

EX-POST EVALUATION REPORT

ITTO PROJECT PD 128/91 Rev. 2 (F)

**"MANAGEMENT, CONSERVATION AND DEVELOPMENT OF
MANGROVES IN PANAMA"**

Prepared for ITTO

by

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List of abbreviations and acronyms

ANAM	National Environment Authority
INRENARE	National Institute for Natural Renewable Resources of Panama
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
NGO	Non Governmental Organization
pm	Person/month

PART I. EXECUTIVE SUMMARY

1. BACKGROUND INFORMATION ABOUT THE PROJECT

This report presents the results, conclusions and recommendations of the ex-post evaluation of project *PD 128/91 Rev. 2 (F) "Management, conservation and development of mangroves in Panama"*. The project was implemented by the National Institute for Natural Renewable Resources of Panama (INRENARE) subsequently succeeded by the current National Environment Authority (ANAM). It started on 3 September 1991 and had an effective duration of 64 months.

2. EVALUATION PURPOSE

The primary purpose of the evaluation is to provide a concise diagnosis of five projects related to mangroves so as to point out the successful and unsuccessful outcomes, the reasons for successes and failures, and the contribution of the projects towards ITTO's Objective 2000 and the ITTO Mangrove Work Plan 2002 - 2006, and to draw lessons that can be used to improve similar projects in the future.

3. SCOPE OF THE EVALUATION

This evaluation was conducted in January 2004 on the request of the ITTO Secretariat following the decision taken by the Committee on Reforestation and Forest Management in its 30th Session, in May 2002, to carry out an ex-post evaluation of 5 projects, including PD 128/91 Rev. 2 (F), grouped under the theme "Mangroves". The scope and focus of the evaluation are to determine the impact and effects of this project. The terms of reference given to the evaluators, as specified in Appendix to the "Special Service Agreement" include the following points:

- The overall role and contribution of the project in light of sectoral policies, development programs, priorities and requirements to achieve conservation, sustainable management and/or rehabilitation of mangroves in the country concerned.
- The current status of mangroves within the project's area of influence, the effectiveness of the project's implementation and its effectiveness in promoting the conservation, sustainable management and/or rehabilitation of mangroves.
- The contributions of the specific studies in various disciplines (inventory, ecology, socio-economy, management techniques, rehabilitation techniques, etc.) prepared by the project to the conservation, sustainable management and/or rehabilitation of mangroves in the project's area of influence.
- The results and potential impact of applied research conducted by the project (if any) and its contribution to the overall knowledge on mangroves in the region.
- The impact of project activities on the livelihoods of target populations.
- The effectiveness of dissemination of project results.
- The overall post-project situation in the project's area of influence.
- The unexpected effects and impacts, either harmful or beneficial, and the reasons for their occurrences.
- The cost efficiency in the implementation of the project, including the technical, financial and managerial aspects.
- Follow-up actions in order to enhance uptake of project results.
- The project's relative success or failure, including a summary of the key lessons learnt; and the identification of any issues or problems that should be taken into account in designing and implementing similar projects in the future.

4. EFFICIENCY AND OPERATIONAL ASPECTS

The project has not been efficient. It started in September 1992 for a duration of 36 months but it took 32 additional months for its completion. Although it obtained the planned resources from ITTO, it did not duly achieve all of its stated objectives and outputs as it will be shown below.

5. EFFECTIVENESS

The project's achievement of the outputs is summarized in the following table "Summary of the project's achievement of the outputs".

Summary of the project's achievement of the outputs

Project output	Achievement
Output 4.2.1 <i>Existing information revised, mangrove zoning carried out, maps elaborated, inventories conducted.</i>	Maps produced; Forest inventories carried out for Chiriquí, Azuero and Chame; Zoning proposal made; Land use plan and an action plan elaborated.
Output 4.2.2 <i>Management plans of mangrove areas elaborated</i>	Key for land use zoning produced, but not yet approved by decision-making authority; Action plan elaborated. The project did not produce the management plans.
Output 4.2.3 <i>Technical staff trained.</i>	Training workshop for the technicians. Four foresters sent abroad for study visits. No specific training in mangrove management was organized as planned for the 2 INRENARE technicians.
Output 4.2.4 <i>Improved knowledge of mangrove ecosystems through research.</i>	Data on forest inventories, ecosystems and plant species provided; Data on land and marine fauna. Information is still contained in raw consultants' reports and has not yet been edited for publication in accessible formats.
Output 4.7.1 <i>"Project document formulated".</i>	A follow-up project proposal submitted to ITTO and funded.
Output 1.6.1 <i>Community development</i>	Population census in and near mangrove forests carried out; Meetings with communities organized. Organization of the communities not carried out as planned.
Output 1.-1: <i>Project monitored and reviewed.</i>	Periodic evaluation of the project not conducted; Planned joint ITTO/INRENARE evaluation did not take place; Annual work plans elaborated and implemented as planned.

Overall the project was partially effective in achieving its outputs and its specific objectives.

Of the 7 specific objectives, the first and the sixth, namely generation of basic information and census of the population living near the mangrove forests can be considered as fully attained. The second objective, namely the elaboration of management plans for the 3 mangrove forest areas of Chame, Azuero and Chiriquí, which the evaluators consider as the main purpose of the project, was not attained. The remaining objectives have been partially attained, at varying extents.

In relation to Specific Objective 1 "To generate basic information for planning the best use of mangroves", the project effectively provided maps for the management of mangrove forests, for the 3 zones (Chame, Chiriquí and Azuero), the adequate mangrove resources inventory data, a Mangrove Action Plan, and the management planning guidelines. As a result of these successes the following developments took place:

- Resolution on Mangroves N° JD-08-94 was enacted in 1994;
- The Mangrove National program was approved in 1998;
- The Forest Law integrated aspects relating to mangroves.

In relation to Specific Objective 2 "Elaboration of management plans of mangrove areas for species conservation and sustainable use", effective mangrove forest zoning taking into account specific functions (production, conservation, priority areas for interventions, etc.), has not yet been done almost 12 years after the start of the project. No management plan has been elaborated for any of the working areas, which the executing agency attributes to a shift in objective priorities, as there was a need to first generate a Zoning proposal and an overall land use plan as no such data was available for the study area. No silvicultural management is implemented in areas that are open to exploitation, and uncontrolled tree cutting still goes on as before the implementation of the project.

In relation to Specific Objective 3 "Conduct studies on the technical and economic feasibility of use of mangrove products for the benefits of communities", the project effectively conducted studies that provided important indications on alternative activities for communities depending on mangrove resources. However, almost all the options that were proposed to the communities as alternatives to mangrove-based traditional economic activities, such as bee-keeping, iguana raising, were abandoned due to insufficient advice and lack of follow-up.

In relation to Specific Objective 4, "Train INRENARE's staff and the staff of other institutions having a role to play in mangrove management": no such an effective training seems to have taken place. Indeed as mentioned above, although four ANAM's foresters were trained in the form of study visits, only one is still attached to mangrove related activities.

In relation to Specific Objective 5 "Formulate two pilot projects on the integration and sustainable use of mangroves": a project, PD 156/02 Rev. 3 (F) "Conservation and reforestation of threatened mangrove areas along the Pacific Coast of Panama – Phase I and II" was submitted to ITTO and received funds. However, in the opinion of the evaluators it does not address the gaps left by PD 128/91 Rev. 2 (F), namely the elaboration of management plans for the three selected mangrove areas and their implementation (Chame, Chiriquí and Azuero).

In relation to Specific Objective 6 "Know the population living near mangroves and their mangrove-linked economic activities", although the project provided the data on populations living in or near mangrove areas through a systematic survey, and communities were mobilized, no systematic work has been conducted towards community organization.

In relation to Specific Objective 7 "Formulate a project on mangrove species trials": no such a project has been formulated. Furthermore, the restoration trials and permanent plots established by the project do not seem to have a focus as far as the search of management régimes and silvicultural treatments are concerned, although preliminary information was obtained on the viability of species for mangrove restoration.

6. IMPACT

6.1 Findings on the effects of the project

Since in some cases the project did not deliver at outputs and objectives levels, the objective evaluation of achievements is made difficult by the lack of data from a monitoring and evaluation system, as this was not set up. To appreciate the effects and impacts, the evaluators relied mostly on field observations, interviews with beneficiaries, project staff and consultants, to complement the information from project reports.

