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RONCO CONSULTING CORPORATION
MANAGEMENT PLANNERS AND
TECHNICAL ADVISORS

CENTRAL SELVA RESOURCE
MANAGEMENT PROJECT
Project 527 - 0240

PRE-EVALUATION REPORT

FORESTRY, PROTECTION AND
CONTINUOUS LAND USE INVENTORY
COMPONENTS

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- I. ALTERNATIVES FOR THE CONSERVATION OF THE PERUVIAN BIOLOGICAL DIVERSITY.

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1.0 EXECUTIVE SUMMARY

1. CSRM I was planned to promote the integral development of the Palcazu valley (Peruvian Central Selva), with priority to the forestry, protection and adecuated land use capacity components.

2. The valley was completely isolated until the first franciscan missionaries arrived in 1726.

At the end of XIX century the valley suffered the strong impact of "shiringueros" and the new diseases brought by them, during the "rubber fiber", decimated the native population.

During the first four decades of the present century, Yanasha native people migrated from Villa Rica, Paucartambo, and Oxapampa to the valley, when their territories were invaded by colonists.

Between 1958 and 1966, contacts were more intensive due to oil exploration.

3. The execution of CSRM I could be divided in to three periods:

First period: Studies and plannification (1980 - 1982);

Second period: Execution with high political priority (1982 - 1985); and

Third period: execution with lower political priority (1985 - 1988).

4. The execution of the Forestry Component, eventhough its high priority, was performed in a deficient way and goals were accomplished in the lowest percentage in comparison with the others, in spite of the strong support from external assessors.

The proposed forest management systems were only applied in the Cooperativa Forestal Yanasha at Shiringamazù with the sustained yield by systematic clearcutting.

The completion of the soils map was almost oversighted as well as the land capacity map, the forestry inventories, the forest management plan; training and extension, research and credit activities.

5. Protection Component goals were totally accomplished with few funds and national assessors.

The Yanachaga-Chemillen National Park and the San Matias - San Carlos Protection Forest were established. Park resources inventory was initiated and advanced. Park Management Plan was finished and a control system for the protected areas was established.

6. The Continuous Land Use Inventory Component was completed satisfactorily. PEPP implemented a Cadaster Office and the Forestry District Office. All the parcels of land owners - colonists and natives - were titled.

The Public Register local office and the permanent register system were not possible to implement due to legal reasons.

The continuous mapping of actual land use was not executed due to the existing and not solved conflict among the three maps prepared by: TOSI, 1981 (1:100,000 scale); ONERN, 1981 (1:25,000 scale), and PEPP-Cadaster (1:10,000 scale).

7. To continue the Project or to execute another project in the Peruvian Selva, the following aspects must be taken in mind:

a. The Forestry Component must be the key-piece and it must be executed in a closer coordination with the other components, specially those which compromise land use, agrolivestock development and protection.

b. Biodiversity conservation and natural resources management components should be included into the Forestry Component to secure an harmonious and integrated execution of all them.

c. Land Use Capacity Component should be executed in close relation with the Forestry Component in order to secure the greatest respect to protection and forest lands.

d. The Project high level national technicians and local personnel must belong to the forestry profession or related specialties. Otherwise, it could not be secured the respect of the forestry principles, neither the biodiversity protection, nor the use of land

according to its capacity.

e. All the Project personnel must be trained in Project objectives, goals, and strategies in order to understand and execute it with a real and clear knowledge of the proposed strategies.

f. Training and capacitation of Project personnel and all the Project beneficiaries should be considered as a different component with its own financing sources. Deficiencies in the execution of this activity compromise the whole Project execution. It is recommended to prepare more didactic materials to support the Project objectives, goals, strategies, and technologies proposed.

g. Project execution should maintain a properly distributed attention to both, colonists and native beneficiaries, avoiding any kind of discrimination or privileges.

h. In regard to technical assistance (specialists or assessors) the following aspects should be taken in mind:

- * Specialists and assessors should be selected having in mind their experience in project execution;

- * National professionals with experience should be selected instead of external assessors without experience;

- * It is of the most importance to have a "team leader" who should assume the responsibility to supervise the team performance and the accurate execution of the proposed goals;

- * Assessors team should be integrated to the Project national personnel team;

- * A deeper and sustained supervision on assessors / specialists performance should be done; and

- * Intermittance in assessors work time periods must be avoided.

i. The financial agency should maintain a closer coordination or supervision to the Project to secure that funds are properly used to perform the proposed goals.

j. The reports and studies prepared by assessors should be synthesized and known by the whole Project team.

2.0 BACKGROUND TO THE PROJECT AND TO THE FORESTRY, PROTECTION AND CONTINUOUS LAND USE INVENTORY COMPONENTS.

2.1 Background to the Project

2.1.1 Historical summary of the Palcazú valley

For many thousand years the Palcazu Valley was occupied only by groups of the Yanesha (or Amuesha) Native Community, who have a strongly ecological relation with their environment and practiced a sustained management of the natural resources of the valley based on fishing, hunting and long term fallowing practices with native crops.

The first contact with the "european culture" begun in the year 1726. Franciscans missionaries penetrated from Pozuzo to the Mayro river, in the north of the valley, crossing the Yanachaga range to explore the lower Palcazu and the Pachitea rivers looking for a connection way to the Ucayali river. In this time begun the introduction of foreign crops as sugarcane, banana and papaya.

Between 1742 to 1754 occurred the Juan Santos Atahualpa revolt. During this period the missionaries decided to move Yanesha people from Pozuzo to Huánuco. Part of the natives escaped from Pozuzo and reached the Palcazu valley and the lower Pichis valley.

In 1846, with the arrival of the first steamship from Iquitos to Puerto Mayro, explorations of Mayro and Chuchuras rivers were initiated and the first contacts with the native indians living there were made.

In 1859 Pozuzo was colonized for the second time with people brought from Austria and Germany. In 1881 people from Pozuzo started the colonization of Oxapampa valley; in 1870 the Paucartambo valley and in 1924 the Entaz valley, known today as Villa Rica, was colonized. In 1892 was opened the "Via Pichis", a trail between La Merced (founded en 1869) and Puerto Bermúdez. New colonists forced most of the Yanesha people to migrate from Paucartambo, Entaz, Oxapampa and surrounding areas to the Palcazu valley, when they lost their traditional lands.

