategies and forest pilot projects.

2. An Administrator/Accountant, in charge of Project administration, accounting, and coordination with the Agrarian Reform Office of the Ministry of Agriculture.

D. Pilot Project Proposals

1. FADEMAD will analyze the options for land use suggested by the first phase of the Project. In coordination with the Ministry of Agriculture, National Parks, and local NGOs, Project technical staff will prepare a number of pilot project proposals pertinent to each land use category and area of the TCRZ.

2. FADEMAD will organize meetings in each geographic sector of the TCRZ in order to present different corresponding pilot project proposals to farmers. Each proposal will be discussed in length in order to present the advantages, disadvantages, labor requirement, and probable outcomes of each. The degree of interest shown in each project coupled with an analysis of its economic and ecologic sustainability and the feasibility of performing each project related to FADEMAD resources and logistic capability will determine which pilot

projects are selected for implementation. Full project proposals and work plans will be developed for each project selected.

3. Pilot projects will be conducted utilizing Farming Systems Research and Extension methodology. This methodology will focus on both the variable performance of production systems under different production environments (ecological, social, and under different management styles) and the acceptance of production systems to farmers. Farmers will participate closely in the research component of this methodology taking data on production variables.

4. Workbooks will be developed for the farmer participants of each pilot project. These materials will detail cultural practices necessary for establishing production systems, the agroecological basis of each system, and methods for taking and organizing data associated with the production system. Language used in the workbooks will be adjusted to the educational level of farmer participants.

5. Training sessions will be held for farmer participants of each pilot project. Integral to each session will be the explanation of the agroecological basis for each project, data organization, and the participation of farmers in the implementation of a model of each particular production system.

E. Genetic Resource Infrastructure

Project personnel, building upon infrastructure already established by FADEMAD, will create a genetic resource infrastructure with sufficient capacity to meet the genetic resource needs of pilot production projects, reforestation, genetic conservation of specific varieties and species, and other general needs of farmers in the area. Additional nurseries for the production of tree species will be constructed in strategic areas of the TCRZ. Facilities for the production of certified seed will be built. Germplasm will be obtained from local farmers, nearby forests, and national and international research centers.

F. Marketing Systems

Project personnel will design and implement marketing systems for pilot project produced goods. Essential to this work will be the identification of consumers for these products in national and international markets and the subsequent negotiations arranging the product sales. Marketing consultants from Conservation International's Seed Ventures and Candela-Peru will be sought for assistance. Product storage, and processing mechanisms will be developed in order to best take advantage of price fluctuations and value-added prices.

G. Rotating Capital

A $40,000 rotating capital fund will be established by FADEMAD with its own resources in order to provide farmers with the capital necessary to implement marketing strategies and/or the purchase of agro-industrial infrastructure necessary to make pilot project produced goods more profitable.

H. Training

Training sessions in business administration and farm management will be held for FADEMAD members. Recipients of the rotating capital fund will receive special attention and training.

I. Project Administration

Project administration includes costs for FADEMAD personnel as described in Table I of Attachment 1.

Attachment 4, FADEMAD Proposal, presents in more detail the description of project activities.

IV. Project Implementation and Institutional Responsibilities

A. Responsibilities of FADEMAD

FADEMAD will have primary responsibility for implementing the Project. FADEMAD will hire all Project staff listed above. Additionally, FADEMAD with resources other than the Grant will hire the following staff to work in the Project.

1. A Specialist in Tropical Agriculture/Anthropology, who using a representative sample of farmers in the study area, will investigate the socio-economic relationships of agricultural and forestry production. Data collected will focus on gender relationships in farm decision making and labor requirements, farming systems characterization, annual cycle of production, family structure and its role in production, social relations in the marketing of production, the role of the labor market, and land ownership. This Specialist will be responsible for Project supervision.

2. A Specialist in Agroforestry, in charge of the design of the agroforestry pilot projects, the training components of the Project, and the genetic resources survey.

3. A Cartographer with computer skills and experience in the interpretation of aerial photography. The cartographer will be trained in the use of Geographic Information Systems (GIS) technology, and will constantly map and analyze information collected by the survey teams. He will produce a land use classification map for the area under study and for each geographic sector of the study area.

4. An Ecologist to check land use classification and to ensure that the land use capability classification is ecologically sound. Also, to verify that pilot projects are sustainable.

5. A Market Consultant to help locate markets for production pilot projects.

6. A Secretary.

Project technical staff will continually collect data on the performance of each pilot project. Ecological, social, and economic data will continually be tracked and analyzed with Geographic Information Systems technology, statistical packages, and monitoring programs. Staff will give special attention to analyzing the economic costs and profits of each pilot project to individual farmers. Project staff will continually train selected FADEMAD members in the use of these technologies over the life of the Project.

Project staff will prepare a final report covering the history, achievements, and problems of the Project, as well as its applicability to other areas of Peru and Amazonia. Included will be an evaluation of the Project by a statistically sound sample of FADEMAD members and farmer participants.

B. Coordination with Other Institutions

National Parks. The Peruvian National Park program is a part of the Instituto Nacional de Recursos Naturales, INRENA, and responsible for planning, supervision, administration, and evaluation of activities relating to the Tambopata Candamo Reserved Zone. It will provide logistical support to the Project.

Conservation International (CI). CI is an international, U.S.-based PVO formed in 1987, and concerned with the conservation and ecologically sensitive economic development of mainly tropical areas worldwide. Its emphasis in Peru is consolidating the TCRZ. CI's participation in the Project will be mainly technical, providing consultants such as Dr. Robin Foster to help design ecologically sustainable production systems, consultants in marketing, training in Geographic Information Systems, and giving advise on bookkeeping procedures.

C. USAID Project Monitoring and Management

The Office of Rural Development (ORD) will assume overall responsibility for project management within USAID/Peru. The primary role of the USAID Project Officer will be to ensure adherence to the annual work plans as they pertain to A.I.D. regulations and interests and projected goal of the project.

Attachment 3
Grant 527-0780-G-3351-00

MANDATORY AND OPTIONAL STANDARD PROVISIONS
(Appendix 4D, A.I.D. Handbook 13)

The following Mandatory and Optional Standard Provisions for Non-U.S. Non-Governmental Grantees in effect as of the effective date of this Grant are incorporated herein by reference with full force and effect as though fully set forth herein:

A. Mandatory Standard Provisions

1. Allowable Costs	(June 1993)
2. Accounting, Audit, and Records	(October 1992)
3. Refunds	(June 1993)
4. Revision of Grant Budget	(June 1993)
5. Termination and Suspension	(June 1993)
6. Disputes	(June 1993)
7. Ineligible Countries	(May 1986)
8. Debarment, Suspension, and Other Responsibility Matters	(March 1989)
9. U.S. Officials not to Benefit	(November 1985)
10. Nonliability	(November 1985)
11. Amendment	(November 1985)
12. Notices	(November 1985)
13. Metric System of Measurement	(August 1992)

B. Required as Applicable Standard Provisions

1. Payment - Periodic Advance	(June 1993)
3. Air Travel and Transportation	(June 1993)
4. Ocean Shipment of Goods	(June 1993)
5. Procurement of Goods and Services	(June 1993)
6. A.I.D. Eligibility Rules for Goods and Services	(June 1993)
8. Local Cost Financing	(June 1993)
17. Title To and Use of Property (Grantee Title)	(May 1986)
20. Cost Sharing (Matching)	(June 1993)

PARTICIPATORY LAND USE CLASSIFICATION AND SUSTAINABLE ECONOMIC DEVELOPMENT IN HUMAN IMPACTED AREAS OF THE TAMBOPATA-CANDAMO RESERVED ZONE

Federación Agraria Departamental de Madre de Dios (FADEMAD)

Sr. Victor Zambrano Gonzáles, Secretary General
Avenida 28 de Julio, cuadra 4
Puerto Maldonado, Peru
Telephone: (51-84) 571581

Abstract:

The principal goal of the project presented here is to support the ecological conservation of the 1,498,942 ha. Tambopata-Candamo Reserve Zone, located in the southeastern Peruvian Amazon. This goal will be achieved through enhancing the institutional capacity of the local farmer's union, *Federación Agraria Departamental de Madre de Dios* (FADEMAD), so that it will be able to carry out participatory land use classification and implement sustainable agriculture, agroforestry, and forestry systems in human impacted areas of the reserve. The project has two phases: an initial 13 month applied research project that will develop land use categories on the basis of ecological, social, and economic data collected by farmers and an interdisciplinary team, and a subsequent two-year period in which FADEMAD will carry out planning, training, production, and commercial activities necessary to implement ecologically and economically sustainable land use systems.