It should be recalled that most of ITTO's earlier projects lacked a logical framework and monitoring tools, as in the case of the present project document. For this reason, it is not feasible to assess all the effects and impacts of the Project. However, the overall post-project situation is not as it ought to be, had all the outputs been achieved and all the objectives reached.

6.2 Overall post-project situation

The project had a considerable positive impact on the attitudes towards mangroves in its areas of influence. Mangrove forests are no more considered as areas for garbage disposal. Some municipalities are actively protecting them and promoting ecotourism. However, due to lack of a monitoring system, there is no systematic information on the overall post-project situation. This positive development is offset by a halt in project activities at its completion. There is a need to solve the problem of sustainability of the project through its institutionalization within the existing administrative structures. Second, staff stability and budget means should be guaranteed in order to sustain the activities of the project.

The post project situation is also characterized by the lack of interagency and stakeholder coordination as far as mangrove related activities are concerned. No platform for such coordination exists yet. This gap is underlined because land use zoning in mangrove areas is necessarily a multi-sectoral, multi-stakeholder and multi-disciplinary undertaking, which requires the collaboration among several concerned government agencies and non-government stakeholders. To be successful, coordination needs institutionalizing an inter-agency consultative structure, to advise the implementing bodies and the Government on policies and their implementation.

6.3 Unexpected effects and impacts

There are some positive unexpected impacts of the project:

- The activities in plant production and restoration of degraded areas made some actors plant mangroves themselves.

- The project contributed to consolidating a new national policy context that is favorable to mangrove conservation and sustainable management.

6.4 Contribution to the ITTA objectives and ITTO Action Plan

The project is in conformity with the objectives outlined in article 1 of the ITTA 1994, and meets particularly the following objectives:

- Objective (a) that aims at providing "an effective framework for cooperation and consultation on all relevant aspects of tropical timber economy through workshops on reforestation.
- Objective (c) that aims at contributing to the process of sustainable development.
- Objective (f) that aims at promoting and supporting "research and development with a view to improving forest management and efficiency of wood utilization as well as increasing the capacity to conserve and enhance other forest values in timber producing countries,
- Objective (j) that aims at encouraging "members to support and develop industrial and tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with regard for the interest of local communities dependent on forest resources.
- Objective (l) that aims at encouraging "members to develop national policies aimed at sustainable utilization and conservation of timber producing forests and their genetic resources and maintaining the ecological balance in the regions concerned, in the context of tropical timber trade".

In relation to the Yokohama Action Plan: The Yokohama Action Plan recognizes that "in addition to their ecological and socio-economic importance, mangrove forests provide timber and timber-related products that are internationally traded". The project complies with the Plan's Goal 1 "Support activities to secure the tropical timber resource base" under Reforestation and Forest Management, in recommended Action 4 « Promote the conservation, rehabilitation and sustainable management of threatened forest ecosystems, inter alia mangroves, in collaboration with relevant organizations".

The project is in compliance with the ITTO Mangrove Workplan 2002-2006 as it crosscuts all the 6 selected areas of activities, as follows:

Area 1: "Conservation and sustainable management":

One of the stated project's specific objectives is the elaboration of management plans of mangrove areas for species conservation and sustainable use. It helped gathering the data for management planning and elaborating the Mangrove plan of action and the Land use plan of mangrove forest areas.

Area 2: "Mangrove information and awareness":

The project helped gather the information on different aspects of mangrove resources, use and conservation. It contributed to raising the awareness of decision-makers and the general public on the importance of mangrove forests.

Area 3: "Socioeconomic aspects":

The project conducted a study on the socio-economic aspects of mangrove resource use and made recommendations for use in the development processes.

Area 4: "Mangrove ecosystem functions and health":

The project assisted in studying the status and the conditions of mangrove forests. The data gathered may provide a baseline allowing monitoring the health of Panama's mangrove ecosystems.

Area 5: "Cooperation and capacity building":

The project contributed to supporting the relations between key stakeholders concerned with mangrove resources through the activities of its Steering Committee.

Area 6 "Policies and legislation":

The project created awareness on the importance of mangrove forest resources, which allowed to reach the following developments in the spheres of policy and law:

- Resolution on Mangroves N° JD-08-94 was enacted in 1994;
- The Mangrove National program was approved in 1998;
- The Forest Law integrated aspects relating to mangroves.

7. CONCLUSIONS OF THE EVALUATION

7.1 Implementation efficiency and project effectiveness

Project PD 128/91 Rev. 2 (F) has been efficient in conducting planned studies. It had a considerable success in providing data and information that improved the existing knowledge on Panama's mangroves. These data and information are reported in numerous reports, and could be edited and published for a wider use. However, the project did not fully accomplish its prime aim of elaborating and implementing management plans for the areas under its influence, namely Chame, Azuero and Chiriquí. It has not been fully effective in implementing community organization and development activities.

7.2 Overall assessment of successes and failures

The project has made a valuable contribution to the knowledge of Panama's mangrove forests. It enhanced the awareness of the authorities and the public on the need for their conservation and sustainable management. However, these successes are offset by the non-achievement or partial achievement of important outputs, specific objectives and development objectives relating to the elaboration and implementation of management plans for the mangrove areas under its influence, and to community organization and development. Perhaps one of the areas where the project failed most is the dissemination of information. Besides the reports required by ITTO and the organization of workshops, the project did not publish its experiences on the methodologies and the techniques it applied and the numerous interesting results it obtained. The heavy reliance on consultants weakened the potential contribution of the project to institutional learning. The Project management played a marginal role in the learning process and did not fully internalize the experiences gained from key project outputs. With the completion of the project, there was a withdrawal of the project teams and a discontinuation of key activities. This is an important loss of institutional memory to ANAM. It is particularly aggravated by the lack of effort in ensuring capitalization and publication of the project's experiences.

7.3 Alternative design of the project

The rationale that led to the elaboration of a project aimed at ensuring the sustainability of mangrove resources through the implementation of management plans, taking into account the resource potential and the needs of local populations is still valid. The implementation approach of obtaining basic data for management planning was also valid. The objective of elaborating the management plans for the areas that were under the influence of the project should therefore be pursued, so that the socioeconomic development programs linked with mangrove forests may be implemented as was planned. However, the evaluators believe that a concept of community development must be sufficiently developed, taking into account the need to integrate mangrove forest management and local mangrove users activities.

In retrospect, the best design would have emphasized a process development, in a slower approach. Therefore a smaller pilot phase emphasizing an evolving implementation process would have been the best course in order to attend the needs of institutional building both at Executing Agency and community levels, and to develop a participatory management system.

8. RECOMMENDATIONS

To ANAM:

- A communication strategy on mangroves should be elaborated in which focus should be given to target groups such the public in general, local communities, public agencies and private sector;
- Redesign the permanent plots network established in the project sites, with the aim of collecting data that can be used to determine the adequate management systems and silvicultural treatments required.

- There is an urgent need to adopt and implement a zoning scheme of mangrove forests, in order to elaborate the management plans for the selected areas of Chame, Azuero and Chiriquí.
- Consider reformulating Project PD 156/02 Rev. 3 (F) "Conservation and reforestation of threatened mangrove areas along the Pacific Coast of Panama – Phase I and II", so that it may fill the planning gaps left by its predecessor and assist implementing the management plans for the selected areas.
- To ensure sustainable mangrove management, provide adequate assistance to charcoal burners, particularly in Chame, by further professionalizing them, through adequate technical advice, and organizing them to improve their access to services and markets.
- As evidenced from the circumstances surrounding the project implementation (delays in project implementation, timely personnel recruitment and disbursement of funds to project activities, frequent changes in project manager and other staff) it is advisable to consider contracting a cooperating agency for execution or co-execution of future ITTO projects, in order to facilitate their implementation.
- When introducing alternative economic activities, there is a need to ensure adequate support services accompanied by continued monitoring so that assessments can be made as to the effectiveness of the uptake and corrective measures be taken as required.
- Consider modalities for the formal organization of local communities through Cooperatives and/or Associations as it relates to mangrove related activities.
- Based on the above results and experiences, consider the broader context of relations of communities with local segments of society in their region, through local NGOs and similar partner institutions, opening up new and additional possibilities for economic activities and partnerships (tourism/hoteliers and leather tanning industry in Azuero for example).
- Enhance conservation and sustainable tourism efforts in the Cenegon Mangrove Municipal Park through a management plan for the site, in the broader context of a Mangrove Management Plan for Azuero.
- Develop a monitoring and evaluation system that would enable mangrove project evaluation, and the assessment of effectiveness of management activities on mangrove conservation and sustainable use.
- To ensure sustainability of the project's accomplishments and to consolidate its gains consider the institutionalization of the project in the structure of ANAM.