At the end of XIX century "shiringueros" arrived to the Palcazu valley. Cuculiza family obtained a 25,000 hectares rubber concession contract from the government between Mayro and Iscozacin. Cuculberta family obtained a land concession in the southern part of the valley between Iscozacin and Loma Linda. Contacts with native people were intensive and new diseases, as measles, caused a high incidence of deaths.

Before 1945 the only inhabitants of Iscozacin were Yanesha natives practicing swidden cultivation with long term fallows. In the northern part of the valley (Mayro and Chuchuras) there was a very little group of europeans. In that year existed three distinct populations of Yanesha Indians living at Chuchuras, Loma Linda and Villa America (BAYLEY, 1985).

In 1945 a Japanese colonist arrived in the area known today as Iscozacin, and chose this place to stablish the first native school. At this time arrived the first German colonist, Fernando Westreicher, to Iscozacin. The school was completed in 1947 and the Yanesha people traveled from all surrounding areas to attend the school. They began to settle permanently in Iscozacin. This change in settlement pattern caused a change in their agricultural practices as well (BAYLEY, 1985). At this time began a more intensive cattle raising in the valley.

In 1954 Juan Frantzen settled on the east bank of the Palcazu River and constructed a 500 meter airstrip to get his cattle to marked via an airship company named SASA, property of the cattle breeders.

The Palcazu Valley experienced its first major encounter with the industrialized world when the Cerro de Pasco Company arrived in 1958 and chose Iscozacin as the location of their base camp during the years of oil exploration in the surrounding area. The Company expanded the existing airstrip from 500 to 1.500 meters and brought heavy equipment (bulldozers, dump trucks, tractors, and transport vehicles) and constructed quarters for some of 150-200 workers. The Company introduced the modern medicine and medical facilities and provided medical assistance to all persons in the area. The Company left the valley in 1966 and with it went 99% of the people affiliated (BAYLEY, 1985).

Between 1960 and 1980 arrived to the valley more colonists and the cattle breeders expanded their pastures and transported the meat to San Ramón via SASA and to Lima by trucks.

During the military government (Military Revolution, 1968-1980) the Ministry of Agriculture begun studies to develop the Central Selva (Plan de Desarrollo de la Selva Central), including the Valleys of Palcazu and Pichis, and studies to establish a Empresa Forestal de Propiedad Social in the Mayro and Codo del Pozuzo area.

In July 1980 the new elected democratic government of President Fernando Belaúnde Terry, created Special Projects in the Peruvian High Selva and continued the construction of the Carretera Marginal de la Selva between Pucallpa and Villa Rica, along the Pachitea, Pichis and Palcazu valleys.

In October 1980 was created the Pichis-Palcazú Special Project (Proyecto Especial Pichis-Palcazú, PEPP), as a governmental agency for the development of the Central Selva of Peru.

2.1.2 The Central Selva Resources Management Project

In the year 1981 the USAID supported the studies for a project in the Palcazu valley through JRB Associates. Eighteen experts studied the valley and prepared a proposal for a development project. The studies were referred to environmental assesment; Palcazú social analysis; colonization systems analysis; fish resources; land use capacity; ecological evaluation; management of fauna and wildlands; plant communities and plant resources; forestry potential; health assesment; governmental institutions; climate and hydrology; agricultural potential and natural resource management; amuesha native communities; animal production systems; water and related resources.

The Central Selva Resource Mangement Project was approved and signed on May 12, 1982, and the Project Authorization was signed on June 25, 1982.

According to the Project Paper the project goal was "to increase the employment and income of the rural population of Peru by increasing production and total resource productivity" and "to increase and diversify agricultural production in the Peruvian high jungle".

The Project purpose was "to plan and execute a development project for sustained production in the Palcazu valley, and thereby test and institutionalize a methodology for the long-range management of Peru's high jungle human and natural resources. At the end of the Project a capacity will be established within the GOP to design and carry out similar regional development projects".

According to the Project Paper the Project comprises ten activities. Eight activities focus on productive development components in the Palcazu valley: forestry, agricultural development, livestock development, protection, continuous land use inventory, health and environmental sanitation, feeder road location planning and road maintenance, and communications. The two remaining activities, local project management and regional development policy support, focus on institutions.

It was recommended a loan \$ 18,000,000 to the Peruvian Government and a \$ 4,000,000 grant under the following Financial Plan (Thousands of U.S.Dollars):

Project Components	A. I. D.		GOP	TOTAL
	Grant	Loan		
I. Project Management/PEPP	497	797	865	2159
II. Forestry	910	4895	890	6695
III. Agricultural Development	368	3628	1982	5978
IV. Livestock Development	-	683	198	881
V. Protection	110	147	158	415
VI. Continuous Land Use Invent.	88	196	173	457
VII. Health & Environmental San.	-	465	61	526
VIII. Feeder Road Studies & R.M.	218	2581	1395	4194
IX. Communications	-	360	50	410
X. Regional Development Policy	646	1980	500	3126

3.0 OBJECTIVES AND GOALS OF THE FORESTRY, PROTECTION, AND CONTINUOUS LAND USE INVENTORY COMPONENTS

3.1 FORESTRY COMPONENT

3.1.1 Natural Forest Management Models

The objective of the Forestry Component, according to the Project Paper, was to establish two management models for the natural forest:

1. Natural forest management for sustained yield by systematic clearcutting (NFMSY). This model "will be the predominant one and engage the largest number of people", on the basis of individual small colonist (with a family management unit), native community (with a collective management unit), and industrial management unit.

2. Natural forest management of rubber and high-value timber species by small-group selection on white sand soils. Also on three basic variants: individual small colonist, native community, and industrial management unit.

It was considered that the natural forest management system could be conducted on up to 50,000 hectares, including 17,000 hectares of native community lands, mostly low hill lands with red clay soil classified as suitable only for forest production on a permanent basis.

The approximately 17,000 hectares of native community lands were considered to be operated communally; the rest of the area to be divided into industrial units of 4200 hectares and into family-sized units.

3.1.2 Pre-Production Activities

Prior to the establishment of the forestry production units, it was considered previous survey work as:

1. Completion of the existing soils map to include those portions of the valley and foothills of the Yanachaga range not included in the previous studies.

