

Institutional strengthening of geographic information system (GIS) of the national institute for renewable natural resources (INRENARE) for the monitoring and evaluation of Panama's forest resources

I. Introduction

The project was approved and fully financed by the Council at its Twenty-fifth Session in December 1998 in Yokohama, Japan. The Project Agreement was signed in July 1999. Project implementation was delayed due to the restructuring of ANAM in 1999 and 2000. The first disbursement of funds was made in February 2000. A five-month extension without additional funds was approved by the Committee at its Thirty-first Session.

II. Project Objective

This project was an outcome of Pre-Project PPD 15/96 Rev.1 (F) "Technical Assistance to Develop a Mapping and Inventory Project Aimed at the Sustainable Management and Administration of Forest Resources". It is aimed at strengthening ANAM's capacity for the monitoring and evaluation of Panama's forest resources with a view to formulate strategies towards the achievement of Objective 2000 in Panama and to further monitor its progress.

III. Project Strategy and Activities

The strategy adopted for improving ANAM's capacity in monitoring and evaluation of Panama's forest resources focused on achieving the following:

- The establishment of a GIS in the national computer network linking ANAM's headquarters with its 12 regional offices;
- ANAM's Staff trained in the use of GIS and remote sensors as tools for the monitoring and evaluation of forest resources;
- The establishment of a digital mapping and data base of Panama's forest resources; and
- Development and implementation of a methodology for the monitoring, updating and evaluation of forest resources.

IV. Project Achievements and Outputs

The Project was completed in August 2003. In accordance with the project document, all planned activities, plus others not originally contemplated, were successfully carried out and achievements can be summarized as follows:

- State-of-the-art GIS hardware and software required by ANAM's Headquarters and 11 regional offices was installed and Internet connectivity amongst these was established;
- Procedures and standards were developed for the elaboration of maps, data compilation, GIS, forestry information updating and monitoring, and statistical reporting;
- ANAM personnel at both the central and regional levels were trained in GIS techniques. Training focused on geographic information systems (ARCVIEW), satellite imagery analysis systems (ERDAS), global positioning systems (GPS), and evaluation and monitoring of forestry resources;
- A database of satellite images, aerial photographs and thematic maps available in Panama was designed and developed;
- Several thematic maps were developed for Panama, including forest cover types, forest concession areas, forest plantation areas, etc;
- A multi-temporal analysis was carried out establishing the rates of deforestation in Panama for the period 1992-2000; and
- Mechanisms to periodically update information on Panama's forest resources are in place.

V. Target Beneficiaries Involvement

The main direct beneficiary was ANAM itself, as it has improved its forest monitoring capabilities substantially. However, the nation itself is to indirectly benefit too, as ANAM is now in a position to develop consistent forest policies based on up-to-date and reliable information on its forest resources as contained in the database developed by the project. Third parties also benefit from proper information on which to base their investment and development decisions.

VI. Lessons Learnt

During the data compilation process, the rate of involvement and responses from central and regional offices was low. However, taking into consideration the current inadequate working conditions and ANAM's lack of financial resources to improve them, the situation of the Panamanian public forestry sector is somewhat understandable. It is still to be seen how ANAM pretends to fully incorporate the mechanisms and tools made available to it through this project into their national natural resource monitoring system.

VII. Dissemination of Results

Project results were mainly disseminated through a web page, workshops, manuals and thematic maps, the latter that were widely distributed. Presentations were also given on the project's achievements at several regional and national conferences, including ITTO.

VIII. Recommendations related to Future Work

In order to make the periodic monitoring of Panama's forest resources a permanent feature, ANAM must now strive to internalize the mechanisms developed by the project into their procedural tasks through its standardization throughout the institution and further provide for the financial and human resources needed to carry out these tasks. Further training of its personnel in a variety of forestry and GIS-related subjects is also warranted in order to consolidate the periodic monitoring process of the Panamanian forest resources.

IX. Concluding Remarks

Overall, the project has provided the Panamanian government with an advanced tool for the formulation of strategies towards the achievement of the Objective Year 2000 in Panama and to further monitor its progress.

The ITTO Secretariat has received the Project Completion Report and a series of maps, technical reports and publications and, once it receives the Final Financial Audit Report, this project can be reported as completed. Copies of the Completion Report and other technical documents are available upon request from the Secretariat.