To ITTO:

- Mid-course mechanisms for projects with weak project documents are needed.
- Project monitoring and evaluation need to be fully integrated in the project activities. Impact indicators for the objectives and performance indicators for the outputs and their means of verification need to be clearly identified.
- For phased projects, there should be an end of phase evaluation before starting a new phase.
- The project document should spell out clearly the implementation processes to be developed.
- Encourage countries that submit projects to take into account the cultural and local socio-economic context before formulating proposals for alternative production projects so as to maximize their feasibility, impacts and sustainability.

Project ex-post evaluations should be carried out soon enough after completion so that institutional memory can be used, also taking into account the minimum time required to achieve the impacts.

PART II. MAIN TEXT

1. PROJECT CONTEXT

1.1 Project Rationale and Background

Project PD 128/91 Rev. 2 (F) "*Conservation and management for the multiple use and development of mangroves in Panama*" was approved by the International Tropical Timber Council at its Tenth Session. The total cost of the project was US\$691,700.- which includes ITTO's contribution of US\$489,000 granted by Japan, and the national contribution of US\$202,700.- The project Agreement was signed between ITTO and the National Institute for Natural Renewable Resources of Panama (INRENARE) as Executing Agency on 3 September 1992. After its creation, ANAM took over the role of Executing Agency as a *successor agency of INRENARE*. The first disbursement of funds was made on 10 September 1992, and project activities started in January 1993.

The project originated from a general identification in the Panama's Tropical Forest Action Plan, elaborated in 1990 with ITTO's support. It was planned as a 3-year project. The project document identified the core problem to be addressed as the deforestation of Panama's mangroves, as the areas they cover diminished from 300,000 ha before 1960 to 170,687 ha in early 1990s. Among the identified causes of this problem are:

- (1) Changes in land use, namely conversion to animal production, agriculture, shrimp production, urban extension;
- (2) Various minor factors, including pollution and forest harvesting.

This deforestation was taking place in a context of weak organization of forest management activities, lack of awareness of the importance of mangroves among the local populations, important market problems, insufficient scientific information on various aspects of the ecology, silviculture, management, harvesting and use of mangroves.

The major focus of the project was therefore to ensure the sustainability of mangrove resources through the implementation of a management plan, taking into account the resource potential and the needs of local populations. The implementation approach adopted was to obtain basic management planning information through studies and research, to elaborate management plans for conservation and sustainable use, to strengthen institutional capacities, and to implement community development activities. The target beneficiary was the national fishing industry.

1.2 Development Objectives

The development objectives of PD 128/91 Rev. 2 (F) were as follows:

1. To improve socio-economic conditions of rural populations whose livelihoods depend on activities linked with mangroves;
2. Conserve and replant mangrove areas located in the Coast of the Gulf of Panama in order to maintain and increase fish production;
3. Conserve, protect and develop mangrove areas having characteristics for recreation, tourism, wildlife refuges, scientific research and environmental education;
4. Achieve sustainable use of Panama's mangroves, through management activities.

1.3 Specific Objectives

The specific objectives of the project were defined as follows:

1. To generate basic information for planning the best use of mangroves;
2. Elaboration of management plans of mangroves areas for species conservation and sustainable use;
3. Conduct studies on the technical and economic feasibility of use of mangrove products for the benefit of communities;

4. Train the INRENARE's staff and the staff of other institutions having a role to play in mangrove management;
5. Formulate two pilot projects on the integral and sustainable use of mangroves;
6. Know the population living near mangroves and their mangrove-linked economic activities;
7. Formulate a project on mangrove species trials.

1.4 Planned Outputs and their indicators

The planned outputs, described as "components" in the proposal document, were not identified according to respective development and specific objectives. In their listing below, we give them a code number by which we tried to assign them to the closest development objective (first digit) and specific objective (second digit). The document also listed project targets (*metas* in Spanish) which we considered to be indicators, and we assigned them to the closest outputs. The outputs and indicators are as follows:

Outputs for specific objective 1: - none -

Outputs for specific objective 2:

Output 4.2.1 Existing information revised, mangrove zoning carried out, maps elaborated, inventories conducted. Indicator: detailed maps; inventories and management plans of selected mangrove areas.

Output 4.2.2 Management plans of mangrove areas elaborated. Indicators: (i) conservation, recreation, wildlife refuges, scientific research and environmental education areas identified; (ii) action plan for mangrove management elaborated with participation of stakeholders. (iii) estimates of planting priority areas: costs, species and methods; (iv) species selection of adapted species and recommendations on their used based on research information.

Output 4.2.3 Technical staff trained. Indicator: (i) 2 INRENARE technicians trained in mangrove management.

Output 4.2.4 Improved knowledge of mangrove ecosystems through research. Indicator: mangrove ecosystems, their species and their functions better known.

Outputs for specific objective 3: - none -

Outputs for specific objective 4: - none -

Outputs for specific objective 5: - none -

Outputs for specific objective 6:

Output 1. 6. 1 Community development. Indicator: (i) socio-economic survey of the population dedicated to mangrove use; (ii) organized communities living near mangroves are created and participating actively their management.

Output for specific objective 7: none formulated, but understood by the evaluators as "project document formulated" (Output 4.7.1).

Output for all specific objectives:

Output 1.-.1 Project monitored and reviewed. Indicator: (i) periodic evaluation reports by national staff; (ii) periodic monitoring in the project area; (iii) two joint evaluations with ITTO; (iv) 3 consecutive annual work plans.

1.5 Activities and Inputs

1.5.1 Planned project activities were as follows:

Output 4.2.1

- Define forest and fish production areas
- Define wildlife conservation areas
- Define recreation, tourism, scientific research and environmental education areas.

Output 4.2.2

- Elaborate a strategy for community social development
- Elaborate a forest research plan
- Elaborate a forest use plan
- Implement a reforestation plan with fast growing multiple use species.

Output 4.2.3

- Organize seminars, workshops, courses in mangrove management and ecology for INRENARE's staff;
- Conduct extension activities on mangrove conservation and development.

Output 4.2.4

- Conduct soils investigation: taxonomy, mineralogy, physics, drainage;
- Conduct hydrology investigation: tide, hydric pressure, drainage, temperature effects, salinity;
- Conduct meteorological investigation: rainfall régime, relative humidity, temperature, wind, radiation;
- Conduct biological and silvicultural investigation: biodiversity, species phenology, seed viability, germination rate, natural regeneration, growth, phyto-pathology.

Output 1.6.1

- Define the participation and responsibility levels of government and non-governmental institutions in relation to mangrove management;
- Identify NGOs which can be involved in community development in mangrove areas;
- Develop extension programs for community training in appropriate sustainable development technologies;
- Promote the design and development of environmental interpretation plans in protected areas;
- Organize communities in groups for mangrove management activities and sustainable development;
- Stimulate the implementation of alternative activities by local populations.

Output 1.-.1

- Periodic evaluation by national staff;
- Periodic monitoring;
- Joint evaluations with ITTO;
- Elaboration of annual work plans.

1.5.2 Planned ITTO and INRENARE inputs

Project PD 128/91 Rev. 2 (F) was planned to cost US\$ 691,000.- of which US\$ 489,000.- was ITTO's contribution and US\$ 202,700.- was the national contribution. The details on inputs in the project were as follows:

- Personnel: The permanent staff included 2 foresters, 2 biologists, 1 social worker, 6 forest technicians, 6 social promoters, 1 mapping specialist. The temporary personnel hire consisted in 3 person-month (pm) management planning specialist, 2 pm soil scientist, 4 pm soil taxonomist, 2 pm soil conservation specialist, 4 pm hydrology specialist, 2 pm meteorologist.
- Equipment: 3 vehicles, 3 boats, 8 motorcycles, research equipment, extension equipment, office equipment, communication equipment, mapping equipment.
- Consumables: fuel and lubricants.

1.6 ITTO/ITTA Context

The project is in conformity with the objectives outlined in article 1 of the ITTA 1994, and meets particularly the following objectives:

- Objective (a) that aims at providing "an effective framework for cooperation and consultation on all relevant aspects of tropical timber economy through workshops on reforestation.
- Objective (c) that aims at contributing to the process of sustainable development.
- Objective (f) that aims at promoting and supporting "research and development with a view to improving forest management and efficiency of wood utilization as well as increasing the capacity to conserve and enhance other forest values in timber producing countries,
- Objective (j) that aims at encouraging "members to support and develop industrial and tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with regard for the interest of local communities dependent on forest resources.
- Objective (l) that aims at encouraging "members to develop national policies aimed at sustainable utilization and conservation of timber producing forests and their genetic resources and maintaining the ecological balance in the regions concerned, in the context of tropical timber trade".

