



Tropical
Forest
Management
Trust

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**TROPICAL FOREST MANAGEMENT TRUST
AND
MANAGING INNOVATIVE TRANSITIONS IN AGREEMENT (MITA)**

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FINAL REPORT

From January, 1997 to October, 1998

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CONTEXT

The MITA project was designed to provide a transition of USAID supported activities between Phases 1 and 2 of the Environmental Program (French acronyms: PE1 and PE2). In the context of these objectives, project operator Pact, Inc. sub-contracted The Forest Management Trust (TFMT) to implement the following principal activities:

- Provide technical support of Madagascar's Parks and Protected Areas Service (French acronym: ANGAP) so that this institution would have the operational capacities corresponding to its mandate as strategic and operational manager of the network of protected areas, and key participant in the regional approach to conservation and development.

- Provide technical support to the AGERAS regional conservation and development process in environmental information systems technologies in order to:
 - ❖ Test regional approach models based upon multi-level, multi-sector strategies and spatial analysis, create forums and media for information exchange, consultation, negotiation and integration of private sector stakeholders in planning and decision making.
 - ❖ Facilitate the participation of individual stakeholders and institutions at regional and national levels in the development of the of the AGERAS process, focusing initially on those who possess capacities and expertise in analysis, programming, and long-term planning to enhance the efficient implementation of decisions.

TFMT's participation in the MITA project began in January 1997 and ended in October 1998. The subcontract between TFMT and Pact, Inc. was initially expected to terminate on June 30, 1998. For technical reasons related to project implementation, TFMT was granted a subcontract extension until October 31, 1998. In the following report, TFMT's interventions in support of ANGAP and of the AGERAS process are presented sequentially.

TFMT'S ACCOMPLISHMENTS DURING THE MITA PROJECT

I – TECHNICAL SUPPORT TO THE PARK SERVICE (ANGAP)

The Forest Management Trust's activities and accomplishments during the transition period between PE1 and PE2 were principally guided by :

- *Conclusions of the final technical report submitted to ANGAP by Tropical Research and Development (TR&D) at the end of its technical assistance program in December 1996;*
- *Priorities identified by ANGAP and its principal funding agencies, resulting from recommendations of the institutional audit conducted within ANGAP in April 1997.*

From January 1997 to January 1998, technical assistance to ANGAP was guided by a specialist in National Park management, Mr. Roger Collinson, who served as Parks advisor for the TFMT program. During Mr. Collinson's service as technical advisor to ANGAP, two programmatic priorities were addressed, notably:

- ❖ The decentralization of ANGAP
- ❖ The legislative framework and legal mandate of ANGAP

At the conclusion of his service, Mr. Collinson submitted a final technical report with the objectives of:

- Presenting a summary of the principal initiatives, results, and conclusions of the technical assistance programs implemented by TR&D and by TFMT in support of ANGAP,
- Providing recommendations concerning the short-term technical assistance (STTA) packages and training to be undertaken with ANGAP before the end of the TFMT MITA subcontract,
- Providing recommendations to ANGAP and the funding agencies (USAID, World Bank, et al.) Concerning technical assistance and training necessary for the next 5 year phase of implementation of the environmental action plan (PE2) in order to develop the institutional capacities of ANGAP
- Providing benchmarks to ANGAP and the funding agencies for monitoring and evaluation of the progress achieved by ANGAP in its institutional development.
- The specific activities and recommendations provided by Mr. Collinson during his service as technical advisor are detailed in this final report.

Following the departure of Mr. Collinson, and following his recommendations, TFMT intensified its support of ANGAP in the following programmatic areas:

- ❖ Financial management systems
- ❖ Ecotourism
- ❖ Park management
- ❖ Training
- ❖ Administration

Those activities pertaining to the decentralization of ANGAP management and to the redefining of ANGAP's legal mandate received intensive support during the entire TFMT MITA project period.

1 – ANGAP's Program of Decentralization

Following the recommendations of the institutional audit conducted by Price Waterhouse, TFMT recruited an international consultant (Ms. Lynn Ellsworth) to elaborate a strategic plan for ANGAP's institutional development. Two workshops were held with ANGAP senior staff and donor representatives to contribute to this strategic plan in September and October 1997.

Preceding these workshops, two intensive work sessions were held with the General Director and department heads of ANGAP with the goal of deriving internal plans of implementation from the results of Price Waterhouse's institutional audit. These work sessions served as preparatory sessions for the strategic workshops.

The first strategic workshop, held September 9-10, 1997, comprised the General Direction and department heads of ANGAP. This workshop was moderated by a local consultant group (Cabinet Performance, headed by Ms. Elyett Rasendrasirofo) and Pact's technical advisor, Mr. Paul Cowles. The meeting also included the participation of TFMT's Parks Advisor, Mr. Collinson, and the institutional development consultant, Ms. Ellsworth. The first workshop addressed the following objectives:

- Arrive at a clear and precise definition of "decentralization";
- Define responsibilities at each management level (headquarters, regional direction, protected areas);
- Formulate guidelines for headquarters assistance at each management level.

The products of this first workshop included the following:

- A functional organizational chart of the protected areas network;
- A structural organizational chart of this network;
- Terms of reference for each management level.

The second workshop (October 15-16, 1997) was much more participatory in nature. Participants included the General Direction, department heads, regional directors, as well as protected area managers and their program officers. The workshop was moderated by Mr. Cowles and two Malagasy consultants, Mr. Christian Andriantseheno and Ms. Alice Ravoson, and again included Mr. Roger Collinson and Ms. Ellsworth. The objective of the second workshop was to further develop the results of the first workshop, including:

- Establishing an operational definition of “ANGAP decentralization”;
- Elaboration of a matrix and inventory of program components of protected area activities;
- Elaboration of organizational chart models for headquarters management.

Products of the second workshop included:

- A matrix of program components for protected area management, in terms of activities, products, beneficiaries and indicators of quality;
- Models of structural and functional organizational charts for ANGAP more appropriately responsive to the requirements of the proposed decentralization.

Drawing upon the results of the collective efforts of ANGAP staff, recommendations from technical advisors and USAID and her own expertise, the institutional development consultant prepared a final report of recommendations for institutional reform, entitled “The challenge ahead: Building a national parks service for Madagascar”. This report proposed a plan for reorganization of ANGAP and detailed how the proposed plan responds to the government’s efforts to create a park management organization.

In her report, the consultant proffered three essential recommendations, notably:

- ❖ A proposal for internal restructuring of ANGAP which comprised the role of headquarters and the structural organizational chart of ANGAP;
- ❖ A proposal of scopes of work for ANGAP staff;
- ❖ A proposal concerning the fundamental elements to be addressed in the creation of a legislative framework for ANGAP.

According to the recommendations of the institutional audit report and of the international consultant, the proposed reorganization would be more efficiently achieved if complemented by the creation of a legislative framework for ANGAP defining its legal mandate, the mandate of its board of directors, and the nature of government supervision of ANGAP.

2 – The Legal Institutional Framework for ANGAP

The creation of a legal institutional framework for ANGAP benefited from the assistance of several consultants who were recruited by TFMT during the MITA project. The consultancies included:

- ❖ Land tenure
- ❖ Employment legislation
- ❖ Formulation of a legal decree for Program Law No. 97012 of June 06 1998
- ❖ Drafting of a revised legal statute of “office national” for ANGAP, as manager of the parks and reserves of Madagascar
- ❖ Formulation of the Code for Protected Areas Management (French acronym: COGAP)

The land tenure and employment legislation consultancies were implemented following the transfer of management of the former Integrated Conservation and Development Projects (ICDP) to ANGAP, while the other three consultancies cited above were undertaken in response to recommendations of the institutional audit. The consultancies relative to ANGAP’s legal framework are described below.

