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**PROJECT PERFORMANCE ASSESSMENT REPORT**

**MADAGASCAR  
ENVIRONMENT II  
(CREDIT N009)**

**June 26, 2007**

*Sector Thematic and Global Evaluation Division  
Independent Evaluation Group*

## Currency Equivalents (annual averages)

Currency Unit = Malagasy Ariary (MGA)

2003	US\$1.00	MGA 4200.00
2004	US\$1.00	MGA 2830.00
2005	US\$1.00	MGA 2053.00
2006	US\$1.00	MGA 2139.00

## Abbreviations and Acronyms

AFD	French Development Agency ( <i>Agence Française pour le Développement</i> )
AGOA	African Growth and Opportunity Act
ANAE	National Association for Environmental Actions ( <i>Association Nationale pour les Actions Environnementales</i> )
ANGAP	National Association for Protected Areas Management ( <i>Association Nationale pour la Gestion des Aires Protégées</i> )
AUE	Water Users Association ( <i>Association d'Usagers de l'Eau</i> )
CBO	Community Based Organization
CDD	Community Driven Development
CFSIGE	Environment Information Training Center ( <i>Centre de Formation pour les Sciences de l'Information Géographique et Environnementale</i> )
CI	Conservation International
CIRAD	Center for International Cooperation on Agronomic Research ( <i>Centre de Coopération Internationale en Recherche Agronomique pour le Développement</i> )
CNE	National Environment Council ( <i>Conseil National de l'Environnement</i> )
CNRE	National Committee of Environmental Research ( <i>Comite National de la Recherche Environnementale</i> )
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EP	Environment Program
EPZ	Export Processing Zones
EU	European Union
FID	Community Development Fund ( <i>Fonds d'Intervention pour le Développement</i> )
FIFAMANOR	Malagasy Agricultural Research Institute
FMG	Malagasy Franc
FOFIFA	Malagasy Agricultural Research Institute
FWUA	Federation of Water Use Associations
GCV	Collective Grain Storage ( <i>Greniers Communautaires Villageois</i> )
GCF	Legalized form of community-based forest management ( <i>Gestion Contractualisée Forestière</i> )
GEF	Global Environment Facility
GELOSE	Legalized form of community-based natural resources management ( <i>Gestion Local Sécurisée</i> )
GTZ	German Agency for Technical Cooperation
GTDR	Regional Rural Development Working Group ( <i>Groupe de Travail de Développement Rural</i> )
HDI	Human Development Index
ICR	Implementation Completion Report
IEG	Independent Evaluation Group
IEGWB	Independent Evaluation Group (World Bank)
IFT	Land Tax ( <i>Impôt Foncier sur le Terrain</i> )

IMF	International Monetary Fund
IMT	Irrigation Management Transfer
KfW	German Development Agency
M&E	Monitoring & Evaluation
MECIE	Environment Impact Assessment Legislation ( <i>Mise en Comptabilité les Investissements à l'Environnement</i> )
O&M	Operations & Management (in relation to irrigation)
ONE	( <i>Office National pour l'Environnement</i> )
OPCI	Public Entity for Inter-Communal Cooperation ( <i>Organisme Publique de Coopération Intercommunale</i> )
PADR	Rural Development Action Plan ( <i>Plan d'Action pour le Développement Rural</i> )
PAGE	Environmental Management Support ( <i>Project Projet d'Appui à la Gestion de l'Environnement</i> )
PCD	Community Development Plan ( <i>Plan Communal de Développement</i> )
PNAE	National Environmental Action Plan ( <i>Plan National d'Action Environnementale</i> )
PO	Producer Organization
PPAR	Project Performance Assessment Report
PRSP	Poverty Reduction Strategy Paper
PSDR	Rural Development Support Project ( <i>Projet de Soutien au Développement Rural</i> )
PTA	Annual Work Program ( <i>Programme de Travail Annuel</i> )
SAGE	Support Services for Environmental Management ( <i>Services de Appui a la Gestion Environnementale</i> )
SFI	Intermediate Land Tenure Security ( <i>Sécurité Foncière Intermédiaire</i> )
SFO	Optimal Land Tenure Security ( <i>Sécurité Foncière Optimal</i> )
SFR	Relative Land Tenure Security ( <i>Sécurité Foncière Relative</i> )
SRA	Improved Rice Production System ( <i>Système Rizière Améliorée</i> )
SRI	Intensive Rice Production System ( <i>Système Rizière Intensif</i> )
TAFA	Malagasy NGO for research on semis direct
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WUA	Water Users' Association
WWF	World Wildlife Fund
ZPI	Priority Intervention Zone ( <i>Zone Prioritaire de Intervention</i> )

## Fiscal Year

Government: January 1 to December 31.

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### **About this Report**

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEGWB annually assesses about 25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEGWB staff examine project files and other documents, interview operational staff, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEGWB peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. IEGWB incorporates the comments as relevant. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

### **About the IEGWB Rating System**

IEGWB's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEGWB evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEGWB website: <http://worldbank.org/ieg>).

**Outcome:** The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Risk to Development Outcome:** The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High Significant, Moderate, Negligible to Low, Not Evaluable.

**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.



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## Principal Ratings

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Satisfactory	Satisfactory	Moderately satisfactory
Institutional Development Impact**	Substantial	Substantial	————
Risk to Development Outcome	————	————	Moderate
Sustainability***	Likely	Likely	————
Bank Performance	Satisfactory	Satisfactory	Moderately satisfactory
Borrower Performance	Satisfactory	Satisfactory	Moderately satisfactory
M & E			Modest

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.

\*\*As of July 1, 2006, Institutional Development Impact is assessed as part of the Outcome rating.

\*\*\*As of July 1, 2006, Sustainability has been replaced by Risk to Development Outcome. As the scales are different, the ratings are not directly comparable.

## Key Staff Responsible

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
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## **Preface**

This is the Project Performance Assessment Report (PPAR) for the Environment Program Phase II Project in Madagascar. This project was financed through IDA Credit No.009 in the amount of US\$30.0 million with a planned government contribution of US \$15.5 million, and projected co-financing by UNDP, IFAD, GEF/WB, GEF/UNDP, EU, France, Germany, the Netherlands, Japan, the Swiss, USAID, CARE, Conservation International, World Conservation Society, and the World Wide Fund for Nature for a total of US\$109.50 million. The credit was approved on January 9, 1997, became effective on June 12, 1997 and closed one year after the originally anticipated closing date on June 30, 2003.

IEG prepared this report based on an examination of the relevant project documents, legal agreements, project files and archives, as well as other relevant reports, memoranda, and working papers. Discussions were held with Bank staff in both Washington DC and in Madagascar. An IEG field mission visited Madagascar in June 2006, conducted site visits, and discussed both the project and the effectiveness of Bank assistance with relevant government officials and stakeholders (see list of people met in Annex E). The mission appreciates the courtesies and attention given by these interlocutors as well as the support provided by the Bank's office in Antananarivo.

The assessment will be used as an input into an evaluation of the Effectiveness of the World Bank Group's assistance for the Environment (1990-2006).

Following standard IEG procedures, copies of the draft report were sent to government officials and agencies for their review and comments. Comments were received and are included as Annex B.



## Summary

This is a Project Performance Assessment of the second phase of Madagascar's Environment Program, or EP II (P001537). A multi-donor investment program launched in 1991 with the support of a broad coalition of donors, agencies, and NGOs, the US\$410m Environment Program was designed to operationalize Madagascar's 1989 National Environment Action Plan (NEAP) in three phases over fifteen years. The first of its kind in Africa, it has been referred to as 'the most ambitious and comprehensive environmental program in Africa,' (USAID 2005). Though innovative, EP II, implemented between 1997 and 2003 at a cost of US\$150 million, was designed with 'overly-ambitious' objectives (as noted by IEG ICR Review), that were revised following the Mid-Term Review.

The original objectives of EP II were: (i) reverse current environmental degradation trends; (ii) promote sustainable use of natural resources, including soil, water, forest cover, and biodiversity; and (iii) mainstream environmental considerations into macroeconomic and sectoral management of the country. Too ambitious, the objectives were formally revised after the midterm review. The revised objectives were: (i) increase the sustainable use of natural resources, including soil, forest cover, and biodiversity in targeted areas; and (ii) establish conditions for mainstreaming sustainable environmental and natural resources management.