Contact person:

A. Richard Piland or Avecita Chicchón
Jr. Jose de la Pinela 129
Lima 41 - Peru
Telephone/fax: (51-14) 360833

Amount requested and project duration:

$108,859 (3 years)

PARTICIPATORY LAND USE CLASSIFICATION AND SUSTAINABLE ECONOMIC DEVELOPMENT IN HUMAN IMPACTED AREAS OF THE TAMBOPATA-CANDAMO RESERVED ZONE

I. Background:

A. PROBLEM STATEMENT

The establishment of protected areas for ecological conservation in the Amazon is problematic for various factors, including: the lack of financial and political resources for the strict control of human activity, the huge land area necessary for the preservation of entire ecosystems in the tropics, the lack of applied and basic scientific investigation necessary for management, the presence of human populations with different economic social, and cultural characteristics, and social conflicts caused by competition for natural resources found in protected areas. Because of these and other factors, it is now recognized in the conservation community that the participation of human populations in the management of protected areas is necessary in order to compatibilize the goals of conservation with those of their resident human populations for a better life. Unfortunately, there are few successful models for harmonizing these goals.

In the case of the Tambopata-Candamo Reserved Zone (TCRZ), a 1,498,942 ha. area of extremely high biological diversity (1200 bird, 80 mammal, 1200 butterfly, and over 1300 woody plant species have been identified), a human population of 5,195 located in or on the margins of the northern portion of the reserve has caused ecological degradation in some 200,000 ha. The extensive and depredatory land use practiced, often at the bequest of government extension and incentive programs, has also led to the loss of the productive capacity of the land resource, causing reduced farm yields and forcing farmers to look for new sources of livelihood. These include expansion of the agricultural frontier toward unoccupied and ecologically important areas of the TCRZ, illegal timber extraction, and gold mining. The *Federación Agrana Departamental de Madre de Dios* (FADEMAD), which represents the majority of the residents in this portion of the TCRZ (located in the Madre de Dios department), is convinced that the only way that its members can geographically stabilize their land use patterns, thus helping to achieve an effective conservation of the exceptionally high biologically diversity found in the TCRZ, is through actions which intensify their productive activities in occupied areas. The project proposed here will enable FADEMAD to design and implement technically feasible, economically rewarding, and ecologically sustainable alternatives to current destructive land use practices, and can serve as a model for the successful integration of local peoples in the management of protected areas.

B. FADEMAD:

The *Federación Agrana de Madre de Dios* was established as a non-profit representative organization for farmers in the Madre de Dios department on April 24, 1989, according to statutes defined under the Peruvian constitution and civil code. At present, it is made up of over 80 base organizations representing their respective communities. Its main goal is to address the problems of its farmer members through participatory analysis and decision making concerning the following themes: land tenure, tropical ecosystem management (soil, forest, and water use), agricultural credit, marketing, technical assistance, and agroindustrial potential.

Initially, FADEMAD's position towards the TCRZ, established in 1990, was cautious, since no local base organizations were consulted in the planning of the reserve. However, their position changed after the conclusion of the regional forum held in 1991, "The Future of the TCRZ", funded by the McArthur Foundation through Conservation International's Peru program. Inspired by sustainable land use and conservation scenarios presented at the forum, FADEMAD developed a commitment to sustainable resource use. This commitment has been manifested by the organization's leading role in re-directing Peruvian state entities towards an emphasis on more intensive and less destructive economic activities in Madre de Dios.

In 1992 FADEMAD achieved an impressive organizational capacity which has enabled it to carry out several small and large projects funded by the local Ministry of Agriculture office important for integrated sustainable agricultural development of the region. Central to the achievement of this organizational capacity was a grant given by Conservation International's Peru program (McArthur Foundation funds) for the construction of offices, a library, and a meeting hall in Puerto Maldonado. Small projects include the implementation of integrated community based poultry and guinea pig production systems, improved bean variety and citrus testing and extension, and installation of solar driers for the production of dried fruits, plantain and manioc flour.

Two larger projects, both started in 1992, will nurture, and in turn be nurtured by the project presented here. The first is an applied research project concentrating on the recuperation of soil fertility in degraded agricultural fallows through agroforestry systems. A number of native and exotic species are being tested. The results of this project will be integrated into land use classification criteria to be used in the project presented here. FADEMAD has built a large capacity tree nursery (some 4000 seedlings have been produced to date), which will be utilized by the proposed project in its second phase. Another result of the soil recuperation project has been the signing of an agreement with the Tambopata Provincial Council for FADEMAD to carry out reforestation activities in the Puerto Maldonado-Cusco highway region (north-west border of the TCRZ). The second project has been FADEMAD's purchase of the former state rice processing and marketing monopoly, with credit extended by the Peruvian state. This purchase has led to the formation of an agroindustrial corporation which will process and market a number of products including rice, plantain and manioc flour, and dried fruits. The main goal of the corporation is to elevate farmer incomes and develop agroindustrial potential for alternative products. While FADEMAD, as an organization, receives no money from the corporation, it is responsible for the company's policies. The project presented here will provide the applied research necessary to identify products and markets necessary for the success of agroindustrial activity in the area, while implementing sustainable production systems on which agroindustry will depend.

C. PERSONNEL:

A. Richard Piland, Project chief, specialist in Anthropology, tropical agriculture, and land use classification.

EDUCATION:

1991. M.A. in Tropical Agriculture, minor concentrations in Farming Systems Research and Extension and Soil Science, Center for Latin American Studies, University of Florida, Gainesville, FL.

1984. B.A. in Anthropology, Appalachian State University, Boone, NC.

WORK EXPERIENCE:

1993. Consultant for the Beni Biosphere Reserve, Bolivia for project start-up. Project will concentrate in creating a Chimane Indian representative organization capable of participating in the management of the reserve, as well as carrying out marketing of Chimane production.

1993. Co-Director of a *Federación Nativa del Rio Madre de Dios y Afluentes* project concentrating on the integration of native communities in the planning process of the Tambopata-Candamo Reserved Zone, Peru.

1992-present. Consultant to FADEMAD for project design.

1992, 1989-1990. Consultant to the Beni Biosphere Reserve, Bolivia for project design and management plan issues pertinent to the integration of local peoples in the reserve.

1990. Co-director of a Conservation International project concentrating on the marketing of *jatata* palm roofing sheaves (*Geonoma deversa*) by the Chimane Indians in the upper Maniqui River area of Bolivia.

1990. Consultant to Conservation International for project design.

1989. Director of a Save the Children-Bolivia applied research project concentrating on land use mapping of 108 ha. using ecological categories of the Chimane Indians in the Rurrenabaque-Yucumo colonization area, Bolivia.