2-1 – Land tenure (March-June 1997)

According to the design of its plan of action for PE2, ANGAP became responsible for the development of ecotourism within the protected area network. In the context of this new activity, ANGAP must necessarily attract the interest of private sector investors for the construction and management of hotel infrastructures (ecolodges). The ecolodges are to be constructed outside of the protected areas in zones defined in ANGAP’s management plan for each protected area. It was recommended that ANGAP establish its own proper domain of proprietorship comprised of public lands upon which the ecolodges may be built. To this end, ANGAP requested the assistance of a Malagasy expert in land tenure whose mission was to help ANGAP to constitute its own proper domain of proprietorship for protected areas infrastructures and to formulate documents necessary for the development of partnerships with potential

investors. The mission of this Malagasy consultant, Mr. Georges Rabenoel, addressed three principal objectives:

- Management of ANGAP's requisition for the granting of proprietorship for public domain lands in the service zones of the Isalo and Ranomafana National Parks and the Ankarana Reserve;
- Establishment of legal protocols and contractual stipulations to bind the contribution of private investors to the conservation efforts of ANGAP;
- Training of ANGAP officers in the establishment of legal dossiers for the transfer of public lands to ANGAP and training in the administration of these dossiers.

The above-cited training of ANGAP officers was completed in a two-day workshop in which legal tenure procedures and the granting of public domain lands were the principal themes.

2-2 – Employment legislation (April-July 1997)

With expanded responsibilities following the first phase of implementation of Madagascar's Environmental Action Plan (PE1), ANGAP became responsible for the management of certain former ICDPs. The transfer of ICDPs merited special attention given that the management systems of ANGAP and those of the ICDPs were not necessarily the same. Accordingly, ANGAP requested the support of a Malagasy expert, Mr. Rene Zafisoa Ramparany, to provide assistance before, during, and after the ICDP transfer in order to:

- Avoid problems in personnel management that could arise with the transfer of ICDPs (e.g., social conflicts...);
- Abide by the employment code of Madagascar;
- Implement a standard, uniform policy of human resource management.

Mr. Ramparany's work was mainly conducted at the protected area complexes of Andohahela, Montagne d'Ambre/Ankarana, Ranomafana, and Andasibe. At the completion of his mission, the consultant had accomplished the necessary procedures to facilitate the lawful, efficient transfer of ICDP personnel to ANGAP. Mr. Ramparany furthermore provided a clear description of procedures necessary for the integration of human resources within ANGAP and offered recommendations to ease this integration.

2-3 – Formulation of the legal decree for Program Law No. 97012 (September 1997)

Precedent to the initiation of PE2, it was deemed necessary that Madagascar's "Chart of the Environment" be modified and that new program components be developed in order to strengthen its

effectiveness. To this end, the development of Program Law No. 97012 was initiated to strengthen the protected areas component of Madagascar's environment program. This law stipulates, among other things, the establishment of a private and autonomous status for ANGAP as the institution responsible for management of the network of protected areas and representative ecosystems of Madagascar. The law furthermore provides for the adoption of a Code of Protected Areas Management (French acronym, COGAP).

A Malagasy consultant, Mr. Naina Rabenarivo, was contracted in September 1997 to draft a legal decree for promulgation of this new law. The products of his consultancy included two drafts of the decree accompanied by memoranda explaining the details of his legislative endeavors. The government of Madagascar on June 06, 1998 approved the decree for promulgation of Program Law No. 97012.

2-4 – Drafting of a revised legal statute for ANGAP (February-March 1998)

ANGAP was created in 1990 at the initiation of PE1 with the statute of an association. ANGAP's role, according to this statute, was to oversee the management of protected areas by non-governmental organizations. Toward the end of PE1, ANGAP was accorded a new role, notably that of strategic and operational manager of Madagascar's Parks and Reserves. The analysis of progress achieved during PE1 clearly demonstrated that in order to effectively fulfill its new mandate of expanded responsibilities, ANGAP would require greater administrative empowerment by the Madagascar's National Assembly and executive branch of government. However, important resistance existed within these governmental bodies concerning the possibility of granting administrative powers and a legal mandate to an agency with the formal statute of "Association". Accordingly, it was deemed necessary to formulate a new legal statute for ANGAP such that it could fulfill its role of protected areas management with appropriate authority to implement management activities. Among the various statutes existing within Madagascar's legislative structure, the statute of "Office" seemed most appropriate for ANGAP.

Mr. Naina Rabenarivo was commissioned to draft a revised legal statute for ANGAP in March 1998. Fulfilling the requirements of his consultancy, Mr. Rabenarivo drafted a legal decree proposing formal creation and organization of the National Office for the Management of Protected Areas (French acronym: ONGAP). ANGAP's directory committee approved the draft proposed by the consultant. Its official promulgation is expected in the near future.

2-5 – Formulation of a Code for Protected Areas Management (French acronym: COGAP)

(October 1997– October 1998)

As was noted above, the Program Law modifying and completing Madagascar's "Chart of the Environment" and recommendations in the final report generated by the international development consultant, Ms. Ellsworth, stipulated the adoption of a formal legal code for Protected Areas Management (COGAP). The adoption of a COGAP would permit ANGAP to operate as an independent protected areas management agency and to undertake activities implied by its expanded mandate.

The formulation of COGAP was achieved in two phases. The first phase was implemented with the assistance of two consultants, Mr. Cyril Kormos and Mr. Naina Rabenarivo. Given that the results of this first phase were deemed insufficient, a second phase was initiated and its implementation entrusted to a local consultancy group, "Cabinet Performance". This group was commissioned to meet the objective of drafting a COGAP for Madagascar following a participatory process, of sequential and successive nature. The formulation process furthermore was to integrate the various entities concerned in the enforcement of legal measures governing the protected areas of Madagascar, while respecting the management imperatives that should form part of the proposed legal code and drawing from national and international experiences in protected areas management. "Cabinet Performance" is required to provide a draft of the COGAP during its commission and a final version of this Code upon validation of the draft by vote of the National Assembly. – consultation nationale de validation. This consultancy was initiated near the end of the TFMT MITA project and, consequently, partners in the MIRAY program, notably WWF, will supervise its execution.

3 – Technical Support for Accounting and Financial Management

In order to solidify its institutional development, ANGAP committed to the improvement of its financial management and accounting systems. Given this commitment, TFMT provided two programs of support to ANGAP to contribute to the reform of its department of administration and finance, notably:

- *Recruitment of supplemental staff for financial accounting;*
- *Development of a financial management system for ANGAP.*

3-1 – Recruitment of supplemental staff for financial accounting (July-October 1998)

Given the growth of activities and operations initiated for the ANGAP protected areas network upon the transfer of management of 7 former ICDPs in July 1997, the centralized management style previously exercised by ANGAP could no longer satisfy the requirements of its expanded duties. Consequently, ANGAP engaged in a restructuring of its accounting and financial management systems. Given the demands of the expanded management structure, especially in terms of human resources, and provided that the Association would be required to ensure the effective functioning of its administrative and financial systems during the proposed restructuring, ANGAP requested supplementary assistance for its accounting staff to fulfill the responsibilities of:

- Liquidating overdue accounting in order to restore the functioning of the Finance and Accounting Program to normal, performant conditions (respecting conventional administrative deadlines, maintaining current and credible accounting systems, etc.);
- Relieving each team leader of burdensome administrative tasks such that (s)he could commit greater effort to management operations and participate in the formulation and implementation of a new management system.

The accomplishments and contributions of the temporary accounting support staff were deemed effective and helpful to ANGAP. Following discussions with ANGAP officials responsible for financial management and according to the terms of reference of the supplemental staff, the permanent employment of these agents within ANGAP should be taken under serious consideration..

3-2 – Development of a financial management system for ANGAP (July-October 1998)

The development of a decentralized financial management system for ANGAP was deemed imperative, considering the transfer of ICDP management, the expanded size of its protected areas staff, and its financial resources. The design and implementation of a decentralized financial management system was entrusted to a consortium of foreign and Malagasy consulting groups, “De Chazal Du Mee & Co.” and “Auditeurs Associes, CGA”.