2. EVALUATION SCOPE AND FOCUS

This evaluation was conducted in January 2004 on the request of the ITTO Secretariat following the decision by the Committee on Reforestation and Forest Management in its 30th Session, in May 2002, to carry out an ex-post evaluation of 5 projects, including *PD 128/91 Rev. 2 (F)*, grouped under the theme "Mangroves". The purpose, scope and focus of this ex-post evaluation are specified in the terms of reference as follows:

- The overall role and contribution of the project in light of sectoral policies, development programs, priorities and requirements to achieve conservation, sustainable management and/or rehabilitation of mangroves in the country concerned.
- The current status of mangroves within the project's area of influence, the effectiveness of the project's implementation and its effectiveness in promoting the conservation, sustainable management and/or rehabilitation of mangroves.
- The contributions of the specific studies in various disciplines (inventory, ecology, socio-economy, management techniques, rehabilitation techniques, etc.) prepared by the project to the conservation, sustainable management and/or rehabilitation of mangroves in the project's area of influence.
- The results and potential impact of applied research conducted by the project (if any) and its contribution to the overall knowledge on mangroves in the region.
- The impact of project activities on the livelihoods of target populations.
- The effectiveness of dissemination of project results.
- The overall post-project situation in the project's area of influence.
- The unexpected effects and impacts, either harmful or beneficial, and the reasons for their occurrences.
- The cost efficiency in the implementation of the project, including the technical, financial and managerial aspects.
- Follow-up actions in order to enhance uptake of project results.
- The project's relative success or failure, including a summary of the key lessons learnt; and the identification of any issues or problems that should be taken into account in designing and implementing similar projects in the future.

3. EVALUATION METHODOLOGY

The evaluation criteria used by the evaluators were:

- Project design: a good project design is also a good guide to the implementers of the project because it shows them the work to be done and the processes to develop to be successful. It

facilitates monitoring and evaluation of the achievements and impacts, and establishes the key assumptions, the institutional arrangements and the commitment of the project's partners.

- Efficiency: The evaluation looked at how well the project was implemented to achieve its objectives, in relation to the resources at its disposal.
- Effectiveness: The evaluation looked at how successful the project was in achieving its stated outputs and objectives.
- Impact: The evaluation looked at the Projects' results, both expected and unexpected, in the short and long term.

The evaluation procedure was arranged according to the actual terms of reference. The different points of the terms of reference were evaluated from project related documents provided by ITTO Secretariat and ANAM, as well as interviews and field observations.

The evaluation process was participatory and was conducted in full interaction with the relevant staff of ANAM. There were four steps in the evaluation process. The first step was a preparatory stage consisting of a desk work prior to the visit to Panama. The analysis of the project concept, strategies and logical framework in the project document allowed acquiring a preliminary knowledge of the project based on the documents provided by ITTO Secretariat. In the second step (Panama City), the evaluators had a briefing meeting with the high level officials of ANAM. They presented the terms of reference, the methods and the work plan. This was followed by an enlarged meeting with the relevant ANAM staff and the former project management staff and consultants. In this meeting the project documents were presented to the evaluators and the achievements were described by former project staff and consultants. The third step was a visit to project sites to get information on field activities and their impacts through visual observations, and for discussions with specialists, beneficiary communities and stakeholders who were affected by the project. The fourth step was a synthesis of the analysis of the information gathered, paying attention to the TORs. The conclusions were presented in a debriefing meeting with the officials of the ANAM, chaired by the Head of the Forestry Service of ANAM.

The impressions from the field visit and the project's documents are the basis for this report.

4. FINDINGS AND LESSONS LEARNT

4.1 Assessment of project design

Although the idea behind the project was valid given the problem analysis that led to its formulation, there has not been any process of project formulation based on stakeholders and beneficiaries consultation. The project combined the objectives of sustainable use of mangrove resources and of improving the livelihoods of the rural populations who depend on those resources. Its rationale was based on solving the then existing gap of knowledge of the resources in order to elaborate management plans for the areas of Azuero, Chame and Chiriquí. However given the proposed objectives, its design was weak for not having benefited from the use of the Logical Framework approach. The number of development objectives and specific objectives is impressive compared to the number of outputs which are fewer than the specific objectives. The cause of this seems to be the confusion between the proposed development and specific objectives on the one hand, and the outputs and project impacts on the other. The presentation of the strategy was vague. Risks and risk management were not described. The approach for sustainability and phase-out was also lacking.

The design process may also be criticized for not having included an institutional assessment. It is obvious that the project had to be institutionalized for sustainability. The design ought to have included therefore institutional objectives and outputs, as well as strategies and processes allowing to achieve them. Only one institutional target "2 INRENARE technicians trained in mangrove management" was planned.

To be able to assess the extent to which the objectives were met and the outputs were achieved, the evaluators made an attempt to restructure the project's components in order to establish logical links between them. The result allows highlighting the following:

- The definition of objectives needed to be tighter and more concise, with no more than one development objective and one or two specific objectives;

- Specific objectives were not assigned to any of the development objectives, and similarly outputs were not assigned to specific objectives;
- No outputs could be assigned to specific objectives 1, 3, 4, 5 (evaluators' numbering);
- The objectives and outputs lack indicators and means of verification; hence evaluators had to make an approximation from the description in the proposal document;

The above weaknesses as described in the original project document, did not allow a valid project concept to be fully translated into realistic and achievable specific objectives and outputs. In addition, the scope of the project was too wide in relation to the number of development and specific objectives.

A reliable evaluation of the achievements would depend on the quality of description of objectives and outputs, and on the choice of respective indicators. A full assessment of the effectiveness and impact of the Project would require a broader survey and more time investment.

4.2 Efficiency

4.2.1 Project implementation

As mentioned earlier, the project was implemented by INRENARE. It was led by a project coordinator nominated by the Executing Agency from its staff. Besides mentioning that the project will be implemented through the National Directorates of Forestry Development and Protected Areas, the project document did not describe clearly the relevant managerial and operational aspects. No organizational chart was provided. Although the project document did not mention the establishment of a Steering Committee, this shortcoming was corrected and the Committee was established. It comprised, in addition to the representatives from the Executing Agency and ITTO, representatives of stakeholders interested by mangroves such as the Agency of Marine Resources, ANCON, the Ministry of Agriculture, the Agency of Cartography (Ministry of Finance), the Civil Society.

Overall, the implementation of the project was not efficient. There were substantial delays for the project completion, as the target date of September 1995 was not respected. Although the project's activities were planned for a duration of 36 months, it took 32 additional months for its completion. Such a long delay resulted in a significant reduction in its performance. One of the impacts of these delays is the reporting of most key studies in the year 1996, as this can be noted in the list of "Documents Consulted" at the end of this report. The time overrun was partly due to frequent changes of project manager, and would have required a close supervision by the authority of the Executing Agency and ITTO.

Another factor that affected the project's efficiency is that it was consultancy-driven. One consultant in particular was contracted to carry out more than 9 consultancies in one year, in a wide array of disciplines including Forest management, Silviculture, Forest Soils, Biology, Wildlife Ecology, Marine Biology, Plant Pathology, Plant genetics, as may be seen in the list of "Documents Consulted". This was not optimal for the quality of the results, as many reports are more descriptive than analytical. ITTO ought to have scrutinized the qualifications of consultants and objected to the hiring of one consultant for so many studies in a very short time.

Although the project document specified that monitoring and evaluation activities will be conducted by the national staff to provide monthly, semestrial and annual reports, the project did not elaborate any monitoring and evaluation system. It is therefore difficult to assess by which tool the management of the project monitored the project activities. Similarly, the project document had specified conducting two joint ITTO/INRENARE evaluations at the end of the 1st and 3rd years of implementations, but none of these were carried out. However, the project submitted the required ITTO progress and financial reports, as well as a final report.

4.2.2 Input allocation

The project leveraged an important national co-funding effort. The Government's contribution to the Project's budget was 30% of the total cost. The financial contributions were disbursed by both ITTO and the Government of Panama as planned. These resources were utilized in conformity with ITTO's rules and according to the activities budget.