Rodrigo S. Arce Rojas Forester specialist in agroforestry

EDUCATION

1992 *Magister Scientiae* in Conservation of Forest Resources National Agricultural University-La Molina, Lima Peru

1988 *Ingeniero* in Forestry National Agricultural University-La Molina Lima Peru

1985 *Bachiller* in Forestry National Agricultural University-La Molina Lima, Peru

1979 *Bachiller* in Business Administration Superior School of Professional Education "Maria Rosario Araoz Pinto"

WORK EXPERIENCE

1992-present. Director of FADEMAD project concentrating on soil fertility recuperation in degraded agricultural fallows through agroforestry systems Puerto Maldonado, Peru

1992. Botanist for biological diversity evaluation project for the Jaén and San Ignacio Forests *Centro de Datos para la Conservación-Perú*

1991-1992 Professor in the Renewable Natural Resources Faculty National Agricultural University de la Selva Tingo Maria, Peru

1991 Consultant to Amazon Adventure, S A. in ecotourism Lima, Peru.

1991 Consultant to DANTAS project in description and technical drawing of 24 tropical forest tree species.

1990-1991 Director of forestry department. Fundo Pampa Grande Medio Mundo, Lima, Peru.

1988-1989. Director of Parks and Gardens VERDOR, S.A., Lima, Peru.

1986-1987. Director of Forest Management. Pichis Rural Development Project. Pichis-Palcazu Special Project. Puerto Bermúdez, Peru.

Héctor Vilchez Baldeón, forester, specialist in forest management.

EDUCATION:

1991 *Ingeniero* in Forestry. National Agricultural University-La Molina. Lima, Peru.

1985. *Bachiller* in Forestry. National Agricultural University-La Molina. Lima, Peru.

WORK EXPERIENCE:

1992-present. Co-Director of a *Federación Nativa del Rio Madre de Dios y Afluentes* project concentrating on territorial consolidation for native communities.

1991-1992. Editorial staff for DANTAS project publication of "*Arboles del Perú - Las Especies Forestales de Dantas*".

1990-1992. Project staff for the Model Forest Management and Production Unit, project DANTAS, in charge of technical assistance and management plan design.

1987-1990. Investigator for the Model Forest Management and Production Unit, project DANTAS, in charge of basic studies in forest use capacity.

1986-1987. Director of Forest Management. Palcazu Rural Development Project. Pichis-Palcazu Special Project.

II. Project Description:

A. INTRODUCTION:

The two-phase project presented here has a participatory and iterative methodology. Farmer members of FADEMAD residing in the study area will be trained so that they will have the technical tools necessary to take part in data collection and analysis in the first phase (applied land use classification) and in pilot project design

and implementation in the second phase (implementation of sustainable land use systems). While the activities of the first phase of the project are well planned, the actual structure of the second phase of the project is not explicit since much of the specific activities to be carried out are dependent on the information generated by the applied land use classification performed in the first year of the project. However, second phase activities will be outlined below.

The first phase (applied land use classification) of the project has a variety of activities such as bibliographic revision, creation of a data base concentrating on management of useful plant species in the context of sustainable production, market research, anthropological studies concentrating on gender issues and the socio-economic relationships of local agriculture and forest production, and a survey of genetic resources. The main activity, however will be land use classification surveying of approximately 130,000 ha in three areas of the TCRZ (see map, km 28-141 Puerto Maldonado-Cusco highway, lower Tambopata River, and lower Madre de Dios River). Survey methods will follow land use classification methodology successfully developed by CATIE in Costa Rica, with significant differences. The training of local farmers for field surveying is one such difference. Another difference will be the actual land use classification process. Unadapted analysis methods derived from the CATIE methodology practiced previously in the Peruvian Amazon have designated vast areas suitable for cattle ranching and extensive rice agriculture proven to be ecologically destructive and economically non-sustainable land uses in the Amazon. To avoid these pitfalls, project land use classification analysis will utilize the results of the complementary research mentioned above, as well as farmer input to design new land use categories suggesting production that is ecologically and economically sustainable, as well as practical given local social organization.

The second phase of the project, which has a duration of two years, will concentrate on the design and implementation of pilot production and marketing projects based upon the results of the land use classification performed in the first phase. Projects will be in the areas of integrated agricultural, agroforestry, forest management, and commercialization activities which have met the criteria of being ecologically sustainable and economically beneficial to FADEMAD farmers.

B. ACTIVITIES:

PHASE I: PARTICIPATORY LAND USE CLASSIFICATION:

1. Revise all available agricultural, socio-economic, cartographic, and ecological data about the TCRZ region in order to achieve a basic understanding of the zone. Works pertaining to the agrosilvopastoral and forestry production systems in environments similar to that of the TCRZ and the management of particular plant species which could be integrated into production systems in TCRZ will also be revised.

2. Create a computerize data base that will include data about possible species (natives and exotics) and varieties which could be integrated into agrosilvopastoral and forestry systems in the TCRZ. Each entry about species/varieties will include data about its use, management, natural ecological role, soils where it occurs naturally, nutritional value for edible parts, economic values, rate of growth, morphology, and productive cycle.

3. a) In a FADEMAD meeting, staff will present the project. Residents of each geographic sector within the study area will be asked to elect three representatives to participate as farmer technicians in the project. These representatives will participate in workshops in land use classification survey methods.

b) Two 2-week land use classification survey method workshops will be held. One workshop will include farmers from the lower Madre de Dios and Tambopata River areas. The other workshop will include farmers from the Puerto Maldonado-Cusco highway area. Land use classification methods presented will include compass skills, soil characterization (color, texture, structure, internal drainage, degree of erosion, degree of flooding, and pH measurement), land form description, vegetation description (species identification, forest structure, species densities, and dbh), and data organization.

c) At the end of each workshop project staff will identify farmer technicians particularly knowledgeable about local forests and their uses so that they can give special assistance to the development of the computerized data base containing information about useful plant species. Identification of these key informants will be through the use of the anthropological method known as "culture as consensus"

4. a) The farmer technicians for each geographic sector will collect the necessary information for the sector. The survey teams will use transects of various distances each separated by a distance of 500 m. Data will be collected at points spaced 500m apart along transects. The following information will be collected: vegetation characterization (species encountered, forest structure, species density for individuals above 15 cm dbh in a 30 sq. m. area around each point), land form description, degree of erosion, degree of annual flooding and soil description to 70 cm below soil surface using a soil corer. Changes in vegetation and soil type occurring between transect points will be noted. In addition to these data, land use histories for surveyed areas, including date of deforestation, crops planted, yield levels, and pest incidence, will be collected through interview with local farmers.

b) The technical staff of the project, especially the specialist in forest management and the specialist in tropical agriculture/anthropologist, will be responsible for assuring the quality and comparability of the data collected by different survey teams.

c) The technical staff of the project will survey areas not covered by farmer technician survey teams.

5. A cartographer with computer skills and experience in the interpretation of aerial photography will be contracted. The cartographer will be trained in the use of Geographic Information Systems (GIS) technology, and will constantly map and analyze information collected by the survey teams.

6. In a workshop attended by project technical staff, farmer survey teams, representatives of different agencies of the Ministry of Agriculture, National Parks, and local NGOs, participants will define the different land units encountered in the study area through an analysis of the data collected by the project.

7. On the basis of a current mapping of the area, analysis of the collected data, and land unit definition, the project technical staff will design a sample of soils of the area. Soil samples representative of each defined land unit will be analyzed for their chemical and physical characteristics through laboratory testing.

8. The specialist in tropical agriculture/anthropologist, using a representative sample of farmers in the study area, will investigate the socio-economic relationships of agricultural and forestry production. Data collected will focus upon: gender relationships in farm decision making and labor requirements, farming systems characterization, annual cycle of production, family structure and its role in production, social relations in the marketing of production, the role of the labor market, and land ownership.