The new financial management system was designed to include a computerized accounting system with all required management procedures and policies which, respecting conventional administrative standards, should respond to the specific needs of a protected areas management service. The principal objectives of the consultancy are:

- Analysis of existing management procedures;
- Analysis of needs, specifications and strategic imperatives;
- Design of a new financial management and accounting system;
- Development of criteria for selection of financial management and accounting software;
- Development of an internal directive defining responsibilities per position (teacher descharges);
- Elaboration of a report of evaluation and selection for appropriate financial management and accounting software;
- Supervision of the installation and employment of the proposed software;
- Elaboration of manuals of management policy and procedures;
- Training of ANGAP staff for operations under the new system;
- Monitoring the implementation of the new system.

TFMT's responsibilities for the financial management consultancy was limited to supervision of the first five of these objectives, given that the consultancy began just before the end of the MITA subcontract with Pact. The consortium of consultants proposed a new decentralized system that is easily comprehensible and readily accessible to all potential users. The system is guided by the principle of accounting of financial operations at each protected area site and transmission of detailed accounts to regional headquarters for verification and incorporation into a central financial system. Consequently, it is recommended that each protected area be associated with a specific regional headquarters. The sites, the regional headquarters and ANGAP central headquarters will all use the same software package.

The consortium recommended procedures for implementation of the proposed system in their progress report. These procedures include:

- ❖ opening bank accounts at each site for operational expenses;
- ❖ periodic accounting of expenses and transmission of valid receipts;
- ❖ specification of control of financial disbursement;
- ❖ rules for using Park entrance fees;
- ❖ computer-based registry of financial operations;
- ❖ standardization of financial reporting at all levels;
- ❖ the integration of accounting and budget procedures within a standard system;
- ❖ management of infrastructures, equipment and materials.

The consultants also furnished proposals for:

- Modification of ANGAP's accounting system, coding of the general accounting system, and monitoring procedure for budget expenditures, activities, and funding engagements;
- Improvement of administrative and financial procedures, notably those concerning acquisition, personnel management, commerce of goods, management of Park entry fees and community endowments, and treasury procedures for the protected areas.

ANGAP's donors approved the proposed system without objection and solicitations of the financial management software package were scheduled for November 1998.

4 – Ecotourism

With responsibilities for the development of ecotourism being confided to ANGAP as part of its expanded mandate, a portion of TFMT MITA funding for the ANGAP program was reallocated to ecotourism support which focused specifically on the following components:

- *Revision of government legislation concerning tourism in Madagascar;*
- *Support for the development of the ecotourism sector.*

4-1 – Revision of Madagascar's tourism legislation (March 1998)

TFMT's technical advisor for Park management, Mr. Collinson, conducted a review of Madagascar's ecotourism legislation in response to a request from USAID for his expert analysis of this domain. Mr. Collinson's study addressed the following objectives:

- Propose the amendment of existing laws to eliminate obstacles to the development of ecotourism;
- Introduce new legislation which would enhance conservation of the environment and protection of the rights of rural communities under the new conditions created by opening Madagascar to ecotourism;
- Propose specific legislation to promote the development of ecotourism in Madagascar, while guarding the environmental and social standards necessary to compete successfully in the rapidly growing ecotourism market.

An important challenge to the implementation of the proposed revision of tourism legislation is to be able to maintain an equilibrium that allows for greater freedom in development of private sector initiatives while protecting the nation's people and resources. The new legislation must, accordingly,:

- Take into consideration the interaction of tourism legislation and potential impacts on the environment resulting from greater development in this sector, identifying and correcting for “gaps” in the legal code which may have adverse effects;
- Define regulations, procedures and policies that should be implemented in order to engage the tourism sector in active protection of the environment;
- Define a strategy that may ensure the conformity of current tourism activities with the environmental and humanitarian standards proposed for ecotourism.

4-2 – Support of the development of ecotourism activities in Madagascar (April 1998)

The design of the second phase of Madagascar’s environmental program (PE2) proposes greater involvement and regulation of the private sector. The roles and specific attributions of private sector stakeholders have not yet been well defined for activities that concern the protected areas. Furthermore, important differences are noted between the perspectives of ANGAP, as guarantor of Madagascar’s natural patrimony, and the private sector operators who utilize this natural patrimony to derive important revenues. The differences are essentially due to insufficient communication and problems of alliance between these entities. Accordingly, a process of consensus building was initiated in order to equitably delegate responsibilities to all participants in the development of ecotourism. This process was launched during the TFMT MITA project with the following activities:

✧ Ecotourism workshop (April 6-7 1998)

To arrive at the desired consensus, an initial workshop was held in April 1998 to promote discussion and negotiations between ANGAP, the Tourism Service (Maison du Tourisme), the Ministry of Tourism, the Ministry of the Environment, the Ministry of Water and Forests (MEF), the National Office of the Environment (ONE), and private sector operators. This workshop resulted in the signature of a pact of collaboration between the stakeholders in Madagascar’s ecotourism sector.

✧ Creation of the Communication and Coordination Unit (April 15 1997)

The “Pact of Collaboration” between stakeholders prescribes the creation of a formal Unit responsible for the implementation of the Pact and of the strategy of collaboration defined therein. The terms of reference of this Communication and Coordination Unit (French acronym: CCC) are summarized as follows:

- At the level of workgroups: animate and catalyze, inform and report to participating stakeholders, define the modes of implementation, coordinate the implementation of action plans;

- Relative to external parties: lobby key organizations, establish and implement a program of public communication, identify and recruit consultants for specific needs identified by the stakeholder alliance.

There are four workgroups in the CCC, namely :

- ❖ Group A : Land zoning and development
- ❖ Group B : Regulation and contractual engagements
- ❖ Group C : Regional integration
- ❖ Group D : Marketing and Promotion

It was decided that the private foundation “Patrimoine Nature”, animator of the first workshop, would be responsible for leadership of the Communication and Collaboration Unit (CCC) Furthermore, it was agreed that the meetings and activities of the Unit would be financed by TFMT-MITA. Since its creation , the CCC has accomplished the following activities:

- Organization of a meeting with the goal of validating the action plan of the CCC in assembly of stakeholders, to establish a calendar of activities and to define appropriate tools of communication (April 27 1998);
- Following this meeting, a press conference was held by the CCC to officially announce the Pact of Collaboration between private sector operators, the Tourism Service, the Ministry of Tourism and the ONE to contribute to the development of ecotourism in Madagascar (April 27 1998);
- Initial mission to Isalo National Park, which served as the preparatory phase for the creation of an ecotourism investment zone (May 1998) – this phase addressed two objectives:
- Officially establish contacts between local operators in order to inform them of the initiatives and achievements of the Isalo project, of the Pact of Collaboration, and of the anticipated benefits of the ecotourism development program, and to incite their participation in the implementation of this program
- Examine in detail the measures by which this type of ecotourism project could be established and identify issues affecting such projects, notably the opportunities and constraints in implementation, collecting all information pertinent to project development.

Two other missions were scheduled, including a zoning study of the Isalo ecotourism project and a study concerning regulation and contractual obligations, however these missions were not implemented as planned due to internal issues that “Patrimoine Nature” did not specify in its last report (August 1998).

5 – Park Management

5-1 - Management plan for the Andasibe-Mantadia National Park Complex (April – July 1998)

A principal objective of ANGAP during the transition between PE1 and PE2 was to finalize a management plan for the Andasibe-Mantadia National Park Complex such that this site may appropriately serve as a pilot for the development of ecotourism.. To this end, an international consultant specializing in the management of protected areas, Mr. Scott Grenfell, was contracted to prepare the proposed management plan. Mr. Grenfell’s consultancy addressed three objectives, namely:

- Contribute to the formulation of a development plan for the service zone of the park complex;
- Contribute to the implementation of this plan by establishing detailed plans and budgets for the construction of park infrastructures, notably for two ecotourism trails(a one-day trail and a four-day loop with campsites, rest areas and enclosures, observation towers and information systems);
- Train park agents in the development of trail systems and management of the Analamazoatra Special Reserve.