2. Completion of land capability map for unmapped portions of the valley plus verification of details on the existing map by on-the-ground checks.

3. Pre-cruise of timber stand and stocking inventory on those forests included in the C (agroforestry, permanent crops), F1 (high production forestry) and F2 (low production forestry) capability classes, stressing taxonomic identification of all common tree species and re-evaluation of the primary stand species based upon precise dendrological identifications.

4. Survey, planning, and layout of logging trails which will connect production units to the road system being constructed in the valley.

5. Search for optimal locations for service and machinery pool, timber processing plants, concentration and sales yard, and facilities.

3.1.3 Forest Management Plans

It was considered that the major blocks of land for forestry management will be located upon a map of the region, with boundaries of each unit, primary and secondary access roads, possible fluvial routes, and proposed administrative and management centers.

On the basis of the map and marked boundaries, Project staff and each farmer will draw up a simple management plan, with specific location for each year's total harvest, harvesting sequence and extraction routes, and a plan for intermediate cuttings and improvement cuttings in advanced regeneration.

3.1.4 Training and Extension

The Project Paper considered training for all technical and administrative cadres, as advance training and yearly refresher on-the-job training, technical assistance, and periodic help with problems in farm management and silvicultural and animal management through a permanent forestry extension program run by the Project.

3.1.5 Research activities

It was considered in the Project Paper research activities to determine the following aspects:

1. Optimal width of clearcut strips and diameter of group selection openings in high canopy to obtain desired species regeneration.
2. Optimal length of rotation by forest type and most economic end product, and species specific regrowth rates.
3. Flowering and fruiting chronologies in desired species: relation to timing of harvesting and extraction operations and to climatic conditions, and plant-animal relations in pollinization and seed dispersal.
4. Comparison of burned and unburned strips vis-a-vis regeneration, subsequent growth rates, the species composition of natural regeneration, and the effects on seedling and stump sprout vigor.
5. Mycorrhizal and rhizobial relations in tree growth and soil fertility.
6. Stump height in relation to sprouting from establishment root stocks, and control of species composition in regeneration by selective height of stumps in felling.
7. Effects of extraction methods on regeneration: oxen skidding versus cable systems, articulated skidders, and tracked vehicles.
8. General research on species-specific wood utilization, draying, and preservation.

3.1.6 Production of Rubber and High-value Timber Species

To meet this activity it was considered to carry out more intensive local surveys in order to plan the rational use of the white sand soils with rubber trees (*Hevea* sp.) and tornillo (*Cedrelinga castaniformis*).

3.1.7 Credit

1. It was considered to open a credit line in the Industrial Bank (BIP), San Ramon Office, for forestry extraction and processing activities, as well as other commercial activities with \$3,000,000 of Project funds.

2. The Project should also provide \$44,000 to finance a chainsaw rental program and \$560,000 to finance the purchase of oxen teams and related tools for forestry extraction activities.

3.1.8 Inputs

48 months of long-term technical assistance and 48 months of short-term technical assistance to perform tree identification and set up forestry inventory systems and to advise on tropical silviculture and natural forest management.

Equipment financing for six product processing centers through a \$3 million line of credit.

3.2 PROTECTION COMPONENT

3.2.1 Objectives

According to the Project Paper the principal objective of this activity was "to designate and protect those lands in the Palcazu watershed whose only land use capacity is for protection".

The direct physical benefits of this activity are protection of soil from erosion and preservation of potentially, endangered species and ecosystems.

3.2.2 Establishment of Yanachaga National Park and San Matias Protection Forest.

The goal was to establish a National Park in the Yanachaga range and a Protection Forest in the San Matias range through PEPP personnel and Project-funded technical assistance.

3.2.3 Park Inventory and Management Plan

It was also considered an inventory of the park's resources, specially flora, fauna, and ecosystems and the development of a management plan for the park.

3.2.4 Management Responsibilities

It was considered that the administration of the National Park and the Protection Forest should be under the jurisdiction of the PEPP in coordination with the peruvian INFOR.

3.2.5 Inputs

A short-term specialist for six months in park management and development and short-term specialists for technical assistance in park inventory, management plan and tourism and recreation.

3.3 CONTINUOUS LAND USE INVENTORY COMPONENT

3.3.1 Objectives

The objectives of this activity were: to provide security of ownership to land holders and holders of long-term forest concessions; to match land use to land capability; to determine location and size of new parcels; to identify areas for potential development and decide the form development will take; and to assist in development evaluation.

3.3.2 Continuous Plotting and Titling of Parcels

The goals of this activity were:

1. To continue the program of cadastral surveying and titling executed by PEPP, OGCR and ORP;
2. To establish a cadastral field office in the Iscozacin Project Office by the Ministry of Agriculture;
3. To establish a sub-office of Public Register in Iscozacin by the Ministry of Justice;

4. To establish a permanent land registry system for registration of all changes in parcel boundaries and/or land rights to protect residents, specially Amuesha native communities from invasion of their title lands.

3.3.3 Determining_and Mapping_Land_Use_Capability

A small scale map must be prepared to determine in detail land use capability and provide to each owner of a parcel with this map.

3.3.4 Continuous Mapping_of_Actual_Land_Use

The land use map and the land capability map will be continuously updated through field observation and/or aerial video imagery.

3.3.5 Inputs

Eight months of short-term technical assistance by a specialist in land use capability (US\$ 88,000 - grant funds).

Implementation of the office and salaries for personnel (US\$ 196,000 - loan funds).

4.0 PROJECT EXECUTION

4.1 GENERAL CONSIDERATIONS

In the execution of the CSRM I it is possible to distinguish three periods:

1. The first period running from October 10, 1980 to June 1982, previous to the beginning of the USAID financial support. During this period the PEPP was created and some planning works and recolection of information about the Palcazu valley as well as mapping of the native communities and cadaster of the land owners were initiated. From July 1981 to December 1981 JRB Associates carried out the ground studies of the valley and prepared the Project Synthesis Paper.

2. The second period running from June 1982 to July 1985 comprised the time of Project execution during the government of Accion Popular Party.

3. The third period was between August 1985 to September 1988, and comprised the Project execution during the government of APRA Party, continuing until today.

During the first and second periods the Project has a strong support from the Peruvian government, directly from the President Fernando Belaunde Terry, and a high priority for his financiation.