9. An agricultural economist will be contracted to perform a market study. The economist will investigate the following subjects:

a) <u>EXISTING MARKET RELATIONS</u>: Profits and costs of production incurred by farmers in the area using different technologies will be determined for the following products: rice, plantains, maize, manioc, *sachapapa*, citrus, brazil nuts, cattle, sheep, chickens, small animals, timber, palm roofing sheaves, other extracted forest products, and gold. Seasonal fluctuations in access to markets and market prices will be described and a typology of existing marketing forms will be developed.

b) <u>AGROINDUSTRIAL POTENTIAL</u>: Profits, operation costs, retail prices, and market demand for agroindustrial products will be described. These products include: plantain flour, manioc flour and starch, peach palm (*Bactris gasipae*) flour and canned hearts, canned fruits, dried fruits, cashew, *aguaje* (*Mauritia flexousa*) products, vanilla, oils derived from various species, balanced animal feeds, wood products, and other products.

c) <u>TRANSPORT TO OTHER MARKETS</u>: These markets include Cusco, Lima, Puno, Bolivia, Brazil, and other international markets.

d) <u>ALTERNATIVE TYPES OF MARKETING</u>: Investigation of the economic feasibility of cooperative forms of marketing and product warehousing.

10 In a workshop attended by project technical staff, the agricultural economist, farmer technicians, and representatives of the Ministry of Agriculture, National Parks and local NGOs, participants will examine all data collected (ecological, genetic, edaphic, socio-economic) by the project in order to relate different agrosilvopastoral and forestry systems with characteristics of the different land units defined in the study area. The product of this analysis will be the definition of land use categories which are appropriate for ecologically and economically sustainable development.

11 The cartographer will produce a land use classification map for the study area and for each geographic sector of the study area. Mapping scale will be 1:30,000.

12 The project technical staff will investigate the availability of genetic resources necessary for the implementation of the different production systems suggested by land use classification of the study area. Genetic resources investigated will include improved and traditional varieties and species, with special attention given to native varieties and species which may be in the process of extinction, and may merit *in situ* conservation projects.

13. a) Land use classification results, including an ecological description of each land unit, management of each production system suggested, available genetic resources, possible production problems associated with each system, economic analysis of each system and economic projections for the region will be published and distributed to local and national institutions.

b) A workshop attended by the project technical staff, farmer participants and representatives of the Ministry of Agriculture, National Parks, and local NGOs will be held to analyze land use classification results and plan the extension of results to the residents of the study area. Extension activities will include the use of audiovisual materials explaining the different land use categories.

PHASE II: SUSTAINABLE PRODUCTION PILOT PROJECT DESIGN AND IMPLEMENTATION.

1. FADEMAD will analyze the options for land use suggested by the first phase of the project. In coordination with Ministry of Agriculture, National Parks, and local NGOs, project technical staff will prepare a number of pilot project proposals pertinent to each land use category and area of the TCRZ.

2. Meetings will be held in each geographic sector of the TCRZ in order to present different corresponding pilot project proposals to farmers. Each proposal will be discussed in length in order to present the advantages, disadvantages, labor requirement, and probable outcomes of each. The degree of interest shown in each project coupled with an analysis of its economic and ecologic sustainabilty and the feasibility of performing each project related to FADEMAD resources and logistic capability will determine which pilot projects are selected for implementation. Full project proposals and work plans will be developed for each project selected.

3. Pilot projects will be conducted utilizing Farming Systems Research and Extension methodology. This methodology will focus on both the variable performance of production systems under different production environments (ecological, social, and under different management styles) and the acceptance of production systems to farmers. Farmers will participate closely in the research component of this methodology taking data on production variables.

4. Workbooks will be developed for the farmer participants of each pilot project. These materials will detail cultural practices necessary for establishing production systems, the agroecological basis of each system, and methods for taking and organizing data associated with the production system. Language used in the workbooks will be adequated to the educational level of farmer participants.

5. Training sessions will be held for farmer participants of each pilot project. Integral to each session will be the explanation of the agroecological basis for each project, data organization, and the participation of farmers in the implementation of a model of each particular production system.

6. Building upon infrastructure already established by FADEMAD project personnel will plan and execute the creation of a genetic resource infrastructure with sufficient capacity to meet the genetic resource needs of pilot production projects, reforestation, genetic conservation of specific varieties and species, and other general needs of farmers in the area. Additional nurseries for the production of tree species will be constructed in strategic areas of the TCRZ. Facilities for the production of certified seed will be built. Germplasm will be obtained from local farmers, nearby forests, and national and international research centers.

7. An entomologist experienced in integrated pest management (IPM) will be contracted in order to identify common pests encountered in local agriculture and pilot production systems. Management strategies and IPM monitoring system will be elaborated.

8. Project personnel will design and implement marketing systems for pilot project produced goods. Essential to this work will be the identification of consumers for these products in national and international markets and the subsequent negotiations arranging the product sales. Marketing consultants from Conservation International's Seed Ventures and Candela-Peru will be sought for assistance. Product storage, and processing mechanisms will be developed in order to best take advantage of price fluctuations and value-added prices.

9. A $40,000 rotating capital fund will be created in order to provide farmers and FADEMAD marketing ventures with the capital necessary to implement marketing strategies and/or the purchase of agroindustrial infrastructure necessary to make pilot project produced goods more profitable.

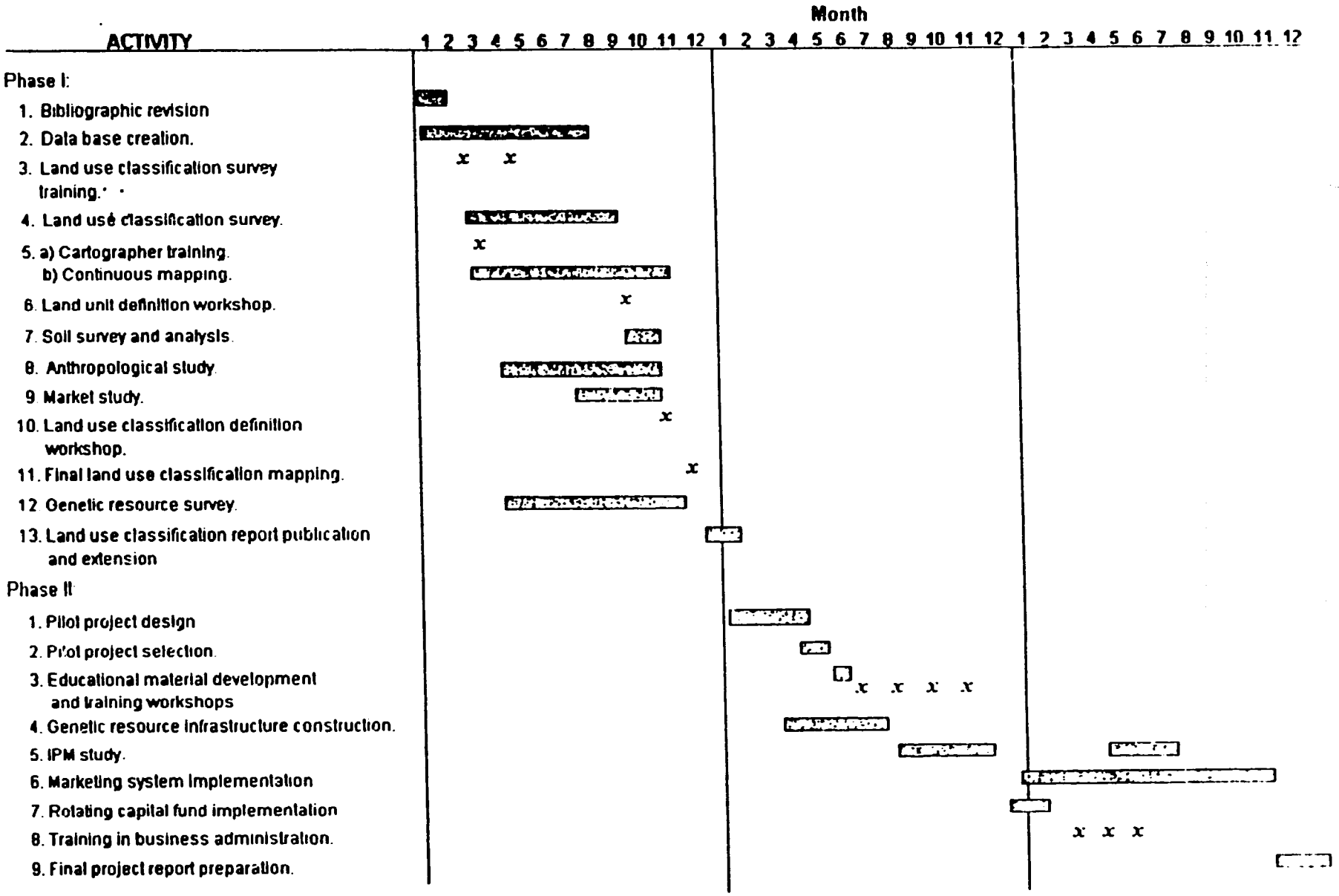
10. Training sessions in business administration and farm management will be held for FADEMAD members. Recipients of the rotating capital fund will receive special attention and training.