4.2.3 Cost efficiency

A long delay in project completion leads to considerable fixed cost increases, and is therefore a significant factor of cost inefficiency. In addition, it will be shown further that several important specific objectives and outputs have not been entirely achieved, hence it can be concluded that the project was not cost efficient.

4.3 Effectiveness of the Project

4.3.1 Achievement of planned outputs

Output 4.2.1 Existing information revised, mangrove zoning carried out, maps elaborated, inventories conducted.

Indicator: detailed maps; inventories and management plans of selected mangrove areas.

The project produced the relevant maps as planned for all the three zones, based on photo-interpretation and satellite images. The maps feature land use and mangrove forest types. Inventories have been carried out at sampling rates of 0.5% for Chiriquí forests, 0.25% for Azuero forests and 0.25% for Chame forests. These are important achievements because such information was lacking before the implementation of the project. The project also produced a zoning proposal, an overall land use plan and an action plan with guidelines for management planning. However, it did not produce the management plans to guide conservation activities and major interventions in mangrove forest management in the three zones of its influence. Given that this type of planning was the major focus of the project proposal, the project cannot be considered to have achieved entirely this output.

Output 4.2.2 Management plans of mangrove areas elaborated.

Indicator: (i) Conservation, recreation, wildlife refuges, scientific research and environmental education areas identified

The project produced a key for land use zoning, but the relevant decision-making authority has not yet approved the zoning proposal.

Indicator: (ii) Action plan for mangrove management elaborated with participation of stakeholders

The Action plan was elaborated under the title "Action Plan for Mangrove Areas of Chame, Azuero and Chiriquí". This is a 26 pages document overburdened by voluminous and non-essential Annexes. It comprises 7 Parts: Objectives of the Action Plan, Reforestation, Agroforestry, Sustainable Forest Production, Protected Forest/Management of Natural Forest, Shrimp Farming, the Mangrove System as an Ecosystem. The content is general, rather more descriptive than analytical, and weak in the proposed action. Workshops were organized in different zones to consult stakeholders on the completed Action plan, but not on its objectives prior to its elaboration. In addition, the project organized visits by community representatives to other communities in Panama and to other countries such as Nicaragua and Costa Rica to observe and discuss other experiences. Overall, it appears that the elaboration of the Action Plan did not fully relate to all the relevant work carried out by the consultants.

Indicator: (iii) Estimates of planting priority areas: costs, species and methods

The project gathered data on choice of mangrove species for planting, planting methods, planting costs and inventory methods. This information was provided in the Appendix of the Land use plan. The project also carried out pilot planting of degraded areas with *Rhizophora mangle* and *R. racemosa*. In total 1 ha was planted in Chame and 1 ha in Azuero, at a spacing of 0.5m x 0.5m and 1m x 1m. However the spacing applied is too narrow in the absence of indications on tending regimes that should be applied.

Indicator: (iv) Species selection of adapted species and recommendations on their use based on research information

The project provided the information on choice of species for planting. in the Appendix of the Land use plan. It established 12 permanent plots of 0.1 ha each to measure growth, and 9 plots of 25 m2 each to study natural regeneration of *Rhizophora spp.*, *Pelliciera rhizophorae*, *Avicenia sp.* y

Laguncularia racemosa. However, the kind of observations to carry out in the permanent plots as well as the layout of these plots should take into account the management goals they are aimed at.

Output 4.2.3 Technical staff trained.

Indicator: 2 INRENARE technicians trained in mangrove management.

The project organized a training workshop for the technicians. It sent abroad foresters for study visits, and of the four, one is still attached to mangrove related activities. However no specific training in mangrove management was organized as planned for the two INRENARE technicians. Furthermore, training as far as capacity building and institutional strengthening are concerned were not given due importance in the project design. However, it appears that the major challenge that the Project faced was the management's capacity to bring multiple disciplines together to implement a development model integrating forest production, fisheries, socio-economic aspects, research and nature conservation. This was an ambitious approach which required necessary competences and an adequate training plan.

Output 4.2.4 Improved knowledge of mangrove ecosystems through research.

Indicator: mangrove ecosystems, their species and their functions better known

The project provided data on forest inventories, ecosystems and plant species. It also provided data on land and marine fauna. In total 34 technical reports were produced by consultants and the project's staff. But the information obtained is still contained in raw consultants' reports and has not yet been edited for publication in accessible formats.

Output 4.7.1 "Project document formulated".

The Executing Agency elaborated and submitted a follow-up project proposal to ITTO. This project, PD 156/02 Rev. 3 (F) "Conservation and reforestation of threatened mangrove areas along the Pacific Coast of Panama – Phase I and II", was funded in May 2003. At the time this evaluation was being conducted, arrangements were underway to implement this project. The evaluators found that the new project does not solve the management planning gaps left by its predecessor. In many respects, such as the unaccomplished planning objectives and the geographical coverage, it does not constitute an adequate follow-up of the initiated activities.

Output 1.6.1 Community development

Indicator (i): socio-economic survey of the population dedicated to mangrove use

The project effectively carried out a systematic population census in and near mangrove forests.

Indicator (ii): organized communities living near mangroves are created and participating actively their management

The project organized meetings with communities living in or near mangrove forests to explain and socialize its objectives. These meetings contributed considerably to socializing the objectives of the project and laying the foundation for the mobilization of mangrove users to the goals of management and conservation. However, the project did not organize the communities as planned. It did not have specialists in community organization, and its capacity for social work was weak. For this reason it did not develop any concept of community organization and no mangrove user participation structures were promoted. There were no anchoring community development activities which would have allowed testing certain hypotheses in order to plan future large-scale actions. All the production innovations that were proposed to individual farmers, such as beekeeping and iguana raising failed to materialize due to lack of advisory services and follow-up. For charcoal production, one of the important mangrove-based productions, the project should have given more assistance to organize the producers, to professionalize them and thereby improve production methods and increase the added value.

Output 1.-.1: Project monitored and reviewed.

Indicator (i): Periodic evaluation reports by national staff

Although one of the project's outputs related to carrying out its own monitoring and evaluation, there was no systematic periodic monitoring or evaluation of the project.

Indicator (ii): Periodic monitoring in the project area

Although the project provided periodic reports by its staff and its consultants to ITTO, and elaborated the annual work plans, it did not elaborate a monitoring and evaluation system to monitor and evaluate project activities, outputs and objectives as well as environmental and socio-economic impacts. The evaluators consider that the absence of monitoring and evaluation tools in the project is one of the causes of the important gaps in its implementation. An important aspect of good forest management is the monitoring of changes on the environment due to human activities or conservation and management practices. Although the project gathered enough information to create a baseline for monitoring changes on mangrove forests, such a monitoring still does not take place several years after its completion.

Indicator (iii): 2 joint evaluations with ITTO

The project submitted all the periodic reports required by ITTO, based on the implementation of the three successive annual work Plans. However no joint ITTO/ANAM project took place as planned.

Indicator (iv) 3 consecutive annual work plans

The project elaborated and implemented the annual work plans as planned.

4.3.2 Effectiveness in promoting the conservation, sustainable management and/or rehabilitation of mangroves

The best way to assess the effectiveness of the project in promoting conservation, sustainable management and/or rehabilitation of mangroves is to measure its success in putting in place the processes that support this promotion. Based on the goals of the project, the evaluators looked at the involvement of stakeholders in the problem analysis that led to the definition of the project's objectives, the development of a strategic framework, the inter-sectoral collaboration, and the changes in Executing Agency services.

At the time INRENARE elaborated the project proposal, no stakeholder involvement process was developed. Coordination with relevant public agencies was weak due to the lack of an appropriate framework for an integrated coastal zone management. However, there was an effort to involve a diversity of actors in the work of the Project Steering Committee. Although researchers of the University of Panama participated in the activities of the project, they did so only as consultants, and there was no inter-institutional collaboration framework. Overall the stakeholders' involvement in project implementation processes seems to have been limited to this relatively broad-based participation in the Steering Committee.

There is continuity in the administrative attention paid by ANAM to mangrove forests. A technician is in charge of matters regarding mangrove forests. However this responsibility is not institutionalized, and there have not been any changes in the structure of the services of the Executing Agency as a result of the project. This results from the low policy impact particularly as far as integrated coastal management is concerned. There was no review of the existing policy framework to show how it would be articulated in order to maximize the use of the project's results.