The **relevance** of the program's objectives was and remains **high**. Madagascar 'faces a spiral of environmental degradation that increasingly threatens sustainable development and its ecological heritage' due to forest cover loss, overexploitation of its eastern rainforests, and improper cultivation, or *tavy* (CAS 1994). However, project design itself was only partially relevant. While the instrument (APL) was highly relevant, design was not linked to the Bank's rural strategy or operations. Design did not *directly* address reliance on woodfuel by promoting substitutions or increased production forest area. An internal review rated select design elements 'best practice' but "[it] lacked a realistic work program and...implementation arrangements." With fourteen components and seven IAs, design was overly complex, lacking a project level results framework. The design aptly diagnosed the root causes of degradation – low agricultural productivity and high population pressure in ecologically fragile areas. Yet the approach produced only *limited* outcomes spatially, with little evidence that behavioral change could be upheld *ex-post*. EP II did not *directly* combat forest governance although EP II approval was conditioned on a forest policy, which was adopted, but not implemented: Madagascar lost 6.2% of its forest cover between 1990-2005.

**The efficiency of the program was low.** The proliferation of environmental institutions scattered investments in different directions resulting in modest benefit streams on the ground, achieved at high costs. Monitoring and reporting was unsatisfactory: it did not provide the basis for a credible efficiency analysis, nor a cost-effectiveness analysis, of most activities. The institutions attracted competitive staff away from line ministries and absorbed as much funds as all four\* Ministerial departments responsible for rural development; there was also a high degree of duplication.

**Efficacy was substantial overall, with shortcomings.** The project substantially achieved (with some shortcomings) its objective to increase the sustainable use of natural

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\* Agriculture, fishery, livestock, water and forests.

resources, including soil, forest cover and biodiversity in target areas. There was a decrease in the degradation of critical habitats and increased incomes for 370,000 households (USAID 2006). It substantially contributed to reducing deforestation in Protected Areas (PAs) at a rate one-fourth to one-half the rate outside the PAs. The project reduced the incidence of Tavy, reduced soil erosion, and improved soil fertility, in target areas. The GOM tripled the country's PAs, yet resources and capacity are insufficient to manage the new system. Eco-tourism revenues increased five-fold (US\$50 million in 2000). On the other hand, the project only modestly achieved its objective to establish conditions for mainstreaming sustainable environmental and natural resources management at the national level. Sectoral policies now require EIAs for mining, fishery, aquaculture, and industry; but environmental impact assessment efficiency remains low. A "polluter pays" principle now applies to investment decisions. The main weaknesses were low institutional capacity and governance issues in the forest sector. The goal of strengthening environmental units in central ministries and regional cells was only partly achieved. Tourism, IPR, urban, and pesticide policies were drafted, but not adopted; most conspicuously absent was the forest policy. Based on its high relevance, low efficiency, and substantial achievement of objectives, the project **outcome** is rated **moderately satisfactory**.

**Risk to development outcome is rated moderate.** Given the global priority of conserving Madagascar's unique biological heritage, international transfers are likely to continue (as evidence by the GEF's new Resource Allocation Framework) albeit at a slower pace if the agencies are not properly managed. PA management will depend on sustained support for staff, infrastructure development, and the successful integration of local communities into co-management schemes, topics currently under investigation by EP III. Demand for fuelwood needs to be rationalized, through the scaling up of alternative supply and tree plantation programs: the National Association for Environmental Actions (ANAE) has begun to issue land titles in exchange for tree planting; ANAE also promotes the use of briquettes in lieu of charcoal, although the impact of these two activities is modest. The Forest Observatory has brought greater transparency into the forest sector. Control of the sector will also be enhanced by new zoning methods aimed at designing local forest management schemes in line with land use (i.e. watershed management, tree plantations, processing purposes, auction plots and/or for watershed restoration). Education campaigns focused on alternatives to *tavy* need to be supported if conservation gains achieved so far through the development of productive agricultural systems are to be maintained.

**Bank Performance**, for both quality at entry and quality of supervision, is rated **Moderately Satisfactory**. Project design was innovative, including a long-term approach for institutional development and environmental management that was collaborative and coordinated amongst donors and civil society. While the project's original objectives were overly-ambitious, the Bank was responsive in revising the objectives at mid-term. Since preparation of the second phase was conducted simultaneously with the completion reporting of the first phase, the design of EP II did not fully reflect lessons learned from the first phase, including the need for a more robust program-wide system of monitoring and reporting. Supervision, initially weak, was strengthened after mid-term. Meanwhile, the Bank could have asserted greater leverage for the Forest Action Plan, since it was a condition of project effectiveness.

***Borrower Performance*** is rated ***Moderately Satisfactory***. The GOM displayed weak commitment during the first half of EP II by not supporting forest reforms. High staff turnover affected performance albeit the GOM increased transparency through the Forest Sector Observatory and awarded legal identity to the environmental agencies. It maintained its commitment to the decentralization process by supporting the devolution of resource management rights and contracts to communities. Yet despite policy development on land security (in rural areas), the ability to uphold co-management contracts through community forest management is limited. Key inter-sectoral policies were drafted but not implemented. Irregular counterpart funding resulted in delays; other delays caused by the political crisis were beyond GOM control. The implementing agent, AGEX, was well managed however unfamiliarity with procurement requirements and financial management caused delays.

### **Going Forward**

In spite of the complex design and implementation of EP II, the project has increased public awareness through increased NGO presence and participation and regional networking. It has facilitated the management transfer of natural resource rights (including marine and coastal) to local communities. All six universities in Madagascar now have departments dedicated to environmental education and training. And a standardized management system has been launched which promises to improve monitoring and reporting for EP III. Learning from EP I and II, the Government organized a national public consultation in support of a logical framework intended to optimize donor coordination during the last phase.

EP II was implemented under severe policy constraints: the low implementation of requisite forest, land, agriculture, and energy policies stretched its mandate across too many activities. Without greater economic intensification of land use and development of non-agricultural sources of income, the constraints that threatened EP II will persist. Revenue-generating potential of NTFPs and environmental services remain unrealized. Greater emphasis on tenure security and the enforcement of *tavy* regulations are necessary to increase the adoption of conservation-friendly agriculture technologies. Madagascar's high rate of deforestation outside of the PAs requires increased support for sustainable rural development.

### **Lessons**

**This Adjustable Program Loan (APL), tranced across sector investment loans over a 15-year period proved conducive to institutional capacity strengthening and environmental mainstreaming.** It responded to the time needed to achieve institutional and enforcement capacity to implement NEAPs that require reform of national legislation, strategies, and policies for effective application. Its longer-term nature signaled both Bank and borrower commitment to operationalizing the NEAP.

**Effective implementation of sectorwide assistance programs, such as NEAPs, require close donor coordination,** particularly for a micro-project approach. Complex projects with multiple implementing agencies should use results-based or performance-based contracts, rather than traditional disbursement, as a vehicle of project implementation.

A key lesson, internalized midway through EP II, and corrected for in the on-going EP III, is that **unrealistic objectives and targets can undermine the credibility of a program.** Unclear objectives combined with poor M&E often results in a problem project. It is essential

to give priority and adequate resources to establishing realistic objectives, development of the counterfactual, support of good M&E, and development of benchmarks and baselines to ensure accountability, evaluation, and lesson-learning.

**The conservation of natural resources cannot be planned in isolation.**

Coordination with other national programs, especially rural development, is critical. A project with a grand superstructure approach is less sustainable than effective implementation of sector strategies that correct for environmental degradation. The decision to support the creation and strengthening of new environment agencies should be made in tandem with discussions of recurrent financing in the long-term.

Vinod Thomas  
Director-General  
Evaluation

# 1. Background

## The Project Context

1.1 Despite of being the most biologically rich island on the planet, Madagascar is one of the world's poorest countries. Today, about 70 percent of the country's 15 million citizens live below the poverty line, while nearly half of its children under five years of age are malnourished. As reflected in IEG's most recent Country Assistance Evaluation (2006), Madagascar has not achieved any significant reduction in poverty, as measured by income and consumption over the past decade.

1.2 This poor poverty performance is somewhat counterintuitive given the fact that between the mid-1990s and end-2001, Madagascar had made significant progress in terms of macroeconomic stabilization and structural reform. Over the period 1997-2001, the growth rate of real GDP averaged almost 5 percent (IMF PIN No. 03/07, 2003). This has been, in part, fueled by growth in nontraditional exports, through a booming textile and apparel industry for example. Madagascar's exports of textile and apparel products grew from about US\$45 million in 1990 to almost half a billion dollars in 2001 (Nicita, 2006).<sup>1</sup> The impact of this wave of export-led growth has marginally affected employment and wages in the urban areas, but based on analysis of inequality conducted to inform Madagascar's latest PRSP, the majority of the poor did not benefit from the growth achieved during the 1997 to 2001 period, as welfare gains did not spread to rural areas.

1.3 This is because more than 80 percent of Madagascar's poor live in rural areas, and the agriculture sector, including fishing and forestry, accounts for 34% of GDP and contributes more than 70% to export earnings (whereas industry accounted for only 8% in 2003). Coffee, cloves, and vanilla have been the most important cash crops, and all three have suffered in recent years<sup>2</sup>. Other cash crops include sugarcane and cotton, which is grown for the local textile industry. Livestock are also an important income earner. However, in the last ten years, fish and shellfish have overtaken the former commodities as Madagascar's leading exports, and the country also receives valuable foreign exchange from fleets fishing around the coast.