11. The specialist in Anthropology/tropical agriculture will carry out a follow up study on the impact of pilot projects on the social relationships of production found in farmer participant families and communities.

12. Project technical staff will continually collect data on the performance of each pilot project. Ecological, social, and economic data will continually be tracked and analyzed with Geographic Information Systems technology, statistical packages, and monitoring programs. Staff will give special attention to analyzing the economic costs and profits of each pilot project to individual farmers. Project staff will continually train selected FADEMAD members in the use of these technologies over the life of the project.

13. Project staff will prepare a final report covering the history, achievements, and problems of the project, as well as its applicability to other areas of Peru and Amazonia. Included will be an evaluation of the project by a statistically sound sample of FADEMAD members and farmer participants in the project.

C. CHRONOLOGY



D. EXPECTED ACCOMPLISHMENTS

The major accomplishment of this project will be the institutional strengthening of FADEMAD. Already a leader in debates and activities concerning the economic development of Madre de Dios and the conservation of its natural resources, the execution of this project will further empower farmers in the TCRZ area so that they more fully participate in planning and execution of sustainable development and conservation activities in this biologically important area of the world. The execution of this project will enable FADEMAD to become an applied research organization in its own right, thus lessening the time lag between the discovery of technical solutions to destructive land use and their application in the field.

A number of other major expected accomplishments will contribute to the strengthening of FADEMAD and to the sustainable development and conservation of the TCRZ. These include:

• A local Geographic Information Systems infrastructure, administered by FADEMAD in cooperation with National Parks-Peru and the local Ministry of Agriculture office. This infrastructure will be used to track land use, land tenure, and natural resource issues in the TCRZ area.

• An Integrated Pest Management monitoring system, able to track the behavior of pest populations in the area, so that farmers can choose the least expensive, most selective, and least damaging methods of pest control.

• An interactive computer data base detailing management and ecological characteristics of a great number of tree and agricultural crop species, which will help farmers to construct ecologically sustainable agrosilvopastoral systems on their lands.

• Genetic resource infrastructure capable of producing a great variety of tree seedlings and certified seed, as well as preserving valuable genetic resources in the process of extinction.

• The training of some 130 farmers in land use classification survey and tropical ecology, so that they will have the technical background necessary to communicate with conservation and development planners.

• Land use classification of some 130,000 ha. in the TCRZ, detailing production alternatives on a multitude of different land types, providing the knowledge necessary for informed land use decisions at the farmer and planning levels.

• Implementation of several alternative production systems appropriate to the ecological, social, and economic characteristics of major land types in the area of the TCRZ[1].

E. PARTICIPATING INSTITUTIONS:

Ministry of Agriculture - Direction Sub-Regional Madre de Dios. This institution is a decentralized organ of the Ministry of Agriculture. Among its functions are the evaluation of agricultural and forestry potentials, land titling according to land-use capability, and control of forestry and brazil nut concessions. The Ministry of Agriculture (DSRMD) wishes to reorganize its catastro, realizing that the land use capability study of the area (performed in the 1960s) on which land tenancy is regularized is inadequate. It will use the results of the first

[1] As emphasized above, specific production systems that will be promoted by pilot projects cannot be known until after the completion of the first phase. There are, however, several specific activities which at present look promising and need to be investigated. These include: improved harvesting and processing technology for *aguaje (Mauratia flexuoso)*, fence post and pole production utilizing fast growing legumes (i.e. *Schizolobium sp.*) in agroforestry systems, a variety of products, including palm hearts and balanced animal feed from peach palm (*Bactris gasipae*), oil production from *Caryocar sp.* nuts, and medicinal plant cultivation and collection for the Asian markets, to name but a few.

phase of the study to regularize its catastro in the area of the TCRZ. For this reason it has agreed to fund 10% of the first phase. Its financing will focus on the purchase of survey equipment and fuels and lubricants.

National Parks - Peru. The Peruvian National Park program is a part of the newly formed *Instituto Nacional de Recursos Naturales*, which is a ministry level organ of the Peruvian government. It is responsible for planning supervision, administration, and evaluation of activities relating to the TCRZ. It will provide logistica support to the project, and will be especially helpful in obtaining customs clearance for imported project equipment.

Conservation International (CI). CI is an international NGO formed in 1987 and based in the United States, concerned with the conservation and ecologically sensitive economic development of mainly tropical areas worldwide. Its emphasis in Peru is consolidating the TCRZ. CI's participation in the project will be mainly technical, providing consultants such as Dr. Robin Foster to help design ecologically sustainable production systems, consultants in marketing, training in Geographic Information Systems, and giving advise on bookkeeping procedures.

III. Financial Information:

A. BUDGET.

	Year 1	Year 2	Year 3	Total
A. Personnel:	**$51,395**	**$52,620**	**$51,420**	**$155,435**
-Project chief, specialist in Anthropology, tropical agriculture, land use classification $900/month	10,800	10,800	10,800	32,400
-Forester, specialist in agroforestry $900/month	10,800	10,800	10,800	32,400
-Forester, specialist in forest management $900/month	10,800	10,800	10,800	32,400
-Administrator/accountant $600/month	7,200	7,200	7,200	21,600
-Secretary $250/month	3,000	3,000	3,000	9,000
-Cartographer $400/month	3,200			3,200
-Agricultural Economist $750/month	3,000			3,000
-Entomologist $750/month		4,500	4,500	9,000
-Ecological consultant $865/week	2,595*	2,595*	2,595*	7,785*
-Market consultant $575/week		1,725*	1,725*	3,450*
-Seed production consultant $600/month		1,200		1,200
B. Equipment	**$30,122**	**$ 9,980**	**$ 7,130**	**$ 47,232**
-20 Surveying compasses	3,167			3,167
-20 Tape measures 100m	1,200			1,200
-20 Soil corers	1,500			1,500
-20 Munsell soil color charts	1,300			1,300
-20 Soil pH kits	1,000			1,000
-400 soil sample bags	75			75
-Aerial photography of the area	1,000			1,000
-Office material	600	500	500	1,600
-1 Computer 286;80 MG HD	1,000			1,000
-1 Computer 486;250 MG HD	3,000			3,000
-1 Canon BJ-300 printer	400			400
-1 HP Paintjet printer	800			800