In addition to the development standards proposed in the management plan, the consultant, his field team, and the Park Manager actively engaged in the development of trails and infrastructures, including:

- A trail system to the “Sacred Waterfall” with bridges and stairways enabling visitation of the falls in close proximity and from an observation tower;
- A trail system encircling the “Natural Pools”;
- A trail system within the Analamazoatra Special Reserve with prototypes of trail markers and signs designed by the consultant which offer information and warnings to tourists.

These were but a few of the accomplishments of the consultant, his team and local residents and the appropriateness of his management plan was confirmed by the facility in which the service zone has been established. In his report, Mr. Grenfell offered several recommendations, including:

- Infrastructures to be developed for the park complex (parking areas, guard stations, campsites, scenic views, picnic sites, information centers, staff lodging);
- Construction of centers for research and training of park guides to be envisioned in the near future;
- Priorities in the development of trail systems;
- Estimated costs and work plans for the development of the proposed infrastructures.

The management plan for Andasibe-Mantadia produced impressive results considering the urgency of the mission confided to the consultant: that of rapidly preparing for ecotourism activities and developing service zones. Nonetheless, some important elements of the management plan remain to be undertaken, notably:

- Completion of development activities for the Analamazaotra Special Reserve;
- Construction of a central visitors center to replace the existing, antiquated center;
- Formal declassification of the Sahanody forest (currently under consideration by the government).

5-2 - Formulation of a management plan for the Zahamena National Park and Natural Integral Reserve Complex (August-September 1998)

Approximately two-thirds of the Zahamena Natural Integral Reserve was classified as National Park, opening this former strictly protected reserve to possibilities of management and development, notably for ecotourism and applied research activities. The formulation of a management plan for Zahamena, based upon the guidelines proposed by ANGAP in collaboration with Conservation International-Madagascar, were given high priority in the development of the protected areas network. The management plan was foreseen as a means of ensuring the balanced development of activities within and around the National Park, as well as a directive for active management of the entire protected area complex.

At the request of Conservation International-Madagascar, TFMT contracted the protected areas management specialist, Mr. Scott Grenfell, to formulate the management plan in collaboration with Conservation International's Zahamena project team. The management plan resulting from this collaboration was approved by the Zahamena Project advisory board and by ANGAP's Department of Planning and Monitoring. The objective of the consultancy was to provide a management tool for the Park agents that would serve as a principal reference for management of the protected area complex. The management plan proposes specific management options and strategies for zones within the protected area complex and offers recommendations for the development of activities in these zones. The document offers a detailed description and analysis of the Zahamena complex, its natural resources, residents in its periphery and important threats to the conservation of this protected area. The document will facilitate the identification and prioritization of immediate, medium and long-term strategies for management which address the objectives of biodiversity conservation and protection of the cultural and historic values of the protected area and the rural communities that are its stewards.

6 – Training

The training component of TFMT support to ANGAP was focused upon three principal domains during the transition period between PE1 and PE2, notably:

- *Financial support for ANGAP's participation in the 10th Annual CITES Conference of Parties;*
- *Organization and financing of a training and study mission with the Parks Service of South Africa;*
- *Development of a training plan for ANGAP.*

6-1 – CITES Conference of Parties (June 1997)

The convention on international trade of endangered species (CITES) was signed in Washington DC, USA on March 2, 1973 and has been ratified by 138 nation-members to date. CITES belongs to the category of multilateral conventions concerning the environment, of which there are more than 170. CITES established a legal international framework for regulation and restriction of trade in animal species and native vegetation. CITES regulates international commerce in endangered species by means of a system of permits and certificates that are required for export, transit and import of plants, wildlife, and products derived from them. The level of regulation applicable for commerce of specific species depends upon the Appendix in which that species is classified.

In June 1997, ANGAP's Department Chief for Biodiversity Research and Information (DIVB) received funding from TFMT-MITA to participate in the 10th Annual CITES Conference of Parties in Harare, Zimbabwe. The participation of the Malagasy delegation in this Conference of Parties provided an important opportunity for the delegation to understand that CITES is an important effort to reconcile the objectives of international commerce with those of biodiversity protection. The principal subjects addressed during the conference included:

- Internal rules;
- Election of members and committee presidents;
- Constitution of the Committee for Verification of Authorities (CVA);
- Reporting of the CVA;
- Admitting of observers
- Questions relative to the Permanent Committee;
- Reporting of the Secretariat
- Finance and budgeting of the Secretariat and sessions of the Conference of Parties;

- Reports and recommendations of the committees (Fauna, Flora, Taxonomy);
- Evolution of CITES;
- Interpretation and applications of CITES;
- Examination of amendments proposed for Appendices I and II;

During this conference, the Malagasy delegation recognized certain important weaknesses of Madagascar's situation relative to CITES, notably :

- Madagascar's legislation regulating the international commerce of species included in the CITES Appendices are, in large measure, antiquated and inappropriate for the effective implementation of the CITES accord
- Madagascar should revise its national legislation concerning management and protection of plants and wildlife. The revised legislation should comprise standards for import, export, detention and internal commerce of Madagascar's biodiversity that comply with the dispositions of all international conventions that Madagascar has ratified, notably the Convention of Alger and CITES;
- Madagascar should hold national workshops to provide information on CITES, as the current paucity of information often results in erred interpretations that preclude the proper application of CITES.

6-2 - Training and study mission with the Parks Service of South Africa (June 1997)

A training program in "Park Management and Ecotourism Development", organized in collaboration with the Parks Service of South Africa was financed by TFMT in June 1997. The training and study tour was conducted for two ANGAP agents, Mr. Randriamampianina Parfait, Director of the Isalo National Park and Mr. Rabeson Tokiaritefy, head of the Isalo ecotourism component, enabling these agents to learn of Park management practices with South Africa's well established Park Service. The training and study tour was conducted in visits to exemplary protected areas of South Africa, notably:

- ❖ Pilansberg National Park
- ❖ Madikwe Game Reserve
- ❖ Goldengate National Park
- ❖ Kruger National Park
- ❖ Karoo National Park
- ❖ Tsitsikama National Park

Each park has its distinctive characteristics, however nearly all employ the same management strategies and methods. Important lessons learned during the training mission included:

- Measures for protecting and conserving rare species, diverse wildlife and biodiversity;
- Creation of employment for communities in the periphery of protected areas;
- Infrastructure and measures of park surveillance and enforcement;
- Ecolodges and tourism infrastructure;
- Development of tourist activities within parks;
- Revenues generated from entry fees and their utilization (e.g., purchase of fodder for animal species, park maintenance, etc.);
- Strategies of location and management of ecolodges and hotels;
- Training park guides;
- Information centers;
- Development of trail systems within protected forest areas.

The ANGAP agents were most impressed with the quality of park management in South Africa, especially the practice of delegating responsibilities and coordinating actions among various departments to improve the efficiency and effectiveness of park management. The training and study tour was judged very constructive by the agents who confirmed that the management strategies and methods that they observed would permit them to greatly improve their activities of park management and ecotourism in the Isalo region.

6-3 - Development of a training plan for ANGAP personnel (May-July 1998)

ANGAP's funding agencies, notably USAID and the World Bank, requested of the Park Service that it establish a training plan for all personnel to properly identify needs and objectives for improvement of protected area management in Madagascar. To this end, TFMT contracted an international expert in Park management training, Mr. Antoine Leclerc, to develop a training plan with ANGAP for each level of its staff. This plan would necessarily respond to the strategies for ANGAP development defined in the Protected Areas and Ecotourism Component (French acronym: CAPE) of PE2. The results of Mr. Leclerc's consultancy are summarized in a report entitled "Le Défi de l'Excellence : Plan stratégique de formation-Niveau des régions et des sites". Mr. Leclerc's technical support was complemented by the assistance of a Malagasy consultant, Mr. Sylvain Razafimamonjy.