1.4 Madagascar's main food crops are rice (the main staple which covers 61 percent of farmed areas and 82 percent of irrigated areas), maize, cassava, and potato.

1.5 Earnings from the service sector comprised the remaining 58 percent of GDP; tourism is Madagascar's second largest foreign-exchange earner. Recognized as an

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1. The World Bank. Alessandro Nicita. Policy Research Working Paper Series No 3841. The termination of Madagascar's MFA status in early 2005 and the constraints that will be imposed by the third-party apparel provision of AGOA in early 2007 threaten the health of this sector.

2. Coffee exports have been hit by the global increase in supply, cloves have suffered from competition from Indonesia. In 1999, Madagascar was the largest producer of vanilla in the world, but three cyclones in 2000 destroyed around a third of the harvest. The industry has also been hit in recent years by increased competition and use of artificial flavourings.

important development tool by Madagascar's most recent PRSP, there is little evidence that earnings are contributing to welfare improvements, despite the fact that fifty percent of park entrance fees collected by the System of Protected Areas of Madagascar' (SAPM – formerly, ANGAP) go to local communities. Madagascar's potential to increase its earnings from sustainably managed ecotourism is vast: one out of every two visitors to Madagascar visits a protected area.<sup>3</sup> While its 33 endemic lemur species are a worldwide attraction, the fourth largest island in the world possesses an almost unrivaled array of archaic life forms that are increasingly attracting tourists due to its geomorphology, history, and varied climate.

1.6 Madagascar has been recognized as the single highest major biodiversity conservation priority worldwide. According to the GEF, although Madagascar occupies only about 1.9% of the land area of the African region, it is home to about 25% of all African plants. Overall, about 80% of Madagascar's plant species are endemic, and for animals the proportion is usually even higher, the best example being the lemurs, close to 100% of which occur naturally only in Madagascar. In addition, 95% of the country's 265 reptiles and 99% of its 120 amphibians are endemic, and figures for other groups of organisms are comparable. Higher-order endemism is also extremely high in Madagascar, making even less diverse Malagasy taxa exceptionally valuable.

1.7 ***Madagascar's biodiversity is threatened by a significant level of environmental degradation.*** The 1994 CAS notes that Madagascar is 'facing a spiral of environmental degradation that increasingly threatens sustainable development and the country's unique ecological heritage.' The dominant form of land use in Madagascar – and a major driver of the country's vast original forest cover loss -- is shifting cultivation by the slash-and-burn method, known as Tavy.<sup>4</sup> Almost eighty per cent of the country's original forest cover has disappeared, or has been severely degraded, due to *tavy*, timber exploitation, uncontrolled livestock grazing, fuel wood collection/charcoal production, hunting, corporate and small-scale mining, ornamental plant and wildlife collection and introduction of non-native wildlife species (CEPF 2003). Anthropogenic degradation and fragmentation of Madagascar's forests have been found to be a principal cause of the decline of many endemic species of flora and fauna, including lemurs (Hume 2006, Godfrey et al. 1997) and avifauna (Hume 2006, Langrand and Wilmé 1997). Tavy is also responsible for loss of an estimated 200 tons of topsoil per hectare each year (GEF 1996).

1.8 ***The Government of Madagascar responded by developing the First National Environmental Action Plan.*** The Government of Madagascar (GOM) recognized these threats and put in place the first National Environment Action Plan (NEAP) in 1989. The Government demonstrated its commitment and ownership of the plan by supporting the

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3. Ecotourism accounts for 20% of total international tourism (World Tourism Organization, 2006).

Worldwide, international tourists will increase from 613 million in 1997 to 1.6 billion by 2020 and earnings will jump from \$443 billion in 1997 to more than \$2 trillion by 2020 (World Tourism Organization, 2006).

4. Tavy typically involves cutting and burning an acre or two of forest and then planting it with rice. After a year or two of production the field is left fallow for 4-6 years before the process is repeated. After 2-3 such cycles the soil is exhausted of nutrients and the land is likely colonized by scrub vegetation or alien grasses. However, the crop cycle for tavy is shorter than for irrigated rice, hence it is one of the only forms of insurance against the droughts that occur about every three years. Moreover, precipitous slopes and heavy, irregular rains make it difficult to maintain affordable and controllable irrigation systems on hills.

development and passage of an Environment Charter and the National Environmental Policy in 1990 (Law 90-033, December 21, 1990). It enhanced its commitment by inviting donors to collectively execute a pioneering Environmental Support Program (discussed below and in the following section).

1.9 Madagascar's NEAP recognizes the link between environmental protection and economic development and includes six objectives to:

- (i) protect and manage the national heritage of biodiversity, with a special emphasis on parks, reserves and gazetted natural forests, in conjunction with the sustainable development of their surrounding areas;
- (ii) improve the living conditions of the population through the protection and management of natural resources in rural areas with an emphasis on watershed protection, reforestation and agro-forestry;
- (iii) promote environmental education, training and communication;
- (iv) develop mapping and remote sensing tools to meet the demand for natural resources and land management;
- (v) develop environmental research capacities for terrestrial, coastal and marine ecosystems; and
- (vi) establish mechanisms for managing and monitoring the environment

1.10 *Donors, including the World Bank, have responded by developing the Environment Support Program* The Environment Support Program was designed to implement the NEAP's six point program summarized above.

## 2. Project Design and Implementation

### Project History and Design

2.1 The Environmental Support Program (ESP) is unique in that it was designed to operationalize the first NEAP in Africa, negotiated in 1988-1999 and made effective in 1991. The excitement surrounding the development and operationalization of the first African NEAP in one of the world's highest biodiversity priority zones is evidenced by its highly participatory process which brought multiple stakeholders and donors together under a single framework. Support for the NEAP process was bolstered by the government's concurrent adoption of a *National Environment Charter*<sup>5</sup> and a National Environmental Policy (Law 90-33) in 1990. The NEAP and the ESP subsequently influenced the development of Bank Country Assistance Strategies (CASs); all subsequent CASs include natural resources management objectives.

2.2 The ESP was innovative because it was realistically designed with an implementation period of fifteen years: the program instrument employed would later be referred to as an Adjustable Program Loan (APL) in the Bank. The design of the program

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5. NEAP- Charte de l'Environnement. December 1990. Madagascar Report E0021.

follows the fifteen year plan introduced in the NEAP – that envisaged establishing a policy, regulatory, and institutional framework for the management of the environment and the resolution of its most severe problems, including deforestation, soil degradation and brown agenda issues.

2.3 The first phase of the APL (EP I) was designed to establish the foundation for environmental management through institution building and human resource development. Its objectives consisted of: (1) protecting the heritage of biodiversity in the parks, reserves and gazetted forests, in conjunction with the development of the surrounding communities (2) and fighting deforestation and erosion in priority watersheds where the negative economic impact was the highest. ENV I was designed with components: (1) protection and management of biodiversity, (2) soil conservation, agro-forestry, reforestation, and other rural development activities in priority areas, (3) mapping in priority area and establishment of a GIS, (4) land surveying and titling in priority areas, (5) environmental training, education and awareness, (6) research and (7) a range of activities supporting institution building, establishment of EIA procedures and data bases, studies and M&E. In addition, selected components from the Bank-supported Forest Management and Protection Forests project were transferred at its closure in 1994 to ENV I.

2.4 The objectives of the first phase of the ESP were later acknowledged to have been over ambitious; IEG rated the outcome of the first phase **unsatisfactory** as it failed to put in place the long-term foundation necessary for biodiversity conservation and management and the monitoring and evaluation systems critical to assess results on the ground. Physical objectives were barely executed or not attempted. The *overall institutional impact* was assessed as “negligible” by IEG because the agencies created under the project lacked sustainable funding and had no impact on the destruction of the environment. *Sustainability* was assessed as *unlikely* by IEG because stewardship was lacking and local benefits had not been demonstrated. *Bank and Borrower performance were judged unsatisfactory*. This assessment was confirmed by an a Project Performance Assessment Report.<sup>6</sup> The first phase of this APL did not accomplish its task of creating a useful institutional framework for Protected Area management; in fact some interviewees for this audit attest that it may have in fact contributed to a ‘murky’ institutional landscape. However, the project did establish an environmental baseline, discussed among a broad coalition of donors, institutions and NGOs with the relevant aim of improving the unique environment of Madagascar.