4.2 ACCOMPLISHMENT OF THE OBJECTIVES AND GOALS OF THE FORESTRY COMPONENT

4.2.1 Implementation of the Natural Forest Management Models

The Project Paper considered two models for the management of the natural forests of the Palcazú valley: natural forest management for sustained yield by systematic clearcutting (NFMSY), the predominant one, and natural forest management of rubber and high-value timber species.

It was also considered to implement the two models on the basis of individual small colonist, with a family management unit; native community, with a collective management unit, and industrial management unit.

1. The NFMSY model by systematic clearcutting was implemented only partially.

a. On the basis of individual small colonist, with a family management unit: there were some ideas, but any parcel management plan was implemented. It was made a forestry inventory in a parcel of Luis Frantzen E. and some recommendations for its management.

b. On the basis of native community with a collective management unit: it was implemented in the Shiringamazú Native Community and was initiated the management of the forestry production through the Cooperativa Forestal Yanesha (CFY). Some general evaluations were made in the community lands of other native communities.

In Shiringamazú was established a Processing Center with sawmill, preserving of wood and charcoal production.

The Forestry Management Plan for the Shiringamazú Native Community production forest was completed.

c. Industrial management units: the study of UNA-LA MOLINA, 1981, and LOPEZ ET AL., 1985, proposed the implementation of some industrial plants in the valley. No one was implemented.

2. The second model of natural forest management of rubber and high value timber species was not implemented.

4.2.2 Pre-Production Activities

The following activities were considered:

1. Completion of the existing soils map to include those portions of the valley and foothills of the Yanachaga range not included in the previous studies: not completed and not implemented.

2. Completion of land capability map for unmapped portions of the valley plus verification of details on the existing map by on-the-ground checks: not completed and not implemented.

3. Pre-cruise of timber stand and stocking inventory on those forests included in the C, F1, and F2 capability classes, stressing taxonomic identification.

Some forestry inventories was completed:

- * Shiringamazù - Puerto Herrera, along the marginal road.
- * Investigation Strip I in Iscozacín.
- * Permanent Control Parcel in Puerto Mayro.
- * Parcel of Luis Frantzen in Iscozacín.

The systematic determination of the forestry species was advanced but not finished.

4. Survey, planning, and layout of logging trails which will connect production units to the road system being constructed in the valley: it was made only for the Shiringamazù Native Community production forest.

5. Searches for optimal locations for service and machinery pool, timber processing plants, concentration and sales yard, and facilities: accomplished only for the CFY in Shiringamazù.

4.2.3 Forest Management Plans

1. It was considered that the major blocks of land for forestry management will be located upon a map of the region, with boundaries of each unit, primary and secondary access roads, possible fluvial routes, and proposed administrative and management centers.

This activity was not accomplished.

2. It was also considered that on the basis of the map and marked boundaries, Project staff and each farmer will draw up a simple management plan, with specific location for each year's total harvest, harvesting sequence and extraction routes, and a plan for intermediate cuttings and improvement cuttings in advanced regeneration.

This activity was accomplished only for the Shiringamazù Native Community production forest.

4.2.4 Training and Extension

It was considered a permanent forestry extension program with training for all technical and administrative cadres, as advance training and yearly refresher on-the-job training.

This activity was accomplished partially. The major efforts were made with the CFY in Shiringamazú.

The training of all the Project staff, technical and administrative cadres was partially accomplished.

4.2.5 Research Activities

The Project Paper considered eight research activities:

1. Optimal width of clearcut strips and diameter of group selection openings in high canopy to obtain desired species regeneration.

The accomplishment of this research activity was initiated in three cutting strips. It is a long-time research.

2. Optimal length of rotation bay forest type.

This research was initiated and proposed as a long-time period.

3. Flowering and fruiting chronologies in desired species.

This research was initiated with collection of some data, and interrupted by security measures in the area.

4. Comparison of burned and unburned strips vis-a-vis regeneration.

This research was initiated with some data collection in cutting strips.

5. Mycorrhizal and rhizobial relations in tree growth and soil fertility.

This research was not initiated.

6. Stump height in relation to sprouting

Initiated with collection of some data.

7. Effects of extraction methods on regeneration.

Initiated with oxen skidding without comparison with articulated skidders, tracked vehicles, and cable systems.

8. General research on species-specific wood utilization, drying, and preservation.

Initiated in the CFY production center.

4.2.6 Production of Rubber and High-value Timber Species

The considered activity of more intensive local surveys in order to plan the rational use of the white sand soils with rubber trees and "tornillo" was not accomplished.

4.2.7 Credit

1. The considered activity for opening a credit line (US\$ 3,000,000) through the BIP-San Ramon Office, for forestry extraction and processing activities, as well as other commercial activities was not accomplished.

At the beginning of the Project contacts with the BIP head office in Lima were made but the concretion of the credit line was not accomplished.

2. The considered financing for a chainsaw rental program (US\$ 44,000) and for purchase of oxen teams and related tools for forestry extraction activities (US\$ 560,000) was used for the CFY.

4.2.8 Inputs

1. The considered 48 months of long-term technical assistance and 48 months of short-term technical assistance was accomplished through the Contract with the Tropical Science Center of Costa Rica.

2. The equipment financing for six product processing centers through a BIP credit (US\$ 3,000,000) was not accomplished.

4.3 ACCOMPLISHMENT OF THE OBJECTIVES AND GOALS OF THE PROTECTION COMPONENT.

4.3.1 Establishment of a National Park and a Protection Forest

1. The studies for the establishment of a National Park in the Yanachaga range were initiated in 1983 and the legal tramits ended in 1986 with the establishment of the Yanachaga-Chemillén National Park, by Decreto Supremo No 068-86-AG (August 29, 1986) over an area of 122,000 hectares.

2. The studies and official tramits for a Protection Forest ended in 1987 with the establishment of the San Matias-San Carlos Protection Forest by Resolución Suprema No. 0101-87-AG/DGFF (March 20, 1987) over an area of 145,818 hectares.

3. Bordering the National Park was created the Yanesha Communal Reserve (Resolución Suprema No. 0193-88-AG/DGFF; April 28, 1988) over an area of 34,744.70 hectares, as a buffer zone between the lands of the native communities and the National Park.