The strategies defined for training of ANGAP personnel are founded upon four principal components:

- A general program of operational training that will permit all employees to become familiar with the activities of ANGAP and to acquire a functional knowledge in their specific domains of employment;
- A cyclical training program that will follow the general operational training to ensure that the employees that are required to develop specific technical and operational capacities have a continuous program of support and « updating » of skills;
- A baseline training program for all new employees and for those employees demonstrating need for more concentrated assistance intended to bring these employees to the level of competency required by their position;
- An advanced training program aiming to complement the training of agents demonstrating advanced competency, enabling thus a general improvement of the organization through the advancement of its catalyzing elements.

The program of operational training is based upon 7 themes and is conducted in 5 stages. The themes comprise:

- ❖ General introduction to ANGAP;
- ❖ Biodiversity, research and conservation;
- ❖ Management and administration;
- ❖ Tourism;
- ❖ Marketing
- ❖ Communication, education and information;
- ❖ Park management
- ❖ Development, promotion and management of small (community-based) projects.

Each stage corresponds to an objective or a set of objectives, advancing from general to specialized themes. At the conclusion of the first stage, all employees – excepting certain support staff – should possess a common vocabulary, understanding, and vision of ANGAP’s mission and its activities. Following the second stage of training, these employees should be familiar with all components of ANGAP and with the methods employed to implement its activities. The third stage should enable ANGAP personnel to be completely familiar with the procedures, operating systems, and tools of their specific domain of employment, be it technical, administrative, or management level. At the conclusion of the fourth stage of training, ANGAP employees should have mastered the tools, systems, procedures and specialized methods for their respective positions and departments. Finally, upon completion of the

fifth stage, the ANGAP officers should have mastered advanced techniques of management that will permit them to properly fulfill their roles of orientation, direction and supervision, including the development and implementation of systems, procedures, and methods.

The cyclical training component consists of a program of updating and improving competency for certain categories of personnel. This training component is aimed at enabling the beneficiaries to adapt to new developments in their field on a continuous basis, especially for advancements concerning the management of protected areas. The specific contents of the cyclical training component are to be defined according to needs assessed periodically.

The baseline training program is designed to address the needs of those employees requiring concentrated assistance to fulfill the demands of their position. Given the specific and punctual nature of this program, the duration, content, and methods to be adopted must be defined according to existing needs.

The advanced training program aims to supplement the knowledge and competency of ANGAP staff in three specific domains, notably:

- ❖ Science
- ❖ Management
- ❖ Matters concerning Madagascar's youth

The training modules offered within this program may or may not grant diplomas. Essential to its success is an identification benefits and pertinence of the training to the effective functioning of ANGAP.

Other “supplementary” training needs were also identified by the consultants, including:

- Training in foreign languages for those employees with direct links to a broader public;
- Training in first aid and security measures for the Parks personnel.

The consultants also conducted an assessment of the costs for the implementation of the proposed training plan. The success of implementation of the training plan will depend to a large extent upon the quality of educational materials and of the instructors that are chosen. The consultants recommended to ANGAP, given existing financial and operational constraints, to retain a clear vision and understanding of the organization and its responsibilities. The following points were given particular emphasis:

- Rigorous examination and clear definition of the roles and responsibilities of ANGAP;
- Strategic planning for the execution of legal attributions;

- Formulation of methodologies for applied research, ecological monitoring, and natural resource management;
- Clear definition of the roles, responsibilities, working standards and classification of Park guides;

7 – Administration

7-1 – Evaluation of ANGAP’s security system (August 1998)

ANGAP’s new headquarters are located in an isolated area outside of the capital which require fairly advanced security measures, especially for protection of the electronic systems, computer equipment and furnishings. TFMT responded to ANGAP’s request for a comprehensive evaluation of its security system. Given the specific demands of this task, only one enterprise responded to the requirements of the proposed consultancy, namely APPEL. This security service organization was chosen without hesitation given the uniqueness of its capacities and the quality of its references. At the completion of the security system evaluation, a final report and recommendations for the amelioration of security measures were submitted by APPEL. Their recommendations included:

- Respect of the principle of combining theft and fire security;
- Installation of an advanced security system comprising exterior and interior equipment and fire security measures.
- TFMT’s support of the required restructuring of ANGAP’s security system was limited to financing the above-described evaluation. The implementation of measures recommended by APPEL was not undertaken, however, given that such activities were not judged appropriate to the scope of work defined for the MITA project.

7-2 – Installation an internal computer network at ANGAP headquarters (October 1998)

At the initiation of PE2, ANGAP was equipped with a sizeable computer system that has not been effectively utilized to date. In fact, no network exists within ANGAP to link the computers of its agents and accordingly internal information is transmitted solely by written memo or by posting of announcements. The discontinuity in the transmission of internal information has commonly resulted not only in inefficient communication, but has become an important financial burden for ANGAP. In an effort to resolve this problem, TMFT provided funding to ANGAP to install an internal computer network in its headquarters. “Société Créapro” was contracted for a feasibility study of the proposed network

installation, and for the installation and maintenance of a Linux server within ANGAP headquarters. “MICs” was contracted to furnish the materials necessary for the installation of the network.

7-3 – Procurement of audio-visual equipment (October 1998)

The Orientation and Monitoring Committee meeting of 1997 (COS 97), overseeing implementation of Madagascar’s Environmental Action Plan (EAP) recommended that concerted efforts be made to improve the communications activities of the EAP executing agencies, given the shortcomings in this domain noted during PE1. Among other measures, in the context of decentralization of ANGAP’s activities, the communications unit of ANGAP headquarters must delegate certain of its responsibilities to regional branches and to the protected area management sites. Given these requirements, ANGAP requested the support of TFMT for the procurement of audio-visual materials for its four regional offices. The audio-visual materials will serve as tools for extension and information activities of the regional branches. The materials include video cameras, television monitors, VCRs, and accessories, all of which were acquired locally.

7-4 – Internet linking to ANGAP’s regional office in Fianarantsoa (October 1998)

In order to facilitate communication between ANGAP regional office in Fianarantsoa and its national and international partners, TFMT financed the establishment of Internet services for a period of 12 months and the provision of all equipment and materials necessary for effective functioning of the system.

II – TECHNICAL SUPPORT FOR ENVIRONMENTAL INFORMATION SYSTEMS

TFMT's Environmental Information Systems (EIS) support program comprised several distinct components, namely:

- the AGERAS process (AGERAS = Regional Management and Spatial Analysis);
- the CAPE support component (CAPE = Protected Areas and Ecotourism)
- the SIE component (SIE = Environmental Information Systems)
- the ESFUM support component (ESFUM = Forest Ecosystem Management for Multiple Use)

1 – Support of the AGERAS process

The component providing support to the AGERAS process addressed two principal objectives, namely:

- *Training of AGERAS program technicians Geographic Information Systems (GIS);*
- *Support of structuring of regional information systems.*

1-1 – Study tour for landscape ecology and eco-regional planning (August-September 1997)

In August and September of 1997, Mr. Jean-Michel Dufils of TFMT and Mr. Joseph Ramamonjisoa of Pact, Inc. accompanied a group of environmental officers of various nations and organizations on a study tour of practices in landscape ecology and eco-regional planning. The tour was organized by WWF and Conservation International (CI) and included visits to exemplary projects in the US and in Mexico and participation in seminars and workshops on planning and ecosystem management. The study tour participants included WWF representatives from Gabon, the Central African Republic, Cameroon and Madagascar, representatives of Madagascar's environmental agencies (ONE, Water and Forests) as well as the Pact and TFMT participants.

The goal of the mission was to draw upon theories and practical experiences to improve the strategies and methods of eco-regional planning developed in Madagascar within the project AGERAS. Specific objectives included the following:

- Improve understanding of the theories and fundamental principals of eco-regional planning;
- Enrich practical knowledge and experiences with exposure to strategies and techniques utilized in other parts of the world;

- Establish important contacts and exchanges with individuals and institutions involved in eco-regional planning activities.