4.3.3 The overall role and contribution of the project to achieve conservation, sustainable management and/or rehabilitation of mangroves in the country

Achievement of specific objectives

Of the 7 specific objectives, the first and the sixth, namely generation of basic information and census of the population living near the mangrove forests can be considered as fully attained. The second objective, namely the elaboration of management plans for the 3 mangrove forest areas of Chame, Azuero and Chiriquí, which the evaluators consider as the main purpose of the project, was not attained. The remaining objectives have been partially attained, to varying extents.

In relation to Specific Objective 1 "To generate basic information for planning the best use of mangroves", the project effectively provided maps for the management of mangrove forests, for the 3

zones (Chame, Chiriquí and Azuero). These maps provide data on areas, land use, forest types and zoning proposals, at scales of 1:50,000 and 1:30,000, and are therefore a good basis for decision-making on zoning and management planning. The Project provided adequate mangrove resources inventory data, at 0.5% sampling intensity. The project also provided a Mangrove Action Plan, and the management planning guidelines. As a result of these successes the following developments took place:

- Resolution on Mangroves N° JD-08-94 was enacted in 1994;
- The Mangrove National program was approved in 1998;
- The Forest Law integrated aspects relating to mangroves.

In relation to Specific Objective 2 “Elaboration of management plans of mangrove areas for species conservation and sustainable use”, effective mangrove forest zoning taking into account specific functions (production, conservation, priority areas for interventions, etc.), has not yet taken place almost 12 years after the start of the project. No management plan has been elaborated for any of the working areas, which the executing agency attributes to a shift in objective priorities, as there was a need to first generate a Zoning proposal and an overall land use plan as no such data was available for the study area. No silvicultural management is implemented in areas that are open to exploitation, and uncontrolled tree cutting still goes on as before the implementation of the project.

In relation to Specific Objective 3 “Conduct studies on the technical and economic feasibility of use of mangrove products for the benefits of communities”, the project effectively conducted studies that provided important indications on alternative activities for communities depending on mangrove resources. As a result, the awareness of mangrove-dependent communities of conservation and management problems has improved. However, almost all the options that were proposed to the communities as alternatives to mangrove-based traditional economic activities, such as bee-keeping, iguana raising, were abandoned due to insufficient advice and lack of follow-up. No lessons have been systematically drawn by the Executing Agency from these failures in order to improve future initiatives.

In relation to Specific Objective 4, “Train INRENARE’s staff and the staff of other institutions having a role to play in mangrove management”: no such training seems to have taken place. Indeed as mentioned above, although four ANAM’s foresters were trained in the form of study visits, only one is still attached to mangrove related activities.

In relation to Specific Objective 5 “Formulate two pilot projects on the integration and sustainable use of mangroves”: a project, PD 156/02 Rev. 3 (F) “Conservation and reforestation of threatened mangrove areas along the Pacific Coast of Panama – Phase I and II” was submitted to ITTO and received funds. However, in the opinion of the evaluators it does not address the gaps left by PD 128/91 Rev. 2 (F), namely the elaboration of management plans for the three selected mangrove areas and their implementation (Chame, Chiriquí and Azuero).

In relation to Specific Objective 6 “Know the population living near mangroves and their mangrove-linked economic activities”, although the project provided the data on populations living in or near mangrove areas through a systematic survey, and communities were mobilized, no systematic work has been conducted towards community organization.

In relation to Specific Objective 7 “Formulate a project on mangrove species trials”: no such project has been formulated. Furthermore, the restoration trials and permanent plots established by the project do not seem to have a focus as far as the search of management régimes and silvicultural treatments are concerned, although preliminary information was obtained on the viability of species for mangrove restoration.

Achievement of development objectives

The project was designed to contribute to improving the socio-economic conditions of rural populations whose livelihoods depend on activities linked with mangroves, conserving and replanting mangrove areas located in the Coast of the Gulf of Panama in order to maintain and increase fish production, conserving, protecting and developing mangrove areas having characteristics for recreation, tourism, wildlife refuges, scientific research and environmental education, and achieving sustainable use of Panama's mangroves, through management activities.

Of these 4 development objectives, the project seems to have pursued only the first and the fourth, namely the improvement of socio-economic conditions of rural populations and the sustainable use of

mangroves. It is only these objectives that have corresponding outputs. Given the original problem description and the importance of the outputs, the evaluators consider that the fourth development objective is the main focus of the project.

In relation to Development Objective 1 *"To improve socio-economic conditions of rural populations whose livelihoods depend on activities linked with mangroves"*, the lack of clear conceptualization of how to approach the local mangrove users reduced the potential contribution of the project to improving socioeconomic conditions of rural communities. The results from socioeconomic studies were not used to adequately link mangrove forest management and the livelihoods of these communities. The project document had outlined a strategy for the implementation of the community development programme, including the identification of NGOs which could sustain its results, but the key related activities have not been executed.

In relation to Development Objective 2 *"Conserve and replant mangrove areas located in the Coast of the Gulf of Panama in order to maintain and increase fish production"*, the staff of the project was withdrawn at its completion, and there was no continuity in the active use of its results for conservation and management goals. ANAM's presence near the mangrove area was maintained and ensures a certain monitoring of the resource use. However, the project did not contribute to the above objective as no replanting activities were carried out beyond the study and demonstration plots.

In relation to Development Objective 3 *"Conserve, protect and develop mangrove areas having characteristics for recreation, tourism, wildlife refuges, scientific research and environmental education"*, the project established the basis for a contribution to this objective by providing zoning and planning data. However no effective zoning of forests has been carried out yet in order to determine areas having the different characteristics and functions described above.

In relation to Development Objective 4 *"Achieve sustainable use of Panama's mangroves, through management activities"*: The project has not yet contributed to achieving sustainable use of mangroves. At present there is still no capacity in the project area to integrate mangrove forest management, conservation and socioeconomic development aspects in a sustainable use approach. So far there is no tangible positive outcome for the populations resulting from the project.

4.3.4 The current status of mangroves within the project's area of influence

The achievement of the project as far as strengthening the capacity of the Executing Agency within its area of influence remains uncertain. The project was not effective in developing the process of mangrove forest management. As a consequence the management activities that ought to be conducted in Chame, Azuero y Chitré are not taking place yet. Uncontrolled use activities are still going on as before the implementation of the project. From their own observations in the field and the discussion with ANAM's staff and the mangrove users in Chame and Chitré, the evaluators concluded that the project did not contribute significantly to the improvement of the status of mangroves within its areas of influence.

4.3.5 The contributions of the specific studies in various disciplines

The information produced by the project was the first of its nature on mangroves in Panama. The study reports constitute an impressive database and building blocks for mangrove conservation and management policies. This documentation allowed raising the awareness of the decision-makers on the importance of mangrove forests in the preservation of the environment and in the national economy. However the lack of an analytical process and presentation in an overall model for management, development and decision-making reduces the potential of this database to contribute to various related disciplines.

4.3.6 The effectiveness of dissemination of project results

The project produced an impressive array of reports of technical studies. In addition to internal distribution in ANAM, the reports were distributed to relevant government agencies, universities and NGOs, and the information gathered has been used by high school students and to generate undergraduate theses. There was an effort to disseminate the information of the project's activities through newspapers and journals articles. However, the project lacked a strategy of information dissemination to potential users of its results in Panama and elsewhere. As a consequence there has not been any effort on capitalization and publication of its experiences, and the project did not disseminate its results

and experiences in a form that is readily accessible to public use. The lack of a communication strategy is a very serious gap as it reduces the possibilities for making use of these experiences.

4.3.7 Follow-up actions in order to enhance uptake of project results

As far as follow-up actions to enhance uptake of project's results is concerned, it is worth noting the Administrative Resolution N° DG-DINAF-01-97 taken by the highest authority of INRENARE to create and organize the National Program for the Management, Conservation and Development of Mangroves. According to this resolution, there should be a Coordinating Unit at the national level and this unit should be represented at the level of regions. Of course this arrangement of the Executing Agency's services should have been decided close to the beginning of the Project and not at its end. It should further be noted that although a staff member of ANAM is in charge of mangroves, this is a part-time responsibility, and no Coordinating Unit has been set up yet.

Another positive development that should be noted is that the local authorities in respective regions include mangrove related activities in their plans. There is more control of the use of mangroves. In the area of Azuero, there is a volunteers group which is very active in raising the awareness on conservation of the mangroves near Chitré and promoting ecotourism. However, this group is lacking professional advisory support, which ANAM could organize to provide.