4.3.2 Park Inventory and Management Plan

1. The considered activity for the inventory of the national park's resources (flora, fauna, and ecosystems) was accomplished by:

* Inventory of the birds of the Yanachaga range by Dr. John O'Neill and his group the Louisiana State University in 1982. The inventory determined 427 bird species.

* The biologists of the National Park initiated also an inventory of other fauna groups and ecosystems. The preliminary results showed 57 species of mammals, 16 of reptiles, 15 of amphibians, and 31 of fishes. The conclusions about ecosystems are in the Management Plan of the park.

* The inventory of plants of the Park was made by Dr. Robin Foster of the Field Museum of Chicago, who identified 154 families, 869 genus and 2,584 species of plants. Dr. Blanca León, of Javier Prado Museum in Lima, identified 29 genera and 77 species of ferns.

2. The Management Plan (Plan Maestro) for the National Park was completed in 1984 and approved by the Dirección General Forestal y de Fauna, Ministry of Agriculture (Resolución Directoral No. 035-87-AG-DGFF, September 2, 1987).

4.3.3 Management Responsibilities

The Project Paper considered that the administration of the National Park and the Protection Forest must be under the jurisdiction of PEPP, who established a Protection Unit in San Juan de Cacazú, with personnel: a biologist, as head of the office; two forestry engineers, and two guards.

The head of the Protection Unit was recognized as the Chief of the National Park by the Ministry of Agriculture.

AID and The Nature Conservation International habilitated through the Peruvian Foundation for Conservation of Nature (FFCN) a grant of US\$ 225,000 for the National Park development. With these funds were constructed the Park Office and Interpretation Center in Oxapampa; the Ecological Station in Paujil river; were purchased two 4WD vehicles, two boats, and radio equipment, and contracted four guards for the park.

4.3.4 Inputs

A short-term specialist (considered for six months) in park management and development was contracted for four months and conducted the establishment of the National Park and the the Protection Forest. This specialist prepared the Management Plan of the park also.

Other short-term specialist was contracted for two months and prepared the study for the development of tourism and recreation activities in the park.

4.4 ACCOMPLISHMENT OF THE OBJECTIVES AND GOALS OF THE CONTINUOUS LAND USE INVENTORY COMPONENT.

4.4.1 Continuous Plotting and Titling of Parcels

1. It was considered that PEPP, OGCR and ORP will continue the program of cadastral surveying and titling.

PEPP, in coordination with the Regional Office of Pasco (Región Agraria de Pasco) and the OGCR, continued this activity finishing the titulation of all colonists and native communities of the valley. Every land owner received an official title in the name of the Peruvian State.

The titles were registered in the Public Register Office of Huancayo.

2. It was considered that the Ministry of Agriculture will establish a cadastral field office in the Iscozacín Project Office.

The PEPP signed an agreement with the Regional Office of the Ministry of Agriculture in Cerro de Pasco to implement a cadaster office (Unidad de Catastro Rural) in Iscozacín. This office begun to work in 1982.

The agreement stated that the Región Agraria should assume the Cadaster Office as its own and continue the field work. PEPP collapsed since January 1989 and the lack of funds in the Región Agraria made impossible to assume this office with its personnel and activities.

3. It was considered also that the Ministry of Justice will establish a sub-office of Public Register in Iscozacín.

This activity was not implemented due to legal regulations of the Public Register System. In fact, the main office is located in Lima and exist Regional Offices. In Huancayo is located the Regional Office which serve the whole Central Peru (Departments of Junin, Pasco and Huancavelica). In the capitals of Provinces, as Oxapampa, exist Notary Publics who are in charge of registration tramits with the Regional Office. Iscozacín, only a District, has not a Notary Public; people has to travel to Oxapampa or directly to Huancayo.

4. It was considered the establishment of a permanent land registry system to register all changes in parcel boundaries and/or land rights.

The Cadaster Office of PEPP in Iscozacin assumed this task partially but a permanent and adecuated system was not implemented.

4.4.2 Determining and Mapping Land Use Capability

The Project Paper considered the elaboration of a small scale map to determine in detail land use capability and provide this map to each owner of a parcel.

This map was prepared by the cadaster office and provided to each owner with the official title of his land. The map is in a scale of 1:10,000 based on aerial video imagery and prepared by the General Office for Cadaster in Lima (OGCR).

4.4.3 Continuous Mapping of Actual Land Use

It was considered that the land use map and the land capability map will be updated continuously through field observation and/or aerial video imagery.

Project objective was to use the land by its capability and to control protection and forestry lands from invasion of colonists for agrolivestock activities.

To reach this objective the basic map should be the land use capability map over which, the land use map or the distribution map of the land should be prepared (this land distribution map include colonists, native communities and new colonists).

Two basic maps were prepared to determine the land capability:

1. "Map of Major Land Use Capacity", at 1:100,000 scale, prepared by J. Tosi (1981).

This map calculated the following percentages of projected use:

TOTAL AGRICULTURE	35 %
clean cultivation	8 %
pasture	13 %
permanent crops	14 %
TOTAL PRODUCTION FORESTRY	46%
high production forestry	20 %
low production forestry	26 %
PROTECTION FORESTS	16 %
RIVER BEDS	3 %

2. "Mapa de Suelos y Capacidad de Uso Mayor, Zona del Rio Palcazù", prepared by ONERN (1981), at a scale of 1:25,000.

This map differs from the Tosi-map.

3. The Unidad de Catastro y Titulaciòn at Iscozacìn used base maps at a scale of 1:10,000 for delineating areas of land-ownership and determining the land-use categories for any plot or parcel.

This map has strong differences in comparison with those from Tosi and ONERN.

The three maps were never concorded in an accurate technical map with the intervention of J. Tosi, ONERN and cadaster personnel.

The field and laboratory work to update continuously the land use map and the land capability map was not done.

4.4.4 Inputs

1. The Project Paper considered eight months of short-term technical assistance by a specialist in land use capability.

This assistance was accomplished through the contract of Rafael Bolaños as Specialist in Land Use Capacity.

2. It was also considered the implementation of the office and salaries for the personnel of the Cadaster Office at Iscozacìn.

This activity was accomplished and the cadaster office at Iscozacán was the best implemented in the whole PEPP.