	Year 1	Year 2	Year 3	Total
-1 Digitizing table	800			800
-Computer accessories	250	100	100	450
-Ink cartridges	240	240	240	720
-Computer software	500	250		750
-G I S software	200*			200*
-Cartographic material	400			400
-2 Motorcycles	8,800			8,800
-Fuel and lubricants				
*Gasoline	3,400	3,400	3,400	10,200
*Motor oil	860	860	860	2,580
*Grease	30	30	30	90
-Construction materials		4,000	1,500	5,500
-Medicine	500	500	500	1,500
C. Services	**$36,720**	**$30,645**	**$23,120**	**$90,485**
-Air travel: Lima-Pt. Maldonado-Lima	1,750	1,250	625	3,625
-Land travel in the TCRZ area	515	515	515	1,545
-River travel (boat rental)	1,400	1,400	1,400	4,200
-Per diem				
2 Foresters (140 days/yr @$10)	2,800	2,800	2,800	8,400
Anthropologist/agriculturalist (160 days/yr @$10)	1,600	1,600	1,600	4,800
Agricultural economist (120 days @ $15)	1,800			1,800
Motorist (90 days/yr. @ $15)	1,350	1,350	1,350	4,050
Ecological consultant (21 days/yr @$75)	1,575*	1,575*	1,575*	4,725*
Market consultant (21 days/yr @$75		1,575*	1,575*	3,150*
Entomologist (80 days/yr @$15)		1,200	1,200	2,400
Food for participant training workshops	15,500	10,000	6,000	31,500
-Professional agroforestry journal subscription	1,000	1,000	1,000	3,000
-International agroforestry association fees	200	200	200	600
-Training of Cartographer in G.I.S.	1,000*			1,000
-Air cargo shipment of equipment	750	200		950
-Motorcycle maintainence	400	600	800	1,800
-Soil analysis (380 samples)	2,600			2,600
-Communications (telephone, fax, mail)	480	480	480	1,440
-Photocopies and reproductions	500	500	500	1,500
-Film developing	150	150	150	450
-Technical workshops	750	750	750	2,250
-Publication of land use classification report	600			600
-Publication of pilot project workbooks		3,500		3,500
-Publication of final project report			600	600

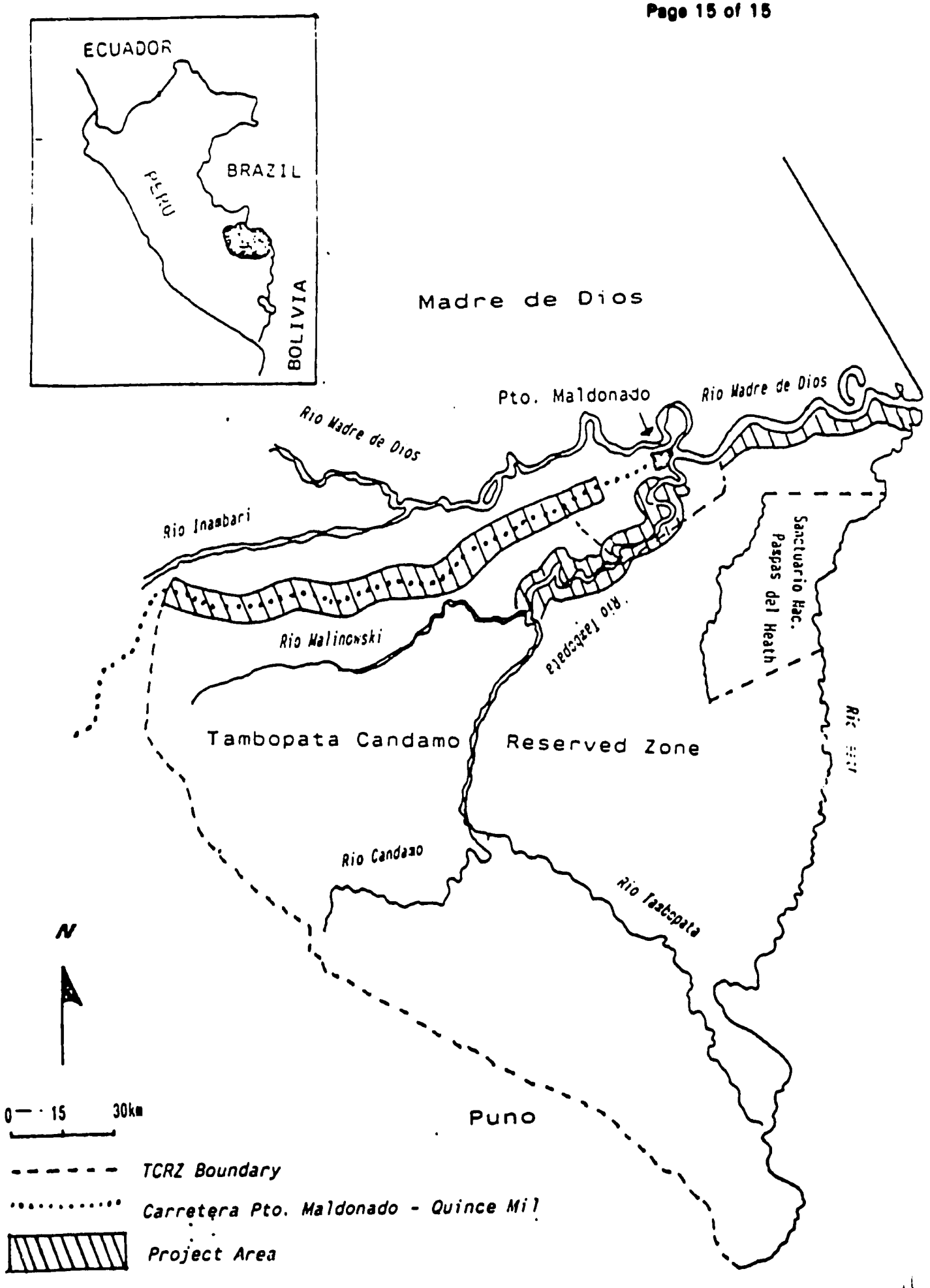
* Conservation International will cover these costs.

	Year 1	Year 2	Year 3	Total
D. Sub-total	$110,237	$ 93,245	$ 81,670	$293,089
E. Unforeseen costs (10%)	$ 11,824	$ 9,325	$ 8,167	$ 29,309
F. Rotating capital fund		$ 40,000		$ 40,000
G. Total project costs	$130,061	$142,570	$ 89,837	$362,398
H. Less other contributions	$ 96,520	$ 82,137	$ 74,592	$ 253,249
- FADEMAD	13,734	10,125	8,852	32,711
- Ministry of Agriculture-Sub Region Madre de Dios	13,734			13,734
- Conservation International	5,370	7,470	7,470	20,310
- Other granting agency	63,682	64,542	58,270	186,424
I. TOTAL REQUEST	$33,421	$60,313	$15,125	$108,859

B. INCOME HISTORY:

The *Federación Agraria Departamental de Madre de Dios* in its almost four years of existence, considers itself to have gone through two stages. The first phase from 1989 to July, 1991 was a period of organization and the initiation of consolidation. In this phase the organization received no funds and had no bookkeeping structure. The second phase, after July, 1991, was characterized by its consolidation as a functioning organization with sufficient administrative capability to design and carry out projects, and was the recipient of state and private funds. Its fiscal year has accommodated to that of its funders, be they state or private sources. Recently, however, FADEMAD's fiscal year has been fixed as ending on December 31, with reporting due on March 15, as in accordance with Peruvian state accounting procedures. FADEMAD is currently having it's first financial audit performed by the Ministry of Agriculture. Thus, a full financial audit of FADEMAD's FY1992 is not yet available. FADEMAD, however, can offer an accounting of funds used for several of its projects during 1992 (see appendix). What follows is a summary of funds received since 1991.