The study tour comprised the following phases:

- ✧ Phase 1: Seminars and workshops in Washington DC held by WWF, CI, and University partners concerning the theories and principles of eco-regional planning, notably: ecoregion, bioregion, biological corridors, ecological monitoring, global conservation priorities, conservation priorities for Africa and Madagascar, eco-regional planning and legal aspects of conflict management;
- ✧ Phase 2: Annual meeting of the Ecological Society of America in Albuquerque, New Mexico in which topics of importance to conservation and eco-regional planning were presented and practical experiences in eco-regional planning throughout the world were discussed, enabling greater understanding of the concepts and principles presented in Washington DC workshops;
- ✧ Phase 3: Site visit to CI's eco-regional planning program in the Gulf of California, Mexico – the strategies of this program incorporate principles of eco-regional planning and an integrated approach to the resolution of problems of conservation and development, including: scientific analysis, partnerships with local industrial and artisan fishermen and, with tour operators, and a focused effort in environmental education;
- ✧ Phase 4: Visit to New England's eco-regional planning program, an exemplary program integrating ecological principles into regional land-use planning;
- ✧ Phase 5: Visit to the Chesapeake Bay program, also an exemplary program in eco-regional planning;
- ✧ Phase 6: Discussions and exchanges within the study tour group concerning the lessons learned during their mission, an analysis of practical applications of eco-regional planning in the African context -- exchanges took place in mixed and separate discussion groups (Central Africa/Madagascar) and general meetings with WWF and CI representatives, and officers of Pact, USAID, the Embassy of Madagascar and University partners that participated in the initial seminars.

1-2 – Consultancy in eco-regional planning (January-February 1998)

A consultancy in eco-regional planning was organized and financed jointly by WWF-Madagascar, TFMT, Pact, and WWF's Social Science and Economics program. An international expert, Mr. Mark Freudenberger of Social Science WWF's and Economics program, whose mission was funded by TFMT, headed the consultancy.

TFMT's objectives for this consultancy were the following:

- Educate and train the AGERAS team in concepts of eco-regional planning;
- Assist the AGERAS team in using GIS tools for eco-regional planning activities;
- Assist the pilot AGERAS sites, Fianarantsoa and Fort-Dauphin, in the formulation of eco-regional plans;
- Conduct exchanges with the participants of the eco-regional planning study tour concerning practical applications of concepts and principles in Madagascar.

1-3 - Training and support of the Technical Support Units (CTA) in Geographic Information Systems (June - October 1998)

TFMT's provision of training and technical support to the regional CTA continued throughout the MITA project, in response to requests and needs identified by the CTA. Support consisted of continuous technical assistance, specific interventions by expert consultants, and the procurement and installation of computer equipment for the CTA. Some of the more important accomplishments of the CTA support program are noted below.

✧ Expert training in GIS and data management:

TFMT contracted a Malagasy expert, Mr. Harijaona Andriamoranaina, to provide training of the CTA in structuring and implementation of regional information networks and in the development of extension programs to provide planning tools and fundamental information to regional partners. Mr. Andriamoranaina's consultancy comprised three distinct objectives:

1. Train an agent of the CTA who may serve as future extension trainer in general principles of information system management and in GIS techniques;
2. Accompany and assist this agent with the structuring and implementation of an information network for the region;
3. Structure and establish a database appropriate for the analysis of information pertinent to eco-planning in the region, complementing this database with the METADATA archive.

The training conducted by Mr. Andriamoranaina comprised four components, namely:

- Fundamental concepts of information systems
- A general introduction to GIS: a general introduction
- Utilization and applications of Arcview software

- Utilization and applications of MapInfo software.

✧ Procurement and provision of computer (June 1998) :

At the request of GIS technicians of AGERAS headquarters and to fulfill regional needs, several shipments of computer equipment were procured and imported from the USA in complement of existing equipment. The new equipment was acquired in order to more effectively satisfy needs for the structuring of national and regional information systems.

✧ Rehabilitation of CTA infrastructures in Tulear (July 1998) :

Within the context of the structuring of information systems and monitoring units of the Tulear CTA, ONE requested financial support from TFMT-MITA to rehabilitate the CTA's computer center. TFMT provided funding for painting of the building and for the installation of an air conditioner, carpet, curtains and storm windows.

✧ Training in computer technology for the CTA of Moramanga et Ambatondrazaka (October 98) :

In its efforts to assist in the development of technical skills for pilot sites of the AGERAS regional information (notably: Ambatondrazaka, Moramanga, Tamatave and Fénériver Est), TFMT furnished financial support for the training of planning committees in basic computer technologies. These training programs are aimed to enable the committees to take advantage of the information systems and to improve their services within the context of regional planning, as contributing members of the planning committees. The training sessions were conducted in Moramanga by the computer technology enterprise "Micro Application" for the committees of Ambatondrazaka and Moramanga. The basic computer technologies training module is composed of:

- A general introduction to computer technologies;
- Use of MSDOS and Windows utilities;
- Use of Microsoft Office 95.

✧ Internet and local network connection for the CTA of Moramanga, Tulear, and Fianarantsoa (October 98) :

The CTA received funding for internet connections for a period of one year and were equipped with internal network links for all offices.

2– Support to the Protected Areas and Ecotourism Component (CAPE) of EP2

2-1 – Organization of a GIS workshop for CAPE (July 1998)

During the execution of the first phase of Madagascar’s EAP (PE1), each organization involved in management of the protected areas developed important experiences in the utilization of GIS and in database management as tools for short and long-term management planning. In the context of coordination of technical support by the Data Analysis Unit of ANGAP, the standardization of activities and resources within each GIS unit and the dissemination of fundamental data to all organizations should be reevaluated, considering both the unique experiences and needs of the different organizations and the context of collaboration intended during PE2. At the initiation of PE2, the strategies employed and activities to be undertaken merit close analysis and validation by all participants to collectively enable the provision of pertinent data to all concerned in protected area management.

To this end, ANGAP’s Department of Biodiversity Research and Information (DIVB) decided to organize a workshop that focused on the analysis of current standards in the application of GIS and database management tools for the entire network of protected areas. This workshop was designed to better define the responsibilities of each protected areas management branch in order to allow for the creation, the efficient management, the standardization and the dissemination of data and information relevant for decision makers at all levels of protected area management. At the conclusion of the workshop, CAPE possessed a general policy for utilization of SIG in management of the protected area network that responded to the principles of PE2 and was approved by participants from all levels of the protected area management structure.

2-2 – ANGAP meeting on the improvement of research programs (May 1998)

For the PE2, ANGAP’s DIVB was entrusted the responsibility of regulating and monitoring all research conducted in protected areas. To clearly define its new role, the DIVB organized a meeting that addressed the following objectives:

- Establishment of guidelines and standards for research;
- Formal constitution of a tripartite Commission to supervise research activities;
- Formal association of ANGAP to all accords and conventions concerning the protected areas and to formal procedures of review of projects of national importance .

The meeting was held in May of 1998 and was attended by several organizations, including:

- ❖ ANGAP
- ❖ Ministry of Water and Forests (MEF)
- ❖ Ministry of Scientific Research
- ❖ Ministry of Higher Education

2-3 – Data acquisition (July-October 1998)

Data acquisition activities for CAPE consisted principally of the copying of all important documents of DIVB and the purchase of new publications to complete ANGAP's library. Notable documents include:

- National environmental monograph
- First national report for the Convention on Biodiversity
- Synthesis of research conducted in the protected areas
- Nomenclature for Madagascar's vegetative zones
- Guide to the Lemurs of Madagascar
- Dendrology of 200 plant species

2-4 – Consultancy in spatial analysis and mapping (October 1998)

This consultancy was contracted in order to furnish operational manuals for spatial analysis and mapping to agents of ANGAP headquarters and of the Natural Integral Reserves of Lokobe and Betampona. Mr. Solonavalona Andriamihaja was recruited to conduct the proposed consultancy. His mission was programmed for a period of 5 days, but was interrupted due to the unavailability of certain critical datasets. This work may be easily reprogrammed with the consultant, at the request of ANGAP.