5.0 CONCLUSIONS. "LESSONS LEARNED"

5.1.1 General Conclusions

1. The CSRM I Project was based on a strategy for the rational use of the natural resources and the conservation of the environment of the Paicazu valley. The objectives and goals of the Forestry, Protection, and Continuous Land Use Inventory Components are directly related to this strategy and has the highest priority in the Project Paper and in the financing plan.

It was the first development project in Peru which emphasized the environmental component, the rational use of resources and native communities.

2. Project execution has two periods clearly defined:

First period: 1980 - 1985 (July): Acción Popular Party government.

Second period: 1985 (August) - up to date: APRA Party government.

During the first period the Project had direct support from the highest political levels of the government and had a relevant financial priority. During this period the construction of the Marginal Road to Iscoracin had priority and support as well as cadastral and land titling activities.

During the second period political and economic support diminished strongly and was characterized by a major support to Native Communities.

5.1.2 Conclusions Related to the Forestry Component

1. The Forestry Component had the highest priority under the financial and strategical point of view within the Project conception.

Assigned funds, from grant and loan, were the most relevant for this Component. The assigned goals also showed the high priority given to it.

2. The Forestry Component was strongly interrelated with those of Protection and Continuous Land Use Inventory and, in lower degree, with the Agricultural, Livestock and Social Components.

Consequently, it was expected that the execution of the forestry component ought to consider a close coordination with the rest of them to assure the success of objectives and goals.

3. This component had the strongest support in external assessors with 48 months - in the whole - of long-term technical assistance. Their amount of reports are the most numerous of all other components.

4. Considering the execution of goals foresaw by the Project Paper, the Forestry Component shows a poorer accomplishment and it does not has an adecuated relation with the inversion amount nor with the number and work-time of assessors.

This aspect must be analized carefully to search its reasons.

To determine these causes at present, all the parts involved (USAID, PEPP, TSC and beneficiaries) should meet together. In part, it was possible to reconstruct the whole scope using the experience and checking out the assessors written reports.

Causes could be the following:

a. In regard of PEPP:

* Lack of counterparts, short or limited experience of them and lack of continuity of the professional staff in the Forestry Unit.

* Lack of understanding of the real dimension of the Forestry Component within the whole Project scope.

* Administrative slowness to provide enough funds at the programmed time and the required equipment.

b. In regard of assessors:

*Lack of a team leader who conduct the group to develop a coherent and harmonious work in order to serve as bridge with PEPP in Iscozacin. It has been noted that assessors works individually, acting under their own judgement.

* It has been noticed a poor experience of assessors in development projects works. Reports shows that, or they were jung professionals or they were more scientists than executives or they

did not know the socioeconomic reality of the valley and, therefore, they should have spent a longer period of adaptation and contact with that reality.

* Too short permanence of assessors in the area due to the contract system that established separated periods of work. This system was based on the idea that counterparts should continue the goals execution when assessors were not in the area. This plan was shortly accomplished.

* A poor integration of the assessors team with the PEPP Forestry Unit staff. Here, capacitation should have played an important role. Possibly, the PEPP staff did not know fully all the objectives and goals of the Forestry Component and its interrelations. It could have been a communication problem.

c. It has been noted little pressure from the USAID part to reach the foresaw goals through more continuous evaluations.

5. Training and extension activities did not received an accurate attention.

Project cadres did not received enough training and it was not carried out linked with the work, as a whole.

Extension in technical aspects in the a general level, between colonists and natives, was not intensive. There was a lack of didactic materials on land use, forestry management, etc.

CFY implementation permitted to improve the situation but it was concentrated in one objective and one place only.

Colonists were the group who received the lesser attention in training aspects eventhough they were the most accesible subjects to receive didactic materials.

Possibly, deficiency in this aspect had their roots in the lack of integration among the different Components of the extension and training program. Leadership for this activity was demanded by the Social Development Unit, by the Agrolivestock Unit, and by the Forestry Development Unit. The most logic way should have been the integration of the three activities in a united program.

6. Most of the goals were almost or totally oversights. Causes could be related to the need of a longer period of time for the implementation of the activities. On the other hand, the period established to collect data was too long.

The most oversighted goals were the following:

- * Completion of the soil map in coordination with the Land Use Component.
- * Planification of the forest use and forest management plans.
- * Investigation.
- * Credits for forest resources use.

7. The only goal accomplished completely was the 48 months/man contracts to count with the technical assessors.

5.1.3 Related to the Protection Component

1. Goals for this Component were accomplished in a 95 % with relatively few funds and few personnel.

2. Months/man for technical assistance were only used in a 60 % and only national experienced assessors were contracted.

5.1.4 Related to Continuous Land Use Inventory

1. PEPP has accomplished its activities satisfactorily with the implementation of the Cadaster Office in Iscozacin, the Forestry District of Palcazú, the total titulation of the colonists and native communities of the valley, and the preparation of the small scale map (1:10,000) for each parcel.

2. The implementation of a sub-office for Public Register in Iscozacin was an activity impossible to implement due to legal reasons.

3. The continuous mapping of the actual land use and the update of the land use map and the land capacity map was an unsolved problem due to the lack of coordination among the involved parts: PEPP, Ministry of Agriculture, ONERN and J. Tosi.

The three maps prepared were not concordated and the work remained paralyzed.

The existence of three different land capability maps (Tosi, ONERN and PEPP-Cadaster) originated a conflict. It could have been posible to reach a concordated solution to avoid it with the intervention of the technical assessor.

6.0 RECOMMENDATIONS

To continue with the CSRMI or to execute new development projects in the Peruvian Selva it is convenient to take notice of the following aspects:

1. The Forestry Component must be the key-piece and must be executed in a closer coordination with the other components, specially all those which compromise land use, agrolivestock development and protection.

It is not enough to plan the higher priority to the Forestry Component, as was considered in the CSRMI plan, but also to remark with the same priority the Project execution as a whole.

2. Biodiversity and natural resources components should be included into the Forestry Component to secure an harmonious and integrated execution of all them.

3. Land use capacity component must be executed in close relation with the Forestry Component in order to secure the greatest respect to protection and forest lands.

4. The Project high level national technicians and local personnel must belong to the Forestry profession or related specialities. Otherwise, it could not be secured the respect of forestry principles, neither the biodiversity protection, nor the use of land according to its capacity.