2.5 The important lessons derived from ENV I were:<sup>7</sup> (1) program scope should be realistic and within the country’s implementation capacity; (2) financing should be for program as a whole, not earmarked by activities;(3) community participation can be promoted by demonstrating benefits; (4) successful management of Protected Areas requires a communication strategy;(5) clear monitorable indicators must be established to measure performance;(6) institutional roles should be clearly defined within an established overall policy framework; (7) design of the mini-projects component should

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6. First Environment Program (Credit 2125-MAG) Performance Audit Report August 2000. Report No. 20667. WB Washington DC.

7. ICR Environment I January 1998. Report No 17297.

support program objectives; and (8) long term sustainability requires greater integration of the country's rural development strategy and its environmental agenda. Many of the lessons listed above were not incorporated in ENV II.

2.6 The original project objectives of EP II were to:

- (i.) reverse current environmental degradation trends;
- (ii) promote sustainable use of natural resources, including soil, water, forest cover and biodiversity; and
- (iii) mainstream environmental considerations into macroeconomic and sectoral management of the country.

2.7 The project's objectives were revised after the mid-term review. The revised objectives pair down the ambitious expectations that were present during the first phase and carried through the first half of ENV II. The revised objectives limit the scale and scope of the project, by indicating where environmental results will be achieved ("in targeted areas") and instead of fully 'mainstreaming environmental concerns the need to establish conducive conditions instead.

2.8 The revised objectives of EP II are to:

- (i) increase the sustainable use of natural resources, including soil, forest cover and biodiversity in targeted areas; and
- (ii) establish conditions for mainstreaming sustainable environmental and natural resources management at the national level.

2.9 The revisions of the project objective are in line with the constraints recognized in the PAD: ["that the project]...will not be able to stop the environmental degradation altogether or [even] reverse it." The PAD also stated that the Program "has to be understood as one that will endow the country with the capacity to manage its environmental resources more effectively and reduce the rate at which its natural resources are being depleted."

## **Project Content**

2.10 Restructuring of the project in 2001 resulted in regrouping and reducing the original components into the following four revised components:

- (i) *Sustainable Soil and Water Management in Priority Target Zones* (US\$ 43.5 million; actual \$25.67million or 59%): Increase the capacity of the rural population to sustainably manage natural resources, particularly land (soil), and water. The main interventions under the component were 4,000 community and family mini-projects in 500 target communes (districts). It included the establishment of watershed management schemes. The component was to be implemented by the National Association for Environment Action (ANAE).<sup>8</sup>

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8. ANAE: Association Nationale d'Actions Environnementales ( National Association for Environment Action) is a new institution created through ENV I.

- (ii) *Forest Eco-system Management* (US\$43.1 million, actual \$20.94 or 49%) focused on improving the management of forest ecosystems by transferring about 150,000 hectares of forests under the management to the communities and bringing about 580,000 hectares of forests under multiple-use management schemes (ESFUM).<sup>9</sup>
- (iii) *Protected Area Management* (US\$29.9 million; actual \$52.47 or 175%) focused on expanding the Protected Area system to achieve more comprehensive protection of Madagascar's representative ecosystems. It also focused on improving Protected Area management through institutional strengthening of the management agency (ANGAP)<sup>10</sup> and greater involvement of communities.
- (iv) *Environmental Policies and Institutions* (US\$38.5 million, actual \$24.7%) to develop a legal and regulatory framework for environmental management and to strengthen regional environmental planning and management including the Environment Management Support Services Agency (SAGE).

## Implementation

2.11 Whereas EP I put in place the policy and institutional framework for Protected Area management and the sustainable use of natural resources, EP II expanded the field coverage of activities, strengthened the newly created executing agencies (at the expense often of the existing ministries), and developed and drafted policies for sustainable development in relevant sectors, although critical policies like Forestry, have not been implemented. EP II was implemented primarily at the central and regional levels; it lacked effective mechanisms for local participation, beyond the design stage of some of its component activities. In particular, site visits performed during the course of the audit revealed little evidence of joint decision-making between communities and the National Association for Protected Areas Management (ANGAP).

2.12 Implementation was directed through a Multi-Donor Secretariat (MDS) established and financed by the World Bank, in partnership with French Cooperation, USAID, WB, FIDA, and UNDP. Since 2000, the MDS has coordinated donor funding for development and food safety activities.

2.13 EP II streamlined the institutional and implementation arrangements by reducing the number of implementing agencies from seven to four, while turning the remaining three into independent service providers. However, implementation in the early years of the project was still hampered by a lack of harmonization of the financial management and accounting systems across the implementing agencies leading to delays in implementation – however this was corrected for after the reorganization at mid-term.

2.14 Implementation was also affected by the political crisis of 2002, which effectively brought EP II implementation to a halt. The ICR candidly notes that some of the conservation accomplishments in the Protected Areas and elsewhere were somewhat set

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9. ESFUM Eco-Systemes Forestiers a Usage-Multiple (Multiple Use Forest Ecosystems).

10. ANGAP: Association Nationale pour les Aires Protégées (National Association for the Management of Protected Areas).

back, as the conflict resulted in uncontrolled exploitation of forest and biodiversity resources. The project required two extensions of its closing date due to the crisis.

2.15 The implementation of EPII has been characterized as having ‘spread itself too thin’ across the rural sectors, for example, in an attempt to stem the root causes of environmental degradation. These efforts may have compromised EP II’s ability to prioritize interventions in areas of high biodiversity that could generate high rates of return in terms of building critical capacity for environmental management, EIA monitoring, and environmental policy enforcement. It wasn’t until 2001 that the Government of Madagascar renewed its support for the “Rural Development Action Plan” (PADR), thereby appropriately relieving NEAP functions and instruments from the promotion of rural productivity through agricultural systems intensification. Close ministerial coordination of the PADR and the NEAP will remain critical.

### 3. Analysis of Effectiveness

3.1 Based on its high relevance, low efficiency, and substantial achievement of objectives, the project outcome is rated **moderately satisfactory**.

3.2 EP II’s objectives were and remain **highly relevant**. Madagascar is one of the 17 recognized mega diverse countries in the world that together account for 80 percent of the world’s biological diversity. Nearly 98 percent of Madagascar’s land mammals, 91 percent of its reptiles, and 80 percent of its flowering plants are found nowhere else on earth. The country’s most notable species, lemurs, have 51 distinct taxa and 33 species that are 100 percent endemic (the MacArthur Foundation, 2006).

3.3 As noted in the 1994 CAS, many of these endemic species, both flora and fauna, are threatened by a high degree of environmental degradation. The 1994 CAS boldly announced that Madagascar is “facing a spiral of environmental degradation that increasingly threatens sustainable development and the country’s unique ecological heritage” due to loss of forest cover (Madagascar lost about 12 million ha of forest between 1960 and 2000, or about half its forest cover) due to overexploitation of the country’s eastern rainforests as well as improper cultivation techniques, such as slash-and-burn agriculture, known locally as *Tavy*.

3.4 Identified through an inter-sectoral and highly participatory process, ENV II directly implements the National Environmental Action Plan (NEAP). Given the need to build implementation capacity and community awareness following the strong legislative commitment surrounding Madagascar’s NEAP, the fifteen year, phased design, mechanized through what is today referred to as an adjustable program loan (APL) was and remains relevant. The PRSPs put in place during the project period emphasized the links between natural resource management and sustained growth. The most recent

PRSP<sup>11</sup> has put priority on agriculture-led growth and acknowledges the urgency of mainstreaming environment in projects and policies.

3.5 The program's conservation aims are fully supported by the government, as evidenced by the Presidential announcement at the World Parks Congress in Durban, South Africa, in June 2003 to triple the size of the Protected Areas network and conservation sites from 1.7 million to 6 million hectares.

3.6 Meanwhile, the relevance of the design of ENV II is rated only **partially relevant**. The second phase of the Environment Support Program was not designed to *directly* address or combat forest governance issues, i.e. the high incidence of illegal logging in the rainforests of Eastern Madagascar, where ebony and rosewood can earn up to US\$2,000 a ton in international markets. Since local Bank staff must intercede to try to block these activities routinely, the project would have been more relevant had it confronted forest governance issues head-on. Indeed, the approval of EP II was conditioned on the passage of a National Forest Policy, which was adopted but not adequately implemented. While the creation of the Forestry Sector Observatory and cancellation of the illegal and non-paying concessions were important gains in the forestry sector, Madagascar lost 6.2% of its forest cover, or around 854,000 hectares, between 1990 and 2005 (156,000 of these lost hectares were primary forest cover).

3.7 Ninety percent of the wood harvested in Madagascar is used for fuelwood. Annual consumption would require 40,000 ha<sup>12</sup> of additional forest plantations per year to satisfy the demand of a growing population and to comply with the President's decree for an expansion of the Protected Area system. Not addressing directly Madagascar's high reliance on woodfuel through the promotion of substitution fuels or the increase in available forest area for woodfuel production, contributes to the less than highly relevant rating assigned to this project design.