Date	Type	Activity	Source	Amount
Dec 1991	Donation	Administrative	*Coordinadora Interinstitucional de Centros*	$ 5,000
Dec 1991	Donation	Administrative	*Coordinadora Interinstitucional de Centros*	2,105
Jan., 1992	Contract	Small animal project	Ministry of Agriculture	13,500
Jan., 1992	Contract	Tree nursery construction	Ministry of Agriculture	12,000
Jan., 1992	Contract	Solar driers and mill purchase	Ministry of Agriculture	38,000
Feb., 1992	Donation	Administrative	*Coordinadora Interinstitucional de Centros*	5,000
May, 1992	Contract	Reforestation project	Tambopata Provincial Council	1,620
June, 1992	Donation	Office construction	Conservation International	5,200
July, 1992	Contract	Soil recuperation project	Ministry of Agriculture	20,000
Nov., 1992	Contract	Reforestation project	Tambopata Provincial Council	950
			Total:	**$103,375**


ECUADOR
BRAZIL
PERU
BOLIVIA
Madre de Dios
Pto. Maldonado
Rio Madre de Dios
Rio Madre de Dios
Rio Inambari
Rio Malinowski
Rio Tacopata
Sanctuario Nac.
Pampas del Heath
Tambopata Candamo
Reserved Zone
Rio Candamo
Rio Tacopata
N
0 15 30km
Puno
TCRZ Boundary
Carretera Pto. Maldonado - Quince Mil
Project Area

Sept. 29, 1993

Mr. Carlos Ayala, Environmental Officer
USAID - Peru

Dear Carlos,

The purpose of this letter is to clarify a few issues relevant to the grant that AID will be giving FADEMAD for its "Participatory Land Use Classification and Sustainable Economic Development in Human Impacted Areas of the Tambopata-Candamo Reserved Zone". Attatched please find a revised budget reflecting the change of the project duration from three to two years as required by USAID. Also note that no AID funds will be destined to financing the rotating fund envisioned in the project's second year. I hope that this information is helpful.

Sincerely,

A. Richard Piland,
Project Development Consultant
FADEMAD

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TABLE 1

ANNUAL AND TOTAL PROJECT COSTS ($) BY COMPONENT

	1994			1995			TOTAL		
	USAID	FADEMAD	Total	USAID	FADEMAD	Total	USAID	FADEMAD	Total
A. Personnel									
Project Chief/ Anthropologist		10,800 00	10,800 00	10,800.00		10,800 00	10,800 00	10 800 00	21 600 00
Agroforester		10,800 00	10,800 00	10,800 00		10,800 00	10,800 00	10,800 00	21 600 00
Forester		10,800 00	10,800 00	10,800 00		10,800 00	10,800 00	10,800 00	21 600 00
Administrator		7,200 00	7,200 00	7,200 00		7,200 00	7,200 00	7 200 00	14 400 00
Secretary		3,000.00	3,000.00		3,000 00	3,000 00		6 000 00	6 000 00
Cartographer		3,200.00	3,200 00					3,200 00	3,200 00
Agricultural Economist	3,000.00		3,000.00				3,000 00		3 000 00
Entomologist				4,600.00		4,600.00	4,600 00		4 600 00
Ecological Consultant		2,696 00	2,696.00		2,696 00	2,696.00		5,190 00	5 190 00
Market Consultant					1,726.00	1,726.00		1,726 00	1,726 00
Seed Production Consultant				1,200.00		1,200 00	1,200 00		1,200 00
Total	$3,000.00	$48,395.00	$51,396.00	$46,300.00	$7,320.00	$52,620.00	$48,300.00	$55,715 00	$104,015 00
B. Equipment									
20 Surveying compasses	3,167.00		3,167.00				3,167.00		3,167 00
20 Tape measures	1,200.00		1,200.00				1,200 00		1,200 00
20 Soil corers	1,600.00		1,600.00				1,600 00		1,600 00
20 Munsell soil color charts	1,300.00		1,300 00				1,300 00		1,300 00
20 Soil pH kits	1,000.00		1,000.00				1,000 00		1 000 00
400 soil sample bags	75.00		75.00				75 00		75 00
Aerial photographs	1,000.00		1,000.00				1,000 00		1,000 00
Office material	600.00		600.00	600.00		600.00	1,100.00		1,100 00
Computer 286; 80 MG HD	1,000.00		1,000.00				1,000 00		1,000 00
Computer 486; 260 MG HD		3,000.00	3,000.00					3 000.00	3,000 00
Canon BJ-330 printer	697.00		697.00				697.00		697 00

	1994			1995			TOTAL		
	USAID	FADEMAD	Total	USAID	FADEMAD	Total	USAID	FADEMAD	Total
HP Paintjet printer		800.00	800.00					800.00	800.00
Digitizing table		800.00	800.00					800.00	800.00
Computer accessories	250.00		250.00	100.00		100.00	350.00		350.00
Ink cartridges	240.00		240.00	240.00		240.00	480.00		480.00
Computer software	500.00		500.00	250.00		250.00	750.00		750.00
G. I. S. software		200.00	200.00					200.00	200.00
Cartographic material	700.00		700.00				700.00		700.00
2 Motorcycles	10,000.00		10,000.00				10,000.00		10,000.00
Fuel and lubricants									
*Gasoline	4,400.00		4,400.00	4,400.00		4,400.00	8,800.00		8,800.00
*Motor oil	1,000.00		1,000.00	1,000.00		1,000.00	2,000.00		2,000.00
*Grease	50.00		50.00	50.00		50.00	100.00		100.00
Construction materials				4,000.00		4,000.00	4,000.00		4,000.00
Medicine		500.00	500.00		500.00	500.00		1,000.00	1,000.00
Total	$28,679.00	$5,300.00	$33,979.00	$10,540.00	$500.00	$11,040.00	$39,219.00	$5,800.00	$45,019.00
C. Services									
Air travel: Lima-Pto.Mald.-Lima		1,750.00	1,750.00	240.00	1,010.00	1,250.00	240.00	2,760.00	3,000.00
Land travel in the TCRZ		515.00	515.00		515.00	515.00		1,030.00	1,030.00
River travel (boat rental)		1,400.00	1,400.00		1,400.00	1,400.00		2,800.00	2,800.00
Per diem									
2 Foresters (140/yr @$10)		2,800.00	2,800.00	2,800.00		2,800.00	2,800.00	2,800.00	5,600.00
Anthropologist (160/yr @ $10)		1,600.00	1,600.00	1,600.00		1,600.00	1,600.00	1,600.00	3,200.00
Agricultural Economist (120 @ $15)	1,800.00		1,800.00				1,800.00		1,800.00
Motorist (90/yr @ $15)		1,350.00	1,350.00	1,350.00		1,350.00	1,350.00	1,350.00	2,700.00
Ecological Consultant (21/yr @ $75)		1,575.00	1,575.00		1,575.00	1,575.00		3,150.00	3,150.00
Market Consultant (21/yr @ $75)					1,575.00	1,575.00		1,575.00	1,575.00
Entomologist (80/yr @ $15)				1,200.00		1,200.00	1,200.00		1,200.00
Food for training workshops		15,000.00	15,000.00		10,000.00	10,000.00		25,000.00	25,000.00
Agroforestry journal subscription		1,000.00	1,000.00					1,000.00	[illegible]