5. All the project personnel must be trained in project objectives, goals and strategies in order to understand and execute it with a real knowledgement of the proposed strategies.

6. Training and capacitation of the Project personnel and all the Project beneficiaries should be considered as a different component with its own financing sources. Deficiencies in the execution of this activity compromises the whole Project execution.

7. Project execution must maintain a properly distributed attention to both, colonists and natives beneficiaries, avoiding any type of

discrimination or privileges.

8. In regard to technical assistance (specialists or assessors) the following aspects should be taken in mind:

a. Specialists and assessors should be selected with responsibility having in mind their experience in projects execution and their knowledgement of the project area.

b. It is recommended to choose experienced national assessors instead of external unexperienced assessors.

c. It is recommended to have a "team-leader" who must assume the responsibility to supervise the team performance and the execution of the proposed goals.

d. Assessors team must be integrated to the national project personnel team. This aspect must be a rule to avoid that assessors work under their own judgement.

e. Assessors and national personnel must be trained in project objectives, goals, and strategies.

f. A deeper and sustained supervision on assessors/specialists performance must be done.

g. It is recommended to avoid intermitance in assessors work-time periods. Maybe, it could be permitted only in case that the national team executes project goals in assessors absence.

9. The financial agency must maintain a closer coordination with the project to secure that funds are properly used to performe proposed goals.

10. It is necessary to synthetize and let the whole project team know the studies and reports prepared by the assessors team.

One way to accomplish it could be periodic meetings with all the project personnel where every report's author explains his work, promoting discussions to enrich the meeting. Under this system, all the numerous reports could be known and become useful.

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ATTACHMENTS

ATTACHMENT I: ALTERNATIVES FOR THE CONSERVATION OF THE PERUVIAN
BIOLOGICAL DIVERSITY

1.0 GENERAL CONSIDERATIONS

In 1987 a working team of Development Alternatives, Inc. made a serious study about AN ASSESSMENT OF BIOLOGICAL DEVERSTY from Peru for AID. The team was integrated by David Gow (DAI), Kate Clark, John Earhart (WWF/D), Marty Fujita (AID/W), Jan Laarman (TR&D), and Gregory Miller (AID/W).

This study makes a wide revision of the following aspects related to Peruvian biodiversity:

1. The present status on conservation: considering the threats to biological diversity; the designated protected areas; the economic aspects of biodiversity; consumption and sale of wild plants and animals; investments in germplasm banks; investments and returns in natural forest management; non-consumptive wildlands uses, as tourism, and distribution of benefits and costs.
2. The impact of development activities: special projects in the High Selva; the Central Selva Resource Management Project; causal factors in tropical deforestation; structural factors; political commitment; competing paradigms, and sustainability and institutional capability.
3. The endangered plant and animal species in Peru: endangered animals; major issues surrounding the maintenance of faunal diversity, and endangered plant species and habitats.
4. The conservation of economically important species and germplasm: economically important plants; economically important timber trees; domesticated plants; germplasm banks of Native Andean Cultivars; native grass species; economically important wildlife, and marine resources.
5. The institutional context for conservation in Peru: relevant laws and resolutions; international treaties and conventions; DGFF and the reorganization of the Ministry of Agriculture; the Tropical

Forestry Action Plan; academic institutions; international agencies, and private international support.

This study prepared a strategy and recommendations for AID to support the conservation of the Peruvian biodiversity.

It is not necessary to make a new study or evaluation about the alternatives for the conservation of biodiversity in Peru, and I will only repeat the conclusions about the strategy and recommendations of the mentioned study.

2.0 STRATEGY

AID/PERU has the opportunity to work closely with the Government of Peru and the country's non governmental organizations to strengthen natural resources management, specifically in relation to biological diversity and sustainable development of tropical forests.

The different emphases which can be placed on the issues suggest a potentially wide array of interventions. This works to AID's advantage, providing needed flexibility in the face of funding uncertainties and a weak information base. Five broad guidelines for defining program directions in biological diversity are as follows:

1. Relate interventions for biological diversity to existing AID projects, minimizing the proliferation of new projects.
2. Use the concept of "comparative advantage" to define and promote Peru's particular strengths for attracting resources and support from wide variety of sources.
3. Harmonize AID's strategy with other institutional structures in Peru, for example the Tropical Forestry Action Plan, the NGO environmental community, and the IUCN/WWF National Conservation Strategy, to achieve maximum goodwill and impact.
4. Concentrate on clearly identifying and quantifying the economic benefits to be derived from the maintenance of biological diversity and sustained tropical forest management.

5. Appeal to Peruvian national pride to protect threatened and endangered ecosystems, species, and germplasm unique to Peru, and which could disappear in the near future without the interest and participation of the local populations. Interventions which favor threatened endemic ecosystems and species should receive priority.

"Comparative advantage" and national pride are closely linked. Peru's comparative advantage are based on the following: richness of diversity, ranking first in the world in life zones; young but very active and growing NGO environmental community; position as major stakeholder in the selva of western Amazonia; and germplasm base as one of the world's historically outstanding sources of wild plants and animals for domestication and commercialization.

The comparative advantages distinguish Peru as a highly appropriate and attractive country for projects in biological diversity. It should also stress the fact that Peru has begun to take conservation seriously.

3.0 RECOMMENDATIONS FOR PROGRAMS AND PROJECTS

There are four program areas for programs and projects in Peru: conservation policy and education; conservation and development; research, and training and institution building.

3.1 Conservation Policy and Education

Opportunities for AID intervention:

Project 1: Dissemination of Progress on the Central Selva Resource Management Project.

Location: Lima, Palcazu, and various others.

Collaboration: DGFF, FFCN, WWF-US, ACDI.

Funding: \$20,000 to \$ 100,000 per year for three years.

Project 2: Lobby for Conservation in Peruvian Government.

Location: Lima, and one or more regional capitals.

Collaboration: NGO community.

Funding: \$15,000 to \$30,000 per year for five years.

Project 3: Environmental Education in the Public Schools.

Location: Lima.

Collaboration: Ministry of Education, FAO/Switzerland Project, FAO/Holland Project, APECC.

Funding: \$100,000 to \$200,000 per year for five years.

Project 4: Environmental News Reporting by Newspapers and Television.

Location: Lima and various others.

Collaboration: NGO community.

