

PROJECT ASSISTANCE COMPLETION REPORT

I. BACKGROUND DATA:

A. <u>PROJECT TITLE:</u>	Land Use Inventory and Environmental Planning.
B. <u>PROJECT NUMBER:</u>	527-0202
C. <u>DATE OF AUTHORIZATION AND AMOUNT:</u>	July 10, 1980 \$1,600,000 Grant
D. <u>DATE OF OBLIGATION AND AMOUNT:</u>	September 26, 1980 \$1,600,000 Grant
E. <u>FOOD PROGRAM LOCAL CURRENCY GENERATIONS:</u>	\$1,000,000
F. <u>OTHER GOP FINANCIAL CONTRIBUTIONS:</u>	None
G. <u>OTHER DONOR FINANCIAL CONTRIBUTIONS:</u>	None
H. <u>PACD:</u>	June 30, 1983 (Original) June 30, 1987 (Revised)
I. <u>IMPLEMENTING AGENCY:</u>	Oficina Nacional de Evaluación de Recursos Naturales (ONERN)

II. PROJECT PURPOSE:

The Project purpose consisted of maximizing efficient use of Peru's natural resources through the creation of natural resource inventories and improved natural resource planning and allocation. The Project consisted of 3 major components:

1. Natural Resource Inventory System
2. Geographic Information System
3. Environmental Profiles and Assessments

III. PROJECT INPUTS

In order to achieve the objectives of the project, the AID Grant financed technical assistance, hardware purchases, and training:

Component I: National Resource Inventory System

A. Technical Assistance: Technical assistance was provided to ONERN to develop techniques related to the use of color infra-red (CIR) photography.

Technical assistance was provided to advise ONERN staff in the use and interpretation of the CIR photography and in the development of the land classification scheme. ONERN personnel were trained in the application of the DIPIX digital image processing system for mapping natural resources and land use characteristics.

B. Hardware and Equipment: To aid in the interpretation of aerial photography the project acquired an optical pantograph and a zoom transfer scope. A four-wheel drive vehicle was purchased to transport personnel to project sites for land cover mapping verification. The existing vehicle fleet was also upgraded with the acquisition of spare parts. A large circular rotating plate and a "guillotine" were purchased enabling the ONERN to utilize the thematic information system.

Component II: Geographic Information System (GIS).

A. Technical Assistance: A geographical information specialist was contracted to assist in the design and application of the GIS, as well as design software and install the data processing system. ONERN technicians were provided on-the-job training for monitoring and trouble shooting of the system.

B. Hardware and Equipment: The computer assisted GIS was purchased and interfaced with the DIPIX LTC-II System for digitizing LANDSAT data. The existing system was upgraded to a full ARIES II configuration.

C. Infrastructure: Construction was completed on the fifth level of the ONERN building. This construction was necessary to make room for the GIS hardware and other mainframe equipment.

Component III. Environmental Profiles and Assessments.

A. Technical Assistance: Technical assistance was provided to assist in the design of a national environmental profile, applications of the GIS, including various demonstration exercises of desertification interpretation and forestry classification. ONERN successfully completed the first environmental profile of Peru.

B. Hardware and Equipment: The ONERN Office was equipped with specialized equipment to perform pollution detection tasks using remote sensing data.

C. Training: Training was provided for ONERN staff in its Offices throughout Peru. The in-country training component covered the following areas: 1) digital classification of LANDSAT data, 2) applications of the GIS, and 3) environmental assessment methodologies. The training courses were also

open to personnel of the Ministries of Agriculture, Health, Transportation, and the Departmental Development Corporations. Training courses in decision making criteria for environmental protection and planning were provided. Courses on thematic mapping and remote sensing techniques were held in the U.S. and Panama.

IV. PROJECT OUTPUTS/ACCOMPLISHMENTS:

On June 30, 1987, the project was successfully completed, achieving all its programmed activities and purpose. The project assisted the GOP in making efficient natural resource decisions by strengthening the capabilities of the Oficina Nacional de Evaluacion de Recursos Naturales (ONERN). As of the PACD, the ONERN Office has the capacity to apply the GIS, to prepare environmental plans and profiles, to conduct environmental impact assessments, and to recommend natural resource management policy.

Planned Output:

1. Carrying out nation wide resource inventories using: a) remote sensing technology, and b) a Geographic Information System (GIS) enabling ONERN to store, manipulate, and analyze resource data for environmental purposes.

Project Accomplishment:

1. ONERN has developed an automated GIS and a satellite image analysis system. ONERN staff are trained in the use of GIS, image analysis, remote sensing and cartography. ONERN has reconnaissance level information of the entire country for soil erosion, land use, LANDSAT imagery and life zone maps. More than 20 detailed resource base studies have been completed. GIS training and demonstration applications have been conducted in the Upper Huallaga Valley, Puno, Palcazu, Cerro de Pasco, Junin and Chumbivilcas. ONERN completed the collection, computer storage, and analysis of data for development of simulation models in these areas.

A total of 29 ONERN staff received in-house training in GIS applications. In addition, two ONERN professionals completed a digital image processing course and 23 people from seven ONERN departments participated in developing a hierarchical data base design, allowing for more efficient storage and manipulation of data for the GIS. A total of 16 individuals received remote sensing and cartography training in the U.S. and Panama.

Planned Output:

2. The development of a national profile of environmental conditions, hazards, laws and programs.

Project Accomplishment:

2. ONERN published Peru's first Environmental Profile, which is utilized by the National Planning Institute in developing Peru's environmental policy and development strategy documents. Based on the recommendations of the first project evaluation, broader GOP utilization of ONERN technology was attained through separate user agreements with the National Development Institute (INADE), National Agrarian Research and Extension Institute (INIPA) and the Ministry of the Presidency.

A number of smaller regional environmental studies have been completed, including a land use report on grazing suitability in the Department of Cuzco. The High Jungle Development Policy Office (APODESA) and ONERN completed a collaborative project to design a data base for the Palcazu Valley under the Central Selva Resource Management Project.

Financial Summary:

A. A.I.D. Contribution:

<u>Grant Funds Cumulative by PACD:</u>	<u>US \$</u>
Amount Obligated	1,600,000
Amount Committed	1,380,239
Accrued Expenditures	1,380,239
Amount Unexpended	219,761

B. Food Program Local Currency Generations: 1,000,000

C. Other GOP Financial Contributions: None

D. Other Donor Financial Contributions: None

V. MISSION ASSESSMENT OF PROJECT

The project completed all its activities by the PACD. Over a period of twenty-five years, A.I.D. nurtured ONERN with support for infrastructure (including their present building), sophisticated mapping and photo/imagery interpretation equipment, vehicles and training. The results have been impressive - a leading organization in natural resource inventory, evaluation and analysis with a well trained cadre of professionals now exists in Peru. With this capability ONERN continues to produce the most complete coverage of published resource inventory data and maps in Peru. ONERN's products are used by senior officials in Public Ministries and the Congress, by university faculty and students, and by international environmental organizations.