4.4 Impacts and effects

4.3.14.4.1 The results and potential impact of applied research and its contribution to the overall knowledge on mangroves in the region

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The project did not have the impact that would be expected from the implementation of management plans in its three areas of Azuero, Chame and Chiriquí. In addition, its impact on policy processes was indirect and very limited. For example it contributed at a certain extent to the awareness on good management practices. However, its contribution to the development objectives was limited, partly by the lack of follow-up of its activities immediately after its completion. The end of activities did not coincide with the any integration of mangrove management and conservation service in the administrative structure of the Executing Agency.

4.4.2 The impact of project activities on the livelihoods of target populations

For the local communities the project did not effect any change in their situation. It lacked a truly participatory focus in the management planning process, and it became mostly technology and consultant-driven. The project did not put in place any measure to provide advisory services to the production initiatives it promoted, and as a result the farmers who were receptive to changes abandoned those productions. For existing activities such as charcoal burning, which is particularly important in Chame, the project did not provide advice and assistance for the professionalization of charcoal burners, their organization and the improvement of their production methods.

4.4.3 The overall post-project situation in the project's areas of influence

The project had a positive influence in general terms. It had a considerable positive impact on the attitudes towards mangroves in its areas of influence. Mangrove forests are no more considered as areas for garbage disposal. Some municipalities are actively protecting them and promoting ecotourism. However, due to lack of a monitoring system, there is no systematic information on the overall post-project situation. This positive development is offset by a halt in project activities at its completion. There is a need to solve the problem of sustainability of the project through its institutionalization within the existing administrative structures. Second, staff stability and budget means should be guaranteed in order to sustain the activities of the project.

The post project situation is also characterized by the lack of interagency and stakeholder coordination as far as mangrove related activities are concerned. No platform for such coordination exists yet. This gap is underlined because land use zoning in mangrove areas is necessarily a multi-sectoral, multi-stakeholder and multi-disciplinary undertaking, which requires the collaboration among several concerned government agencies and non-government stakeholders. To be successful, coordination needs institutionalizing an inter-agency consultative structure, to advise the implementing bodies and the Government on policies and their implementation.

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4.3.4.4.4 The unexpected effects and impacts and the reasons for their occurrences

There are some unexpected impacts of the project:

- The activities in plant production and restoration of degraded areas made some actors plant mangroves themselves.
- The project contributed to consolidating a new national policy context that is favorable to mangrove conservation and sustainable management.

4.4.5 Contribution to the ITTO Yokohama Action Plan and the ITTO's Mangrove Action Plan

In relation to the Yokohama Action Plan: The Yokohama Action Plan recognizes that “in addition to their ecological and socio-economic importance, mangrove forests provide timber and timber-related products that are internationally traded”. The project complies with the Plan’s Goal 1 “Support activities to secure the tropical timber resource base” under Reforestation and Forest Management, in recommended Action 4 « Promote the conservation, rehabilitation and sustainable management of threatened forest ecosystems, *inter alia* mangroves, in collaboration with relevant organizations”.

The project is in compliance with the ITTO Mangrove Workplan 2002-2006 as it crosscuts all the 6 selected areas of activities, as follows:

Area 1: “Conservation and sustainable management”:

One of the stated project's specific objectives is the elaboration of management plans of mangrove areas for species conservation and sustainable use. It helped gathering the data for management planning and elaborating the Mangrove plan of action and the Land use plan of mangrove forest areas.

Area 2: “Mangrove information and awareness”:

The project helped gather the information on different aspects of mangrove resources, use and conservation. It contributed to raising the awareness of decision-makers and the general public on importance of mangrove forests.

Area 3: “Socioeconomic aspects”:

The project conducted a study on the socio-economic aspects of mangrove resource use and made recommendations for use in the development processes.

Area 4: “Mangrove ecosystem functions and health”:

The project assisted in studying the status and the conditions of mangrove forests. The data gathered may provide a baseline allowing monitoring the health of Panama's mangrove ecosystems.

Area 5: “Cooperation and capacity building”:

The project contributed to supporting the relations between key stakeholders concerned with mangrove resources through the activities of its Steering Committee.

Area 6 “Policies and legislation”:

The project created awareness on the importance of mangrove forest resources, which allowed achieving the following developments in the spheres of policy and law:

- Resolution on Mangroves N° JD-08-94 was enacted in 1994;
- The Mangrove National program was approved in 1998;
- The Forest Law integrated aspects relating to mangroves.

4.5 Successes, failures, key lessons learnt

4.5.1 Successes

The project has enhanced Panama's capabilities of mangrove data collection and use for management analysis. The evaluators also recognize that the project has contributed to raising the awareness of the decision-makers on the necessity of good management practices for Panama's mangrove forests. This was the first initiative to provide thorough information on the country's mangroves. It went further to consider a wider array of the functions of mangrove forests.

4.5.2 Failures

The major failure is the non-achievement or partial achievements of important outputs, specific objectives, and development objectives because of too ambitious planning and perhaps lack of adequate tools for internal monitoring. Another factor that contributed to the project's weak effectiveness in achieving the development and specific objectives may be that the Executing agency leaned very heavily on the use of consultants, without deploying sufficient effort to coordinate the use of their contributions to planning and implementing mangrove management and community development processes.

A persistent weakness is the lack of management plans for the areas which were under the influence of the project. It seemed to the evaluators that the relevant authority does not perceive the need of such a planning in the same way as in early 90s when the project was elaborated. In the debriefing discussion held with ANAM's staff, the evaluators heard an argument against this need, that Panama's mangrove forest resources can be perpetuated and last for ever. Such an argument runs against the original problem analysis made prior to project elaboration. Indeed the project document recorded that mangrove forest cover has decreased in the past.

The project also failed in developing a concept of community development through mangrove-based activities. It did not make an attempt to institutionalize an autonomous development process aiming at participation of mangrove users in forest management activities. The evaluators consider that these are important gaps that need to be resolved in future follow-up projects.

Still on the failure side, the evaluators consider that lack of adequate publication and dissemination of the results, experiences and lessons learnt is a major shortcoming. The project could share its experiences at the national and international levels. Failure to do so represents an under-utilization of its data and results.

The negative impact of the above weaknesses and gaps was further enhanced by the discontinuity in the initiated activities for several years after the completion of the project. The project design had not envisaged modalities of maintaining technical teams in the project areas, or the institutionalization of the responsibility of mangroves in ANAM.

4.5.3 Lessons learnt

The key lessons learnt are as follows:

- The Project was instrumental in formulating mangrove conservation and management policies based on scientific and technical information generated thereof.
- Mobilizing the participation of local communities has allowed for dissemination of the importance of mangrove forests to the communities and enhanced commitment to mangrove conservation as evidenced in Azuero.
- Project implementation could have benefited from an adequate problem analysis and a logical framework.
- The design of complex projects should adequately take into account institutional strengthening needs for the sustainability of the project. The objectives should be as tight as possible, clearly defined and realistic.
- It is important to have a competent and continuous project leadership for a complex project in order to avoid implementation problems.
- Excessive reliance on use of consultants hampers the uptake of their recommendations and this may affect the project's sustainability.
- The limited achievements in community development are due to lack of a detailed prior project identification with the beneficiaries and lack of assessment of institutional capacity and needs in implementing such activities.

- Coordination with different offices of ANAM and local communities, through the designation of specific focal points or contact persons in Regional ANAM Offices, allowed products generated from the project (mapping and assessments) to be used as the basis to formulate a national program on mangroves.
- The lack of management plans did not allow the full use of the project's results.
- A more active role of the PSC would have assisted the project in reaching its objectives within the planned duration.
- ITTO and the PSC should have played a stronger role in ensuring that measures are taken to make the project comply with its objectives and its work plan. They should have better scrutinized the qualifications of the selected consultants.
- The lack of definition in the project's design of mechanisms for up-streaming lessons learnt from the project to the decision-making level did not allow optimizing its impact on mangrove related policies.
- A short project duration is inadequate to carry community development processes to maturity. Five to six years may be an absolute minimum in this regard.

PART III. CONCLUSIONS AND RECOMMENDATIONS

1. CONCLUSIONS

1.1 Implementation efficiency and project effectiveness

Overall Project PD 128/91 Rev. 2 (F) has had limited efficiency and effectiveness. It was only partially successful in achieving its objectives and had a quite significant overrun on its implementation duration. It did not fully accomplish its prime objective of elaborating and implementing management plans for the areas under its influence, namely Chame, Azuero and Chiriquí. The impression from the reports and field observations is that, with a few exceptions, the project delivered at the activity level. Indeed there are varying degrees of under-achievements of many outputs and specific objectives.