Funding: \$20,000 to \$50,000 per year for five years.

3.2 Conservation and Development

Opportunities for AID intervention:

Project 5: Forestry Extension and Training. Yanesha Forestry Cooperative.

Location: Palcazu and Lima.

Collaboration: YFC, WWF/US, FFCN, TNC-INTERNATIONAL.

Project 6: Producers' Cooperative for Non-timber Forest Products. Iamshiyacu.

Location: Selva - Iquitos.

Collaboration: IIAP, New York Botanical Garden.

Funding: \$35,000 to \$50,000 per year for three years.

Project 7: Nature Tourism in Manu National Park.

Location: Cuzco and Madre de Dios.

Collaboration: ACSS, WCI, private companies.

Funding: \$50,000 to \$100,000 per year for five years.

Project 8: Area Management Plan for Amazonian Wildlife.

Location: Selva.

Collaboration: DGFF, IIAP, UNA-La Molina.

Funding: \$300,000 to one million per year for ten years.

Project 9: Management of Opuntia Cactus for Cochinilla.

Location: Ayacucho, Apurimac, Huancavelica.

Collaboration: DGFF, ACDI, FAO/Holland Project.

Funding: \$300,000 per year for five years.

3.3 Research

Opportunities for AID intervention.

Project 10: Flora of Peru.

Location: Nationwide.

Collaboration: IIAP, several Peruvian universities, Missouri Botanical Garden, New York Botanical Garden, WWF-US, TNC-International.

Funding: \$150,000 to \$250,000 per year for ten years.

Project 11: Biological Station, Manu.

Location: Madre de Dios.

Collaboration: TNC-International, WWF-US, AID/W, Princeton University, FFCN, DGFF, Una-La Molina.

Funding: \$200,000 per year for ten years.

Project 12: Native Tree Species in the Sierra.

Location: Various parts of the Sierra.

Collaboration: DGFF, FAO/Holland.

Funding: \$20,000 to \$50,000 per year for ten years.

Project 13: Facilities Improvement for Natural History Museums and Herbaria.

Location: Javier Prado-Lima, various botanical institutions, libraries.

Collaboration: Javier Prado Museum, LBU Museum of Natural History; Botanical Institute UNM-San Marcos; UNA-La Molina; UNA-Iquitos; UN-Cuzco, UN-Trujillo; Missouri Botanical Garden; libraries of IIAP,

FPCN.

Funding: Javier Prado-\$60,000 per year for two years.

Botanical Institute-\$150,000 per year for two years.

Libraries-\$20,000 to \$50,000 per year for five years.

Project 14: Ethnobotanic and Economic Research of Secondary Forest Products.

Location: Paicazu.

Collaboration: PEPP, New York Botanical Garden.

Funding: \$30,000 to \$50,000 per year for five years.

3.4 Training and Institution Building

Opportunities for AID intervention:

Project 15: Strengthening the System of Conservation Units.

Location: nationwide.

Collaboration: DGFF, ACDI, NGO's.

Funding: \$200,000 to \$300,000 per year for five years.

Project 16: Enhancing Data Management Centers.

Location: Lima.

Collaboration: UNA-La Molina, ONERN, TNC-International.

Funding: \$50,000 to \$ 150,000 per year for five years.

Project 17: Masters and Doctoral Education. Peruvian Specialists.

Location: UNA-La Molina, U.S. universities.

Collaboration: ACDI.

Funding: \$20,000 to \$ 80,000 per year for five years.

ATTACHMENT II: SUGGESTIONS TO CONFORM AN ASSESSORS TEAM FOR THE
EXECUTION OF THE CSRM II.

1.0 PREVIOUS CONSIDERATIONS

To continue with the CSRM II and/or to execute a new project in the Peruvian High Selva or to outspread the experiences, researches and technologies developed during the execution of the CSRM I, it is recommended to conform a multidisciplinary team integrated by experienced national professionals.

The proposed team is refered exclusively to the Forestry, Protection, Continuous Land Use, Agricultural and Livestock Development Components.

2.0 SUGGESTIONS TO CONFORM THE TEAM

2.1 Forestry Component

1. A Forestry Engineer with wide experience in forestry administration, national legislation, coordination with international agencies and execution of forestry projects in Peru. The candidate must know the Tropical Action Plan of Peru.

2. A Forestry Engineer with wide experience in forestry planification and organization of national and international seminars, and technical meetings related to forestry development. The candidate must be aware of the APODESA work.

3. A Forestry Engineer with experience in Forest Districts Administration and control of natural resources and land use in the High Selva.

5. An Agroforestry Specialist with wide experience in agroforestry technologies and practical experience in agrolivestock and agroforestry integrated development in the High Selva of Peru.

6. A Sociologist or a Communication Specialist with wide experience in communication, extension and preparation of didactic materials for training and capacitation of rural people.

7. An Anthropologist or related professional with wide experience in the development of native communities.

8. An Ecologist with wide experience in natural resources management in the Peruvian High Selva. The candidate must be also experienced in adequate technologies for the management of soils, forest and agrolivestock.

2.2 Protection and Biodiversity

1. A Biologist with wide experience in management of protected areas and conservation of the biodiversity of Peru. Also with practical experience in biodiversity inventories and coordination with national and international NGOs and agencies.

2. A Biologist or related professional with experience in training and capacitation for the management of natural areas, wildlife and biodiversity conservation.

3. An Ecologist or related professional with experience in the organization of researches to investigate natural resources (forest, wildlife and ecosystems).

2.3 Land Use

1. A Land Use Capacity Specialist with wide experience in the preparation of soil maps and land use capacity maps in small scale. Also with practical experience in High Selva development and application of land use capacity in colonists and native communities parcels.

2. A Land Use Capacity Specialist with experience in training and capacitation for the solution of practical problems in integrated soil management for land owners.

2.4 Agriculture and Livestock Development

1. A Specialist in Native Crops with wide experience in the cultivation of native crops as banana, achiote, lulo, cocona, anana, pejibaye and others.

2. A Specialist in Tropical Agriculture with wide experience in training, extension and preparation of didactic materials for ecological agriculture in the High Selva.

3. A Specialist in Tropical Livestock Development with practical experience in agro-livestock-forestry technologies for the High Selva. Also with experience in training and capacitation in livestock development.