## Efficiency

3.8 **The efficiency of the project was Moderately Unsatisfactory.** *The proliferation of institutions established partly through the project to manage the environment scattered investments in many different directions without any synergy making benefits streams modest but at high costs.* Results on the ground are 'thin' compared to the investments made. The monitoring information was not satisfactory and did not provide the basis for a credible efficiency analysis, nor a cost effectiveness analysis, of most activities undertaken under the project. Newly created institutions attracted competitive staff away from the line ministries and absorbed as much funds as all four<sup>13</sup> departments of the Ministry responsible for rural development and inefficiently duplicated Ministerial activities (e.g. ANAE). However, basic environmental agencies

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11. The PRSP strategy made available widely is titled *Madagascar Naturellement*. (NB: word game with Nature).

12. p22 Fuelwood supply/demand in *Report on an Action Plan to improve Governance in the Forestry Sector*. USAID, January 2002. IRG. 53 p.

13. Agriculture, fishery, livestock, water and forests.

put in pace through EP I were strengthened in EP II and awareness of environmental issues was raised, including in political spheres.

3.9 The *Protected area Management* component, the most significant in commitment terms, with US\$ 52.5 million (only \$5.6m ITF/IDA and \$ 6.3m GEF) but it doubled the number of protected areas from 21 in ENV I to 46 in ENV II. However, many of these areas exist mostly on paper, without clearly lines of demarcation. Deforestation rates appears to have decreased as compared to areas outside the reserves. The *Soil and Water Management*, funded at a level of US\$ 25.7m (US\$9.1 for IDA), was ill-designed and represented inefficient and risky investments for the farmers who discontinued practices introduced after project financing ended.<sup>1</sup> Both ex-ante and ex-post B/C analyses indicated substantial IRR for the activities undertaken (ICR p.19 and 20). The ICR pointed to severe flaws in the analysis (p.50). Shadow pricing for the environment was not included and would have improved the project social profitability. The bottom line is that the financial analysis is apparently not profitable and so farmers would not engage these expenses without subsidies from the Government or Donors. The *Environmental Policies and Institutions* component absorbed US\$ 24.7m (\$9.6 m from IDA) financed the creation and strengthening of ONE and ANGAP. ANAE was later discontinued and became an NGO. Ecotourism increased significantly during the project period; the target number of visitors was surpassed and the number of dedicated visits to protected areas increased from 50,000 in 1997 to 100,000 in 2001. Protected areas were the principal tourist attraction and accounted for 55% of the time spent by tourists. Yet while revenues from park entrance fees increased from 493.8 million FMG before EP2 to about 2,808.6 million FMG in 2001 (due both to the increase in visitors and an increase of park fees introduced in 1997), revenues are still insufficient to fund the operating budget of SAPM (formerly ANGAP). But the creation of the FAPB fund is promising. FAPB is the first of its kind to use IDA contribution to set-up an endowment fund for the environment.

3.10 The *Forest Ecosystems Management* component (US\$24m) has begun to implement the Durban vision of the Government and as such has an important future role to play in the implementation of that policy. So far, governance and a lack of capacity have been the main constraints on the effective management of the 180,000has of Classified Forests (FC). The Observatory that was created to tackle the governance problem has not demonstrated limited impact so far. Permits are allocated without georeferencing and marking of the FC boundaries making enforcement difficult. The effective devolution of management to the communities on around 175,000 hectares suffers from the same problems and a lack of capacity and follow-up from the Forestry department.

## **Efficacy**

3.11 **Overall, efficacy is assessed as substantial, with shortcomings.** *Most of the target outputs for ENV II were met and, in some cases, surpassed but the environmental impacts on the ground are not yet visible.* ENV II is evaluated here against the project's revised objectives to: (i) increase the sustainable use of natural resources, including soil, forest cover, and biodiversity in targeted areas; and (ii) establish conditions for

mainstreaming sustainable environmental and natural resources management at the national level. These two objectives are assessed through the four project components:

### ***Soil and Water Management***

3.12 Conservation efforts for soil and water management significantly exceeded project targets<sup>14</sup>, yet retrospective studies of the components identified several shortcomings (See ICR pps: 13-14):

- *Spontaneous adoption of conservation agriculture, while greater than planned, varied according to the type of activity, technology, and socio-economic conditions. Some effective but knowledge-intensive technologies did not lend themselves well for spontaneous replication, e.g., direct sowing or intensive rice systems which require precise water management. Similarly, conservation agriculture technologies which require start up funding are difficult for farmers to adopt without external assistance.*
- *The promotion of agricultural intensification and emphasis on conservation, while increasing yields, did not necessarily substitute for unsustainable subsistence agriculture (farmers continued to use tavy for food crops that required very little labor -- rather than buying food stuffs with revenues from cash crops generated under the intensified systems). The aggregate impact on food market was limited.*
- *Mini-project cost recovery was not feasible (particularly for seeds, pesticides and small equipment), making the replicability of mini-projects unfeasible.*

### ***The Forest Ecosystem Management Component***

3.13 The project substantially contributed to reducing deforestation. Overall, primary forest loss has been slowed to 0.6% in Protected Areas compared with 1.6+% outside Protected Areas over 5 years of the project. Specific Protected Areas in eastern Madagascar showed that in protected highland forests (>800 m elevation) deforestation rates were a third to a half of the rate observed in unprotected control areas, while lowland forests fared less well, Protected Area rates ranging for a third to 80% of unprotected rates. Slash and burn cultivation decreased by 72% during the first 4 years of the project.

3.14 Through Madagascar's ongoing process of decentralization, the Bank aimed to help support the devolution of forest sector activities to the communities through the participatory development of natural resource management plans for about 320,000 hectares of forests (20% below the target) and forest management plans for 180,000 ha in four pilot gazetted forest reserves (whereby 100% of the target was achieved). The component also introduced a pilot program on community forest management (GELOSE involving 278 villages and encompassing 174,132 ha (exceeding the targeted number of villages by 39% and the targeted area by 16%). While the concept of transferring natural

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14. 5,072 agricultural conservation mini-projects were implemented (127% of target) and the area covered (82,100 ha) was 256% of target.

resource management to local communities was well accepted, and resulted in the development of some 200 contracts, the simplified system developed for community forest management -- Gestion Contractuelle des Forêts – did not address the critical constraints that were imposed on the system by the traditional system of land tenure.

3.15 In some areas the capacity of communities to manage forests was insufficient; in other areas the Forest Department continued to issue private logging licenses for areas already under community management,

3.16 Governance issues have historically affected the performance of the forest sector in Madagascar. In the past, as noted in the ICR, the sector was plagued by a high tolerance for corruption, poor enforcement of the forest code and cumbersome regulations. While greater attention has been drawn toward illegal logging, particularly through the implementation of the first two phases of the NEAP, the practice continues unabated. And illegal capture and sale of species listed through the CITES convention (signed and ratified by Madagascar) threaten the environmental uniqueness and integrity of the island's biodiversity. During the past two IEG missions to Madagascar (CAE, 2005 and EP II PPAR, 2006), the World Bank environment officer had to urgently travel to the country's main port in an effort to deter illegal export of rosewood and ebony despite the ongoing ban on log export and logging permits.

3.17 In response to perceived governance challenges, the project successfully supported the creation of a national Forest Observatory. Its functions include monitoring adherence to the legislation and regulations that were put in place as part of the Environment Support Program; it was also involved in establishing forest zones. However, since the updating of forest data inventory and forest zoning only started in 2001, the forest rehabilitation plans were delayed. In November 2004, the President was flown over the classified forest (forets classée) d'Ambohilero to observe incidents of illegal logging. Recommendations were made, including the strengthening of the Forestry Sector Observatory (OSF), but there has been limited impact so far.

### ***Protected Area Management***

3.18 The national system of Protected Areas expanded from 21 (under EP I) to 46 under EP II and now cover 15% of the Madagascar's forests and 3% of its total land area. According to an assessment conducted by IUCN, independently of the project, the capacity for Protected Area management increased significantly, although less than anticipated. IUCN rated the ANGAP management capacity as "satisfactory" in twelve Protected Areas, including Madagascar's five most popular national parks, "average" in another three, while only "marginal" in twenty-three recently established areas. While staffing and management planning were found to be adequate in most protected areas, ANGAP's capacity suffered from the availability of equipment and vehicles, particularly in the new protected areas.