2-5 - Improvement of the vegetation cover monitoring program for critical protected habitats and acquisition of satellite images (October 98)

The protected areas monitoring methodology adopted by ANGAP requires that three or four zones in the immediate periphery of each protected area be surveyed and monitored for changes in vegetation and land use. This methodology has been adopted and implemented for six protected areas to date. Detailed surveys and analyses are to be conducted every four years under this plan. As the most recent analysis was conducted in 1994, another sampling was scheduled for 1998.

Of note, the methodology adopted by ANGAP was established with disregard to the fact that ANGAP had neither the time nor the competency required for a detailed analysis of satellite image surveys. Given

these constraints, the results of the 1994 analyses were not conclusive, being more of a qualitative than a quantitative nature. Consequently, it was decided that the monitoring system should be reevaluated in order to ensure that ANGAP would possess an appropriate methodology for long-term monitoring. An international expert in remote sensing and spatial analysis, Mr. Ned Horning, was contracted to conduct the required evaluation. Mr. Horning's consultancy was designed to assist ANGAP's DIVB in improving its methodologies for vegetative cover monitoring in the protected area pilot zones. The consultancy was designed in two phases, the preparatory phase was financed by TFMT, while the second phase will be financed by other organizations working with ANGAP after the conclusion of the MITA project.

Mr. Horning furnished two reports at the end of the preparatory phase of his consultancy, notably:

- Inventory and verification of the quality of data available for the protected area monitoring zones;
- Analysis of existing protected area data and recommendations for the final selection of monitoring zones and methodologies for more effective monitoring of vegetative cover in these zones.

Satellite images procured during this preliminary phase, will serve as baseline references for the monitoring program.

3 – Support in the Development of Environmental Information Systems

3-1 - Training of GIS technicians from Pact and ONE at the U.S. Geological Service Sioux Falls Research Center (August 1998)

The Eros Data Center of the U.S. Geological Service (EDC/USGS) in Sioux Falls, South Dakota invited three Malagasy GIS technicians to participate in the *Inter-American Geospatial Data Network Workshop*, and to receive training in large database (metadata) management at the center for data exchange. Two GIS technicians from Pact, Mr. Soloforijaona Rakotomanga and Mr. Tsitohaina Andrianjafiravelo and one GIS technician from ONE, Mr. Herisoa Razafinjato, were selected for this training and financed by TFMT to participate. The training lasted 15 days and comprised two components, notably:

- The first week of training concerned primarily the applications of metadata (stacked databases) and the attributions of the center for data exchange. The training consisted of inventory, verification, organization and processing of catalogs of spatial data on computers equipped with metadata processing programs and to disseminate this information via internet to members of the data exchange network.

- The second training component consisted of intensive education and training of the participants in the themes introduced during the first week, so that they could transfer their acquired knowledge, as trainers, to other beneficiaries..

The training mission enabled the technicians to greatly improve their capacities to contribute to the structuring of regional and national environmental information systems for Madagascar.

3-2 – Organization of a workshop on Environmental Information Systems (French acronym: SIE) (September 1998)

The active participation of a number of organizations in the SIE network for Madagascar demonstrated their willingness to contribute to improving strategies and activities for the sustainable management of natural resources. The experiences gained during PE1 formed an important catalyst for the collective decision to put in place an appropriate mechanism for monitoring the state of the environment in Madagascar. The implementation of this monitoring mechanism should engender the dissemination of reliable, pertinent, complete and manageable information to decision-makers at all levels. The rational and sustainable management of Madagascar's natural resources will depend upon the availability, the usefulness and the quality of information provided to these decision-makers.

The component SIE should be considered a tool for meeting the goals of PE2. The SIE Unit of ONE identified fundamental problems, however. These problems created genuine constraints to the efficient functioning of the information network. The problems may be resumed as follows:

- Lack of dynamism of the information network, essentially due to the absence of a formal mechanism for catalyzing exchange and consequent entanglement within the system;
- Inadequate selection of data that responded to the need for pertinent, accessible information for decision making in matters concerning the environment;
- Confusion concerning the role of ONE's SIE Unit and that of the SIE network that generated misunderstanding and apprehension among some members of the network.

Given these constraints, the need to reorient SIE programs was identified and addressed in a workshop organized by TFMT. The principal objectives of this workshop were to:

- Arrive at a common understanding of the objectives of SIE among current and potential members of the network;
- Define a strategy for implementing an appropriate reorientation of SIE.

A Malagasy consultancy group, Cabiscam, mediated the workshop. A detailed diagnostic of the current situation and problems of the SIE preceded the workshop. The specific issues facing the SIE were identified as:

- ❖ Vitality of the network;
- ❖ Data exchange;
- ❖ Processing, analysis and dissemination of data..

The consultants proceeded to propose networking solutions to overcome the above-mentioned constraints. Cabiscam proposed the following options for changes to the SIE structure:

- Formal association of members;
- Capacity building for the SIE Unit of ONE;
- Creation of an informal SIE unit.

Each option was analyzed in detail and the workshop participants concluded that the creation of an ad hoc committee unit would be most appropriate for it was yet premature to choose a definitive structure.

The ad hoc committee will have the role of :

- Resuming the recommendations of the workshop;
- Formulating fundamental documents concerning the organization of the SIE network and presenting these documents at the meeting of the funding committee for environmental activities;
- Propose a structure for SIE that is appropriate to the dynamic evolution of the SIE network.

The ad hoc committee is composed of several organizations and agencies including Pact Madagascar, WWF, ANAE, CFSIGE, INSTAT, FTM, ONE, ANGAP, CNRE, CIDST, CPF, INSTN, M. NENU, and DEA-MEM.

3-3 - Data acquisition (throughout 1997 and October 1998)

In order to enable MITA project partners to establish their databases and to conduct spatial analyses necessary for the effective achievement of their goals, TFMT-MITA financed and coordinated the procurement of baseline spatial data for Madagascar. The decision to procure this data was based upon the importance of such information in facilitating a transition to eco-regional planning. The data form a critical foundation for the development of activities of PE2, particularly those financed by USAID for the sustainable management of natural resources in Madagascar. The procurement of spatial data was conducted through:

- FTM, Madagascar's government cartography service;

- Conservation International, who organized aerial photography of the eco-regions of Tamatave-Moramanga-Ambatondrazaka, Nosy Be, and Ranomafana-Fianarantsoa.

3-4 - Inventory and archiving of the environmental document library established by TFMT (October 1998)

Given the number of diverse activities accomplished by TMFT during the MITA project, it was deemed necessary to collect, inventory and archive the multitude of documents that had been generated by the project in order to preserve these resources for future use. The work of inventory and archiving required a great deal of time and energy. Mr. Phillipe Rakotondrainibenisoa was contracted to complete this task in October of 1998.

4 - Support of the Multiple Use Forestry component of EP2 (ESFUM)

TFMT's support to ESFUM during the MITA project consisted essentially of providing the Ministry of Water and Forests with the means of managing its wealth of information, of completing essential data sets and of properly housing its equipment and archives. TFMT's support comprised the following activities:

- *Consultancy in spatial analysis;*
- *Training;*
- *Support in document management;*
- *Rehabilitation of facilities.*

4-1 – Consultancy in spatial analysis

Effective management of forest resources depends, to a large extent, upon the quality and completeness of information about these resources. Results of the national forest ecological inventories (French acronym: IEFN), which was completed during PE1, are available to the Ministry of Water and Forests (MEF), but remain underutilized. Consequently, during PE2, the MEF plans to install a Center for Geographical and Forest Data that will be responsible for the management of data available in the various branches of the Ministry.