As the Executing Agency has not yet proposed a zoning scheme and the management plans have not yet been elaborated for all the working areas of Chame, Azuero and Chiriquí, it can be stated that the accomplishment of the project's objective has been delayed for several years. Similarly, the accomplishment of the project's objective for community development has also been delayed. Community development requires a vision and strategies. The project should have given more emphasis on developing processes instead of focusing on activities alone. In a process approach, the way that outputs are reached is at least as important as the outputs themselves, and the focus must be on the internal social dynamics generated in beneficiary communities and sustainability. In this respect, probably the major challenge that the project has faced and future phases will face is how to bring together the information from multiple disciplines in a management system integrating forest production, fisheries, conservation, research and socio-economic aspects.

One of the factors that contributed to limiting the project's efficiency were the frequent changes of the project manager. Based on the time overrun and the non accomplishment of all its objectives, it can be concluded that the project has not been cost-effective. However, it has been efficient in conducting the planned studies. These studies provided the data and information that improved the existing knowledge on Panama's mangroves. They are reported in numerous reports, and could be edited and published for a wider use.

1.2 Overall assessment of successes and failures

In spite of the problems mentioned above, the project has made a valuable contribution to the knowledge of Panama's mangrove forests. It enhanced the awareness of the authorities and the public on the need for their conservation and sustainable management. However, these successes are offset by the non-achievement or partial achievement of important outputs, specific objectives and development objectives relating to the elaboration and implementation of management plans for the mangrove areas under its influence, and to community organization and development. Perhaps one of the areas where the project failed most is the dissemination of information. Besides the reports required by ITTO and the organization of workshops, the project did not publish its experiences on the methodologies and the techniques it applied and the numerous interesting results it obtained. The heavy reliance on consultants weakened the potential contribution of the project to institutional learning. The Project management played a marginal role in the learning process and did not fully internalize the experiences gained from key project outputs. With the completion of the project, there was a withdrawal of the project teams and a discontinuation of key activities. This is an important loss of institutional memory to ANAM. It is particularly aggravated by the lack of effort in ensuring the capitalization and publication of the project's experiences.

1.3 Alternative design of the project

The rationale that led to the elaboration of a project aiming at ensuring the sustainability of mangrove resources through the implementation management plans, taking into account the resource potential and the needs of local populations is still valid. The implementation approach of obtaining basic data for management planning was also valid. The objective of elaborating the management plans for the areas that were under the influence of the project should therefore be pursued, so that the socioeconomic development programs linked with mangrove forests may be implemented as was planned.

However, the implementation design fell short of the objectives and the approaches. The concept of community development was not sufficiently developed, taking into account the need to integrate mangrove forest management and the local mangrove users' activities. There was an assumption that

the Project's management will be able to bring multiple disciplines together to implement an integrated development action. This assumption seems to have lacked an adequate analysis of the institutional needs for that. The design would have therefore included adequate capacity building and institutional strengthening activities.

In retrospect, the best design would have emphasized a process development, in a slower approach. Therefore a smaller pilot phase emphasizing an evolving implementation process would have been the best course in order to attend the needs of institutional building both at Executing Agency and community levels, and to develop a participatory management system.

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22. RECOMMENDATIONS

Based on the findings of the evaluation, the following recommendations have been drawn:

To ANAM:

- A communication strategy on mangroves should be elaborated in which focus should be given to target groups such the public in general, local communities, public agencies and private sector;
- Redesign the permanent plots network established in the project sites, with the aim of collecting data that can be used to determine the adequate management systems and silvicultural treatments.
- There is an urgent need to adopt and implement a zoning scheme of mangrove forests, in order to elaborate the management plans for the selected areas of Chame, Azuero and Chiriquí.
- Consider reformulating Project PD 156/02 Rev. 3 (F) "Conservation and reforestation of threatened mangrove areas along the Pacific Coast of Panama – Phase I and II", so that it may fill the planning gaps left by its predecessor and assist in implementing the management plans for the selected areas (see specific recommendations below).
- To ensure sustainable mangrove management, provide adequate assistance to charcoal burners, particularly in Chame, by further professionalizing them, through adequate technical advice, and organizing them to improve their access to services and markets.
- As evidenced from the circumstances surrounding the project implementation (delays in project implementation, timely personnel recruitment and disbursement of funds to project activities, frequent changes in project manager and other staff) it is advisable to consider contracting a cooperating agency for execution or co-execution of future ITTO projects, in order to facilitate their implementation.
- When introducing alternative economic activities, there is a need to ensure adequate support services accompanied by continued monitoring so that assessments can be made as to the effectiveness of the uptake and corrective measures be taken as required.
- Consider modalities for the formal organization of local communities through Cooperatives and/or Associations as it relates to mangrove related activities.
- Based on the above results and experiences, consider the broader context of relations of communities with local segments of society in their region, through local NGOs and similar partner institutions, opening up new and additional possibilities for economic activities and partnerships (tourism/hoteliers and leather tanning industry in Azuero for example).
- Enhance conservation and sustainable tourism efforts in the Cenegon Mangrove Municipal Park through a management plan for the site, in the broader context of a Mangrove Management Plan for Azuero.
- Develop a monitoring and evaluation system that would enable mangrove project evaluation, and the assessment of effectiveness of management activities on mangrove conservation and sustainable use.
- To ensure sustainability of the project's accomplishments and to consolidate its gains consider the institutionalization of the project in the structure of ANAM.

To ITTO:

- Mid-course correction mechanisms for projects with weak project documents are needed. It is important to carry out a mid-term review whenever project's implementation shows clear signs of weakness.
- Project monitoring and evaluation need to be fully integrated in the project activities. Impact indicators for the objectives and performance indicators for the outputs and their means of verification need to be clearly identified.
- The project proponents should include in the project design mechanisms for up-streaming lessons learnt from the project to the decision-making level for policy changes. Capacity building requirements for such a process should be addressed.
- For phased projects, there should be an end of phase evaluation before starting a new phase.
- The project document should spell out clearly the implementation processes to be developed.
- For sustainability of the results of complex projects, the institutional set-up of the Executing Agency should be adequately analyzed and its needs should be taken into account in the design, both for project and post-project period.
- Encourage countries that submit projects to take into account the cultural and local socio-economic context before formulating proposals for alternative production projects so as to maximize their feasibility, impacts and sustainability.
- Projects that develop community development processes need longer duration than 2-3 years, in order to create all the requirements for their sustainability.
- Project ex-post evaluations should be carried out soon enough after completion so that institutional memory can be used, also taking into account the minimum time required to achieve the impacts.
- Consultancies in the implementation of project's activities should not be conducted at the cost of institutional capacity building.

Specific recommendations to ANAM and ITTO for the implementation of PD 156/02 Rev. 3 (F)

- Elaborate management plans for Azuero, Chame and Chiriquí mangrove forest areas, in a way that ensures continuity with PD 128/91 Rev. 2 (F). Ensure the participation of all key stakeholders in the planning process.
- Redesign PD 156/02 Rev. 3 (F) to focus on the implementation of the approved management plans. The redesigned project should develop an approach for the implementation of community development activities.
- Take steps to ensure full institutionalization of the Project, and if necessary, include institutional strengthening activities aimed at its integration within the structure of ANAM.
- Elaborate as early as possible a Monitoring and Evaluation System for the project, and have it approved by the PSC.

ACKNOWLEDGEMENTS

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ANNEX
EVALUATION PROGRAMME IN PANAMA

18 January 04

The evaluators arrive in Panama City.

19 January 04

09:00 - 09:30 Meeting with Lic. Ricardo Rivera Jaramillo, Director Nacional del Patrimonio Natural, ANAM.

09:30 - 13:30 Meeting with former project staff and consultants at ANAM Headquarters.

14:30 - 16:00 Analysis of documents.

20 - 21 January 04

Field visit to Chame District on 20 January, accompanied by M. Félix Magallón and M. Jorge Justavino:

- Observation of established permanent plots in the mangrove forest;
- Visit to caharcoal makers;
- Visit of Libano Village and discussion with M. Eduardo Torres on beekeeping activities;
- Discussion with other active members of local community;
- Transfer to Azuero and discussion with ecotourism volunteer group.

Field visit to Azuero on 21 January:

- Visit to plots of mangrove established by the project;
- Visit of ecotourism activities in mangrove forests;
- Visit of iguana farming.

22 January 04

08:00 - 12:00 Preparation of the synthesis and preliminary conclusion of the visit.
14:00 - 16:00 Debriefing.