### ***Environmental Policies and Institutions***

3.19 *The Environmental Policies and Institutions component* (US\$ 24.7m; \$9.6 IDA) financed the creation and strengthening of ONE, ANGAP, and ANAE. Institutional

conflicts and management difficulties, combined with the launch of the decentralization process in one of the most centrally administered countries in Africa, made implementing the numerous activities difficult however. Recognizing the difficulty of coordinating the Environment Support Program's activities across multiple institutions, the Bank dropped the concept of creating a new forestry agency, ANGEF.<sup>15</sup> One weakness of the project was its insensitivity towards traditional social decision-making arrangements -- it did not consider adequately how to work through commune level representatives who have been empowered through the ongoing decentralization processes, for example.<sup>16, 17</sup>

3.20 The project successfully established four environmental units in government ministries to mainstream environmental management and almost doubled the planned number of regional planning cells (15 instead of 9). At the local level, twenty-nine community cells were set-up to implement integrated management of marine and coastal zones. Over 250 environmental staff, 940 trainers and teachers and 1,140 students received environmental training; 86 environmental facilitators were trained and accredited for community-based natural resource management.

3.21 The project supported the formulation of new policies for nine key sectors, including mines, fisheries and aquaculture, tourism, roads, forests, water, industries, and buildings; only three policies however were enacted: fisheries and aquaculture, mining, and industry. The implementation of the country's Forest Action Plan (designed to address the conservation, regeneration, and sustainable use of forest resources and to define investment programs) was stalled during EP I and is noticeably missing from the necessary policy reforms that were required as a precondition of EP II.

3.22 The national environmental impact assessment (EIA) system was strengthened through revision of legislation and production of seven sectoral guidelines. Over one hundred EIAs were presented to ONE during ENV II. However, the lack of communication and budget in the responsible Ministries made the implementation of EIAs difficult.

3.23 This component supported the ratification of several environmental conventions on climate change, desertification, and wetlands.

**Risk to development outcome:** *the risk, at the time of evaluation, that expected outcomes, would not be realized.*

3.24 **Risk to Development Outcome is rated modest** at the present time, since the project will benefit from the extended support of a third phase of this fifteen year APL.

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15. ANGEF would have been a new executive agency charged with managing forest resources both in fully protected areas and production forests where harvesting would take place. As the manager of state forests, ANGEF would have enforced silvicultural obligations for commercial operations and engage in reforestation activities.

16. GTDR: Groupe Travail de Developpement Rural (Regional Rural Development Working Group) which are part of the new decentralisation exercise and are to take decisions in the 20 regions in rural development.

17. PCD: Plan Communal de Developpement ( Community Development Plan) which are supposed to draw development plans at the level of the commune.

The greatest risk to development outcome of the entire Environmental Support Program is the lack of financial sustainability of the newly created environmental agencies. As noted in the ICR, fiscal sustainability of environmental agencies established under the project is crucial in ensuring overall sustainability of project achievements. It was USAID, not the Bank, that supported activities focused on the financial sustainability of the environmental institutions created by the program, particularly ANGAP and ONE. A Sustainable Financing Commission was set up in July 2000 and became the key focal point in the development of the Trust Fund for Biodiversity and Protected Areas. However the Bank can contribute to the development of other financing mechanisms, such as carbon offsets.

**3.25 While the government has doubled the number of protected areas, the long-term viability and health of ecosystems in and around the project's target areas will in part depend on the continued strengthening of SAPM's capacity (formerly ANGAP).** This will entail training and equipping staff, supporting infrastructure development and the demarcation of park boundaries. Human impacts on the parks' resources will need to be rationalized through the development of equitable benefit sharing schemes and income generating projects in the target areas. The Gelose system must be extended to areas outside the parks. More importantly, local communities must be integrated into park management, and must fully understand their stewardship roles. Environmental information, education and communication campaigns must be supported throughout the year (not just on Environment Day), although the Government's decision to rotate annual Environment Day ceremonies around the country is a best practice. Park staff must be trained in ecological monitoring to improve park management.

**3.26 Madagascar's biodiversity will continue to be threatened by loss and unsustainable rate of forest cover loss unless the country, with the support of the development community, can curb demand for fuelwood –** through the development of alternative supply, forest plantations (without compromising the conservation of primary forest), or both. While project interventions were successful in decreasing the use of Tavy in targeted areas, the method is still widely practiced and threatens the conservation gains that can be achieved through the development of productive agricultural systems. The effective implementation of the *Rural Development Action Plan* (PADR), adopted in 2001, will significantly lower the risks to the outcomes so far achieved throughout the life of the Environment Support Program.

**3.27 The protection and management of Forest Reserves and Classified Forests will depend on the continued political will of the President and the Senate, the improvement of Governance, and improvement in capacity at the central, regional, and local levels.** While the country is now more conscious of the importance of its unique environment for economic development and of its comparative advantage to build a tourism industry, absence of political backing would slow considerably the attainment of that objective. Governance is the major constraint in forest related issues and will continue to limit progress if enforcement is not taken more seriously. Effective decentralization of natural resource management, through devolution of forest management to organized forest communities (Gelose) has the potential of increasing accountability in the sector. However such arrangements run the risk of elite capture, and

therefore the “co-“ of the “co-management” mechanisms should be monitored from a sustainable use and poverty alleviation perspective.

### **Bank Performance**

**3.28 The mix of instruments designed to reduce environmental degradation and conserve the mega-biodiversity of Madagascar is best practice.** Madagascar’s NEAP was the first ever, and was judiciously initiated in a country of unique world environment through a participatory process. As observed by an internal review, the project was notable for its innovative and far-sighted approach, including a long-term approach for institutional development and environmental management, collaborative and coordinated interaction of donors, programmatic, comprehensive, and cross-sectoral approach, and flexibility to adapt and learn by doing. The project was ahead of its time in several aspects, including the adoption of a Comprehensive Development Framework before it existed, an Adaptable Program Loan before “APLs” existed, and a Learning and Innovation Loan before LILs existed.

3.29 Quality at entry had several shortcomings. An internal review concluded that the project had "great promise and great flaws". The project’s objectives were unrealistic. Implementation arrangements were overly complex with too many actors, components, and excessive project demand given the weak institutional base.

3.30 Specifically, the project suffered from shortcomings:

- (a) EP II was insufficiently integrated into Madagascar's broader rural development strategy, a problem exacerbated by poor cooperation between government and Bank's staff;
- (b) The main project implementing agency, the National Environmental Office (ONE), created under the first phase project, had a budget bigger than the combined budget of existing Ministries responsible for rural development (agriculture, water and forest, fisheries and livestock), and drew away their best staff;
- (c) Original objectives were unrealistic, not sufficiently linked to the ultimate goals of the 15-year environmental program, were beyond the capacity of local agencies to implement, and monitoring and evaluation systems were inadequate;
- (d) Local, in contrast to national, ownership was weak because incentive structures were not aligned to peoples' needs.

**3.31 Supervision during the first half of the project was unsatisfactory in relation to the quality and realism of reporting.** Supervision lacked proper monitoring of the social aspects of implementation and coordination with agricultural activities. There was inadequate coordination with project partners concerning monitoring, data collection, and reporting at the activity level and weak upkeep of project records and monitoring at headquarters.

3.32 The bulk of supervision expenses were spent on annual planning/funding exercises for the numerous components and activities. One supervision mission that cost US\$210,000 reveals that little cost savings were achieved through this multi-donor arrangement.

3.33 Overall Bank performance is rated as **Marginally Satisfactory** due to a combination of an innovative project design which was complicated but unrealistic objectives and overly complex implementation arrangements. The Bank nevertheless was responsive and flexible following the Mid-term Review, but demonstrated weak supervision in this multi-partner program during the first half of the project.

### **Borrower performance**

3.34 **Borrower Performance is rated Moderately Satisfactory.** The government displayed weak commitment during the first half of ENVII, and was unable to generate support for key forest reforms over the entire life of the project. High turnover of key staff in the Ministries and technical staff in the sector hampered sustained performance. Nevertheless, the government established the development of a transparent oversight mechanism through the Forest Sector Observatory, and improved governance in the forestry sector by tightening controls on logging and biodiversity permits, canceling illegal or non-paying contracts, establishing and imposing a moratorium on the transportation and export of species listed under CITES – although Madagascar was noncompliant with CITES in 2000 and 2001.

3.35 The government passed several decrees that gave legal identity to the newly created environmental agencies such as the National Environment Council (ONE) and the Inter-ministerial Environment Committee (CIM). It maintained its commitment to the ongoing decentralization process by supporting the devolution of natural resource management rights and contracts to communities – although despite the national development of policies on land security (in rural areas), the ability to uphold co-management contracts through community forest management schemes is limited.

3.36 Although a number of key inter-sectoral policies were drafted, environmental policies for agriculture (pesticides), tourism, and urban development did not progress from drafting to implementation. Irregular and short counterpart funding led to implementation delays. Implementation delays caused by the political crisis was largely beyond government control. But is it noteworthy that by project end (2003), just in time to build support for the third and last phase of the Environment Support Program, the government issued a Policy Letter on the Environment, in which it confirmed its commitment to conservation of natural resources, reforestation through the HIPC initiatives, and support for creating a biodiversity conservation trust fund.