In the context of its program of support to ESFUM, TFMT furnished assistance to the MEF for the achievement of its data management goals, recruiting an international consultant in IEFN, Mr. Jean-Michel Dawant. Mr. Dawant was assigned the responsibility of processing and organizing Arcinfo data

of the IEFN program for the Ministry. He also provided training to the technicians and officers of the MEF to familiarize these agents with the utilization of Arcview software for the IEFN data. Mr. Dawant's consultancy was conducted in October 1998.

4-2 – Training

The training provided to MEF technicians included:

- GIS training for a MEF intern, Mr. Fidy Andriamanoro in Montpellier, France (July 1998);
- University credits for GIS training for a graduate student, Mr. Rakotondranoa Mahefa Rijaso, at CFSIGE (academic year 98-99);
- Practical training of six MEF technicians in GIS at CFSIGE, comprising courses in GIS, geo-referencing, and map scanning (October 98).

4-3 – Support for document management

TFMT provided financial and technical support for document management to MEF in October 1998.

This support included:

- Scanning and geo-referencing of MEF forest maps;
- Inventory and duplication of forest maps available at the MEF regional offices of Toamasina, Moramanga and Fénériver-Est. This activity was conducted in order to allow all cartographic data to be entered into a database for future use.

4-4 – Rehabilitation of facilities

The rehabilitation of the computer center and library at MEF headquarters and of the offices of the MEF regional office in Fianarantsoa was financed by TFMT in October 1998. The rehabilitation consisted principally of painting, rehabilitation of damaged buildings, and replacement of doors, windows, and metal bars enclosing these windows. Furthermore, the MEF received financing for connection to the internet to provide an efficient medium of communication adapted to the development of data systems within the Ministry.

CONCLUSIONS

INFORMATION SYSTEMS

Challenge and constraints

Establishment of referential framework

AGERAS, ANGAP as actors and all the others expecting to use information systems to support the management of natural resources are suffered from the remarkable lack of baseline data. This lack of “infrastructure” in matter of data, especially the geocoded ones, makes the access to data exploitation so much more difficult. For instance the spatial delimitation and the official codification of administrative entities (communes, fokontany ...) do not exist or they are very inaccurate to be used properly. Consequently, the collected data, by considering these entities as statistical unities are very difficult to be exploited. The setting up of such referential outdoes largely the project framework, the donor or a sector of activity.

Nevertheless, it is worth relevant to support all of related initiatives, in the measure of possibilities. USAID and the French Cooperation have shown the way by supporting the FTM to establish the national referential BD 500, ANGAP also provided a technical support to the INSTAT/DSS in order to geocode the administrative sectors of national census. All remains to be done at regional level .

Policies development for data/informations management.

Numerous data are existing but often remain inaccessible due to the lack of clear policies as regards of management and dissemination. IEFN and MEF datas' case refer : by whom they can be used ? are they of public domain ? If FTM are selling products issued from these data, how about MEF's part ? etc... These different questions can be asked to all institutions holding databases. The data holding, often associated with a kind of power, has a reluctance to allow their circulation. The definition of policies and rules related to data management and dissemination should be clearly established at the level of each institution. For instance ANGAP has developed a coherent policy but the fact that it is an obligation to use datas from other institutions is an important element of blockage for ANGAP if these institutions do not possess similar policies.

Networking establishment

The previous recommendations cannot be applied if consultations are not effective between concerned principal stakeholders. These consultations, which should insure the active involvement, should be led in a participative way by taking account that an actor has not been seen as hegemonic. The participation and the support to different “information network” restricting the data circulation. These network, actually unformal, could become formal according a status which remains to be defined but well appropriate to the future law on associations. If the CTAs of AGERAS played the key role to the network regional initiation, it seems useful to support the EIS component of EPII to elaborate the structure of a national network under an associative form.

Capacity reinforcement

All activities, successively undertaken within the framework of SAVEM and MITA have allowed a spectacular growth of technical capacity as regards of information systems. However, many efforts remain to be done especially at regional level, to reach a “critical mass” of people having the necessary skill. The technicians already trained and experienced should enhance the level of their knowledge to more sophisticated technics, particularly in the field of analysis. A technological waking could permit to be constantly informed of the technological developments. In this domain, contacts and partnerships to institutions recognized at international level, such as USGS/EDC for which the assistance has been decisive, should be maintained and encouraged.

CONCLUSION

In keeping with its goals, the MITA project has contributed into a large extent an initiation on the setting up of referential frames, the elaboration of policies in regards of data, the establishment of networking structures and the reinforcement of technical skills. A great effort of sensibilization is undertaken with the principal actors at all levels (from the technicians to the directors, from regional level to national). Being a transitional project, its efforts should be maintained to allow the evolution of information systems into real “tools of assistance to decision making” which are necessarily useful to a sustainable management of natural resources.

ANGAP

Challenges and constraints

Clarification of institutional framework

During the transitional period of MITA program, ANGAP has gone from the role of coordinator/supervisor for IPCDs to the role of protected area manager. If the status of “association” was really the best adapted to its initial role, an evolution of ANGAP’s mandate and status seems to be essential to assume its new functions. The current activities to elaborate a real “Code de Gestion of Protected Areas” as well as a clarification of the relationships with the Ministeries of Water and Forest and of Environment.

Training

The operational management of a protected areas network, according to the standard related to a representativity of eco-systems and of biodiversity, is a recent notion in Madagascar. It is clear that ANGAP does not yet (dispose) have the overall required abilities to face a complexe responsibility. With the support of MITA, ANGAP has achieved the elaboration of a strategic plan of training at regional and sites level. It is essential that the stages indicated in this plan would be implemented and a similar plan would be elaborated for the central level when the new organizational structure will have been established.

Reinforcement in scientific field

ANGAP is internationnally recognized for its active participation in international important meetings (such as CITES, Conférence des Parties ...). At national level, ANGAP has a scientific role through its participation (often its leadership) in the activities like Scientific Workshop on Priorities of Conservation/Research, The Three-party Systems Commission, the National Monography on Biodiversity, The Synthesis of Researches within Protected Areas, etc...However, it is paradoxical that scientific aspect are relatively little considered in the operational management of Protected Areas. For

instance, many things remains to do in order to validate (or not) scientifically the Protected Areas network as a representative of national ecosystems or in order to establish an ecological assessment as genuine tool of management of a Protected Areas. It is urgent that ANGAP acquire so much essential means (structures, human and material resources) to make the scientific aspect of the biodiversities not to stay as just a literary status but applied at operational levels.

Decentralization of the Protected Areas network management

The actual way in which decentralization operates, is marked by the origin of the ANGAP when a little team could ensure from the central level the coordination of IPCDs operators. The transition seems to reinforce this fact because all the transfer operation between operators of ANGAP have been led from the central level. After the period of setting up, such training and stride of regional and local teams, it will be convenient to decentralize as far as possible all levels of decisions making. This decentralization is essential for an efficient management of Protected Areas and a real integration into their ecoregional context.

Financial Sustainability

Quid of the post EAP ? Regarding the financial sustainability, several scenario have been proposed ; if the ecotourism seems an interesting element, it concerns just a limited number of Protected Areas and its potential incomes seem so far to meet ANGAP's need in accordance with its actual mandate. A detailed reflexion should be achieved in this way and it's worth to find responses to numerous outstanding questions like : Should we focus just on Protected Areas having the potential of incomes related to ecotourism ? Is the network a public field that the Government should fund ? Is a "National patrimony" handled by "International Community" ? What are the best financial mechanisms appropriated (foundations ...) ?

CONCLUSION

If ANGAP could achieve a satisfactory transition to hold the role of National Parks Manager, more challenges still remain to get through. More lessons should be drawn up in the latter years, more experiences should be acquired with institutions and international skills, but the success of ANGAP won't be effective if the abilities of its staff are not performed in an innovated mind, by taking account the

specific aspect of national context. These skills should constantly bring about demonstration that ANGAP could be a center of excellence to ensure its essential mission, such as the sustainable management of an invaluable ecological patrimony.