	1994			1995			TOTAL		
	USAID	FADEMAD	Total	USAID	FADEMAD	Total	USAID	FADEMAD	Total
Agroforestry association fees		200.00	200.00					200.00	200.00
Training cartographer in G.I.S.		1,000.00	1,000.00					1,000.00	1,000.00
Air cargo shipment of equipment	750.00		750.00		200.00	200.00	750.00	200.00	950.00
Motorcycle maintenance	400.00		400.00	600.00		600.00	1,000.00		1,000.00
Soil Analysis (380 samples)	3,600.00		3,600.00				3,600.00		3,600.00
Communications (phone, fax, mail)		480.00	480.00		480.00	480.00		960.00	960.00
Photocopies and reproductions		500.00	500.00		500.00	500.00		1,000.00	1,000.00
Film developing		150.00	150.00		150.00	150.00		300.00	300.00
Technical workshops		750.00	750.00		750.00	750.00		1,500.00	1,500.00
Project Audit	2,000.00		2,000.00	2,000.00		2,000.00	4,000.00		4,000.00
Publication of land use classif.		600.00	600.00					600.00	600.00
Public. of pilot project workbooks				3,000.00		3,000.00	3,000.00		3,000.00
Public. of final project report					600.00	600.00		600.00	600.00
Total	$8,550.00	$30,670.00	$39,220.00	$12,790.00	$18,755.00	$31,545.00	$21,340.00	$49,425.00	$70,765.00
D. SUB-TOTAL	$40,229.00	$84,365.00	$124,594.00	$68,630.00	$26,575.00	$95,205.00	$108,859.00	$110,940.00	$219,799.00
E. Unforseen costs		$6,913.70	$6,913.70		$4,314.50	$4,314.50		$11,228.20	$11,228.20
F. Rotating Capital Fund					$40,000.00	$40,000.00		$40,000.00	$40,000.00
G. GRAND TOTAL	$40,229.00	$91,278.70	$131,507.70	$68,630.00	$70,889.50	$139,519.50	$108,859.00	$162,168.20	$271,027.20

LOGICAL FRAMEWORK

NARRATIVE	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Goal: To support the ecological conservation of the Tambopata Candamo Reserved Zone (TCRZ) through the geographic stabilization of land use by the design and extension of sustainable economic production systems based on participatory land use capability classification of human impacted areas of the TCRZ, which will help to replace generally destructive activities currently practiced by farmers and thus contribute to the conservation of the reserve's biodiversity.	- Diminishing colonization in the TCRZ.	- TCRZ-INRENA reports, satellite imagery.	- Current economic activities in the TCRZ are ecologically and economically unsustainable, negatively impacting conservation. - FADEMAD has sufficient institutional strength to influence farmers' economic practices. - Farmer participation is necessary for the design of acceptable alternative production systems. - Farmers will be able to learn technical skills necessary for natural resource survey and management techniques. - Ecologically and economically sustainable production systems can be designed for the majority of socio-economic and natural environments which farmers experience in the area of the TCRZ. - Markets can be found or developed for the products of alternative production systems. - Farmers will change current destructive practices if acceptable economic alternatives are designed.
	- Diminishing deforestation for agricultural purposes in the participating farmers' parcels.	- Observation and interviews with local farmers by staff anthropologist.	
	- Increase in farmers' knowledge of natural resource management.	- Observation and interviews. - Training of 130 farmers in land use capability survey. - Evaluation of survey forms completed by farmers. - Land use capability classification completed for project area. - Evaluation of extension of land use capability classification results to farmers.	
	- Adoption by farmers of Project designed production systems.	- Evaluation of farmer participation in pilot project design and implementation.	
	- Production systems are economically beneficial to practitioners.	- Economic evaluation of pilot production systems.	
	- Production systems are ecologically sound and sustainable.	- Ecological evaluation of pilot production systems.	
	- Current ecologically destructive agriculture is less commonly practiced.	- Ecological evaluation of pilot production systems. - Observation and interviews with local farmers and staff anthropologist.	

NARRATIVE	END OF PROJECT STATUS	MEANS OF VERIFICATION	ASSUMPTIONS
Purpose: To provide support for FADEMAD to carry out a participatory land use capability classification in the TCRZ, so that it more effectively participates in the planning and execution of sustainable development and conservation activities.	- Land use capability classification completed for 130,000 ha., reflecting the ecological, socio-economic, and anthropological reality experienced by farmers.	- Evaluation of published land use capability classification. - Ground checking of land use capability maps.	- Farmers can be trained to gather consistent data about the land resource necessary for land use capability classification. - Adequate genetic resources can be found to fulfill production requirements for alternative production components. - Farmers will keep adequate production records. - Input costs for alternative components can be kept to a minimum in order to assure adoptability by farmers and access to necessary credit. - Alternative production components will be attractive to farmers as opposed to other economic practices. - Profitable markets exist for goods produced by alternative production components. - Training given to farmers in agro-ecological themes will increase food crop production. - Some alternative production components extended by project will focus on food production.
	- Design, extension, and implementation of two or more alternative production components adapted to local ecological, market, and social conditions.	- Elaborated pilot production component proposals. - Economic and ecologic evaluations of designed production components. - Infrastructure (tree nurseries, certified seed production) in place and production. - Evaluation of production factor records kept by farmers and project staff.	
	- Design of three or more alternative production components adapted to local ecological, market, and social conditions.	- Elaborated pilot production component proposals. - Economic and ecologic evaluations of designed production components.	
	- Participation in on-farm testing of alternative production components by at least 100 farm families.	- Evaluation of project records pertaining to farmer participation and on-farm testing.	
	- Per household income increases at least 20% for participating farm families and per household food security increases for participating farm families.	- Interviews and observations with farmers by staff anthropologist. - Evaluation of production factor data sheets completed by farmers.	

NARRATIVE	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Outputs:			
- Increased ability of FADEMAD to participate in development and conservation activities in Madre de Dios.	- Adequate administration of this project. - FADEMAD actions and statements reflect sustainable development consciousness.	- Audits - Project evaluations	- FADEMAD will continue to represent farmers in Madre de Dios in an efficient, democratic, and non-political manner.
- Land use capability classification of 130,000 ha. in the TCRZ. - Published land use capability classification study with maps (1:30,000) useful for future planning activities for the zone.	- Copy of published land use capability study.	- Ground checking of land use capability study results	- Farmers can be trained to take high quality data.
- Market study detailing economic opportunities for alternative and ecologically produced products from the area.	- Copy of completed market study and success of subsequent project activities based on the study.	- Project evaluations - Evaluations of project activities based on market study	- Markets exist for alternative products.
- 130 farmers trained in land use capability classification survey.	- Farmers pass training examinations. - Land use capability survey data sheets completed by farmers.	- Project evaluations - Staff evaluations of data sheets; follow-up. Project evaluations	
- In place G.I.S. operated by FADEMAD and INRENA useful for future natural resource management planning.			
- Farmer-focused training materials about ecological principles of tropical natural resource management, agro-forestry, IPM, and specific aspects of some production system adapted to the zone.	- Copies of materials developed.		
- Interactive and farmer-friendly computer data base detailing management factors for agroforestry species.	- Copy of interactive data base information and software.	- Project evaluations	- INRENA and FADEMAD will continue to have smooth working relationships.
- Genetic resource production facilities (two tree nurseries and a certified seed production facility).	- Production records of genetic resource production facilities. - Sale of genetic materials and self-sufficiency of production.	- Project evaluations - Project evaluations	
- Implementation by local farmers of at least two alternative production systems.	- Elaborated pilot production component proposals. - Production factor records kept by farmers and project staff.		