3.37 A key commitment was made at the 5th World Parks Congress in Durban, South Africa where the President of Madagascar announced government 's intention to expand its terrestrial Protected Area coverage from 1.5 million hectares to 5 million hectares and its coastal and marine-area coverage from 200,000 hectares to 1 million hectares. While this decision was made after the closing date of (September 2003), momentum for the

expansion was built through the gains made in EP II and has affected the remaining tranche of the program as a whole.

3.38 The project implementing agencies, referred to as AGEX, were managed by competent professionals who did their best to meet their output targets under some times difficult circumstances. However, due to the complexity of the implementing arrangements across several agencies, a program-wide monitoring system was never developed. AGEX had some difficulties with procurement and financial management that also caused implementation delays.

3.39 Borrower performance is rated **Marginally Satisfactory** due to weak government commitment during the first half of EP II, specifically in relation to weak support for key forest reforms. Performance of implementing agencies was satisfactory, although with some gaps. The implementing agencies collectively referred to as AGEX generally met or exceeded their performance targets, however, weak aspects included delays caused by inadequate procurement and financial management.

## 4. Monitoring and Evaluation Design, Implementation and Utilization

4.1 *M&E design and implementation are rated negligible.* As noted in the ICR, the project lacked an adequate monitoring and evaluation system that would have allowed project managers to determine progress, identify problems, and make adjustments. In addition, missing links between the ambitious objectives and targets of the program and the specific outputs of annual work programs made it difficult for the implementing agencies to understand how the short-term actions relate to long-term objectives. An inadequate reporting regime failed to provide the management information needed for steering and supervising such a complex operation.

4.2 *M&E utilization is rated modest,* since the quantitative outputs reported have been used to inform the development of the third phase of the Environment Support Program, now underway. The project reported on the achievements of results at the output level; however the quantitative achievements reported relay nothing of the quality of the implementation of the activities, even though physical targets are reported as having been exceeded. A few demonstrative examples are provided here:

- Within the Sustainable NRM (soil, forest cover, biodiversity) category, the project 'measured' the number of rural households who participated in mini-projects: while 100,000 households were targeted, 389,600 households were actually reached. While the wider extension of project benefits is laudable, this type of results reporting relays nothing of the actual benefits received, welfare gains, increased awareness or learning, or the sustainability of the services or benefits introduced by the project.

- Within the same category, the tendency to report on the number of “plans” drafted – such as watershed management plans, community development plans, or number of projects financed – is always inadequate in terms of the need to provide some evidence of outcome, or lack of outcome if implementation and or policy uptake is stalled.
- Under the Forestry Component, output indicators include quantitative targets (measured in ha), such as “Area subject to management transfer in target areas”; “Area under management scheme”; and “Area under management plans for classified forests.” While only the first target in this category was surpassed, the quantitative evidence provides no evidence of the effects of the management transfer process or how the process took place. While the last target was met exactly, again, the numerical outputs reveal nothing of the process of developing the management plans for classified forests, how this information is shared with communities surrounding classified areas, or how encroachment is affected by the implementation of these schemes.
- Under the National Parks and Ecotourism category, the results reporting reveals and discussions with local hotel and park staff verified that there has been an increase in the number of tourists. However, there are no indicators linked to the level of park revenues, the financial viability of the parks or ANGAP, the revenues allocated to the villages, or how these revenues are being used to help alleviate poverty and promote sustainable use of natural resources.
- The category of environmental education is perhaps most suspect given that a minimum reporting requirement of presenting education results requires some analysis of increased learning, awareness with the ultimate goal of achieving practical impact through changed behavior. Reporting simply on the number of curricula put in place or attendance rates reveals nothing about the outcome or impact of this component.

## 5. Conclusions

5.1 *Overall, ENV II is rated moderately satisfactory.* The Environment Support Program has put in place pro-environment policies and a regulatory and institutional framework to assist the country in reducing its high levels of environmental degradation. The program has achieved notable gains, including: a reduction in the rate of primary forest loss inside the Protected Areas, a decrease in the use of Tavy and therefore a reduction in soil erosion and an increase in soil quality and crop yields in project areas. However, lessons learned from the soil and water component prove that **agricultural system intensification is a necessary, but not sufficient, condition to reduce slash-and-burn agriculture. More emphasis on land tenure security arrangements, improved and enforced slash-and-burn regulations, and better markets to ensure adequate supplies of food stuffs at reasonable and predictable prices may be**

**necessary to facilitate an increased adoption of conservation agriculture technologies.**

5.2 EP II was implemented in an environment wrought with policy constraints: the lack of full adoption and implementation of forest, land, agriculture, and appropriate energy policies stretched the program's mandate across activities that targeted the underlying threats of environmental degradation in Madagascar, namely unproductive agriculture and illegal logging. **Without greater economic intensification of land use and continued development of non-agricultural sources of incomes, the constraints that threatened EP II will persist. Forest revenues are mainly raised from unsustainable extractive activities while substantial revenue-generating potential from non-extractive products and environmental services remain unrealized.**

5.3 EP I and II created and strengthened several new environmental agencies. Although responsive, this strategy drained government Ministries and institutions of key staff. While some have spun off to become independent service providers, **the financial viability of two key agencies – the National Environment Office and SAPM (formerly ANGAP) need to be strengthened. Likewise, the roles and responsibilities of the newly created agencies and the Ministry of Environment, Forests and Water have to be better clarified.** While, the national environmental impact assessment (EIA) system was strengthened through revision of legislation and production of seven sectoral guidelines, EIA monitoring and implementation to date has not been conducted in a timely enough matter to improve project design or environmental enforcement.

5.4 Regulation was improved through establishment of the national Forest Sector Observatory as an independent, multi-stakeholder watchdog to oversee the sector and identify needed management improvements. Illegal and nonpaying concessions were either stopped or cancelled and controls on logging and biodiversity permits were tightened. **However, since the NEAP and the Environment Support Program were launched in the early 90s, Madagascar has lost about one million hectares of forest. This trend will be difficult to reverse if sustainable rural development is not supported.**

5.5 While the Government of Madagascar has demonstrated its commitment toward appropriate environmental conservation, the rate of expansion of Protected Areas is outpacing government's ability to provide adequate logistical support. Income from tourism increased more than six-fold in 2001 due to a doubling of the number of ecotourists and an increase in park fees. However, increased tourism revenue is insufficient to maintain the System of Protected Areas; increased revenues (50% of which are to be directed toward the communities through projects) have not significantly contributed to decrease rates of rural poverty around the protected areas. ***New financing mechanisms must be found to help cover operating and maintenance costs and expand sustainable tourism of the protected areas.***

## 6. Lessons

6.1 This Adjustable Program Loan (APL), tranching across sector investment loans over a 15-year period proved conducive to institutional capacity strengthening and environmental mainstreaming. It responded to the time needed to achieve institutional and enforcement capacity to implement NEAPs that require reform of national legislation, strategies, and policies for effective application. Its longer-term nature signaled both Bank and borrower commitment to operationalizing the NEAP.

6.2 Effective implementation of sectorwide assistance programs, such as NEAPs, require close donor coordination, particularly for a micro-project approach. Complex projects with multiple implementing agencies should use results-based or performance-based contracts, rather than traditional disbursement, as a vehicle of project implementation.

6.3 A key lesson, internalized midway through EP II, and corrected for in EP III, is that unrealistic objectives and targets can undermine the credibility of a program. Unclear objectives combined with poor M&E often results in a problem project. It is essential to give priority and adequate resources to establishing realistic objectives, development of the counterfactual, support of good M&E, and development of benchmarks and baselines to ensure accountability, evaluation, and lesson-learning.

6.4 The conservation of natural resources cannot be planned in isolation. Coordination with other national programs, especially rural development, is critical. A project with a grand superstructure approach is less sustainable than effective implementation of sector strategies that correct for environmental degradation. The decision to support the creation and strengthening of new environment agencies should be made in tandem with discussions of recurrent financing in the long-term.



## Annex A. Basic Data Sheet

### SECOND MADAGASCAR ENVIRONMENT PROJECT (LOAN NO. 3886)

#### Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
IDA Credit	48.2	44.1	91.5
Government	29.7	16.6	55.9
Cofinance	77.1	65.05	84.4
Total project costs	155.0	125.75	81.1

#### Cumulative Estimated and Actual Disbursements

	<i>FY98</i>	<i>FY99</i>	<i>FY00</i>	<i>FY01</i>	<i>FY02</i>	<i>FY03</i>	<i>FY04</i>
Appraisal estimate (US\$M)	2.9	9.6	15.6	21.7	27.6	29.9	29.8
Actual (US\$M)	6.0	11.2	17.6	22.3	25.3	27.5	27.5
Actual as % of appraisal	206.9	116.7	112.9	102.8	91.7	92.0	92.0

#### Project Dates

	<i>Original</i>	<i>Actual</i>
Initiating memorandum	-	05/18/1995
Appraisal	-	06/01/1996
Board approval	-	01/09/1997
Effectiveness	02/01/1997	06/12/1997
Mid Term Review	11/01/1999	05/29/2000
Closing date	06/30/2002	06/30/2003

#### Staff Inputs

	<i>No. of Staff Weeks</i>	<i>US\$'000</i>
Identification/ Preparation	6.0	24.0
Appraisal/Negotiations	11.0	44.0
Supervision	30.0*	120.0
ICR	13.0	56.0
Total	60.0	244.0

\* 30 staff participated in missions (at an average of 2 SWs/staff) + 6 SWs for supervision with no mission; all at an average of USD.4,000 per SW.

**Mission Data**

	<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Specializations represented</i>	<i>Implementation progress</i>	<i>Development objectives</i>
Identification/ Preparation	06/19/1995	4	TTL-Environment Specialist, Biodiversity Specialist, Operations Analyst, Marine Environment Specialist		
	09/12/1995	1	TTL-Environment Specialist		
	11/27/1995	1	Natural Resources Economist		
Appraisal/ Negotiations	03/22/1996	5	TTL- Env. Economist, Info Systems/Monitoring, Natural Resources Economist, Operations Analyst, Economist		
	06/18/1996	4	TTL- Env. Economist, Info Systems/Monitoring, Lawyer, Environment Specialist		
	09/16/1996	2	TTL- Env. Economist, Lawyer		
Supervision 1	12/12/1997	4	TTL- Env. Economist, Info Systems/Monitoring, Economist-MDS, Forester- MDS	S	S
Supervision 2	06/22/1998	4	TTL- Env. Economist, Env. Info & Fin. Management, Env. Economist, Forester	S	S
Supervision 3	04/19/1999	3	Management Info, Env. Specialist, MDS – Env. Economist	S	S
Supervision 4	07/04/1999	2	TTL- Env. Economist, Env. Management Specialist	S	S
Supervision 5	11/24/1999	4	TTL- Env. Economist, Env. Specialist, Env. Program Officer, Sociologist	S	S
Supervision 6	11/18/2000	3	TTL- Env. Economist, Env. Specialist (2)	S	S
Supervision 7	03/24/2001	4	TTL- Env. Economist, Env./Info Systems Specialist, Env. Specialist, Env. Safeguards Specialist	S	S
Supervision 8	02/28/2002	3	Financial Management Specialist, Procurement Specialist, Program Assistant	U	U
Supervision 9	09/06/2002	3	TTL- Env. Economist, Financial Management Specialist, Procurement Specialist	S	S

	<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Specializations represented</i>	<i>Implementation progress</i>	<i>Development objectives</i>
<b>ICR</b>	05/16/2003	2	TTL- Env. Economist, Env. Economist		
	07/27/2003	3	TTL- Env. Economist, Natural Resources Mngt Specialist, Env. Economist		
	11/14/2003	3	TTL- Env. Economist, Natural Resources Mngt Specialist, Env. Economist, Financial Specialist, Procurement Specialist, Program Assistant Consultant.		

Performance Rating: S: Satisfactory; U: Unsatisfactory



## Annex B. Key Indicators

### Outcome/Impact Indicators (targets vs. actual at end of project)

Indicators and targets per component at restructuring	Target	Actual
<b>Sustainable natural resources management (soil, forest cover, biodiversity)</b>		
Measures of soil loss in target areas under conservation management	<12 t/ha/year	From 1.6 to 8t/ha/year
Measures of economic benefits to families participating in soil conservation	10%	+ 26%
% of households applying conservation technologies after 2 years	70%	26% still applying
<b>Forestry</b>		
Tavy practice in target areas	% change	7% down from 13%
Measures of forest cover loss in target areas	< 2 %/year	0.6% annual deforestation in the PAs and 1% in Classified Forests
<b>National Parks and Ecotourism</b>		
Measures of biodiversity in target areas	0,62	0,74
Increased management quality of 12 protected areas	62%	41%
Illegal tavy practice in 12 Protected Areas	<0,8%	0, 34% in rain forest and 0,49 in dry forest
<b>Environmental Policies, Instruments, Information and Programming</b>		
Policy reform index	100%	52%
Systems in place for environmental management, including those for transfer of management rights/decentralization.	Index = 90%	81%

**Output Indicators** (targets vs. actual at end of project)

<b>Indicators and targets per component at restructuring</b>	<b>Target</b>	<b>Actual</b>
<b>Sustainable NRM (soil, forest cover, biodiversity)</b>		
# of conservation agriculture mini-projects	4,000	5,072
Area under direct conservation agriculture from mini projects	32,000 ha	82,100 ha
Measures of rural households who have participated in mini-projects	100,000	389,600
Watershed mgmt plans created for X # Ha	5,000 ha	6,900 ha
# of communal development plan	20	44
Families outside project adopting techniques	50,000	75,140
# of projects financed by FORAGE	35	18
<b>Forestry/Natural Resources</b>		
Area subject to management transfer in target areas	150,000 ha	174,132 ha
Area under management scheme	400,000 ha	320,000 ha
Area under management plans for classified forests	180,000 ha	180,000 ha
<b>National Parks and Ecotourism</b>		
# of protected areas managed by ANGAP	39	38
# of visitors	368,500	410,023
# of interpretation centers	8	5
<b>Environmental Management Support Services (SAGE)</b>		
# of pilot integrated management plans (marine/ coastal) completed with lessons learned for wider replication	2	7
Area under relative land tenure security	120,000 ha	109,000 ha
National level spatial management plan developed ( marine and coastal zone )	80%	100%
Marine protected areas with plan	4	5
# of operational participative multi-local structures	6	15
<b>Policy, Instruments, Information, and Programming (PIIGE)</b>		
# Environmental policies developed and adopted	11	6
# of targeted (sectoral) policies harmonized with EIA system	9	5
# of EIAs processed	145	103
# of operational environmental units created in different sectors	24	14
# of environmental information sub-systems (dashboards)	1	4
# of convention ratified	7	7
<b>Environmental Education</b>		
Environmental education activities reinforced	80%	80%
# of curricula in place	3	4
# of students attending courses	1200	1387 (staff, trainers, graduates)

## Original Components

Originally, EP2 had fourteen components organized in three sets of activities: (i) field operations; (ii) strategic activities; and (iii) support activities.

### Set I. Field Operations :

Field operations involved the following four components.

#### Sub-set 1. Specialized Sub-sector Activities (corresponding to about 80% of EP2 cost)

##### **Component 1. Sustainable Soil and Water Management (ANAE) (US\$ 43.5 million)**

The focus of this component was the implementation of 4,000 community level mini-projects on soil, water and land management. The implementing agency for the component was ANAE.

##### **Component 2. Multiple-use Forest Ecosystem Management (ESFUM ) (US\$ 29.9 million)**

The focus of this component was improving management of gazetted forest reserves and community forests as well as reorganization and strengthening of the forestry department. The implementing agency for the component was the forestry department.

##### **Component 3. National Parks and Ecotourism (CAPE) (US\$ 43.1 million)**

The focus of this component was expanding the protected area network and improving the capacity for their management. The implementing agency for the component was the national park service (ANAE).

##### **Component 4. Marine and Coastal Environment (EMC) (US\$ 6.6 million)**

The focus of this component was formulating of policies for management of coastal and marine zones and improvement of the relevant legal framework.

#### Sub-set 2. Regional Programming and Local Management (AGIR)

This sub-set comprised the following three components:

##### **Component 5. Support to Local Natural Resource Management and Land Tenure Security (GELOSE) (US\$ 6.9 million)**

The focus of this component was to set-up the appropriate legal and regulatory framework for the transfer of management from state to communities, and test the implementation of the management transfer for about 150-200 villages.

##### **Component 6. Support to Regional Programming and Spatial Analysis (AGERAS) (US\$ 4.3 million)**

The focus of this component was establishing six regional technical units to provide support to EP2 Regional Programming Committees (RPCs), and to formulate local environmental strategies and sub-projects financed by the Regional Fund.

##### **Component 7. Regional Fund for Environmental Management (FORAGE) (US\$ 3.3 million)**

The focus of this component was to finance environmental management activities on a demand-driven basis.

**Set II. Strategic Activities (US\$ 4.2 million):**

This set had the following two components:

**Component 8. Upgrading of the Legal Framework and Formulation of Environmental Policies (US\$ 2.8 million)**

This component included upgrading of the legal and regulatory framework and development and adoption of environmental policies, strategies and instruments.

**Component 9. Assisting Sector Ministries in Implementing Policies and Making Environmental Impact Assessment (EIA) Operational (US\$ 1.4 million)**

This component focused on strengthening EIA regulations and procedures and establishment of environmental units within the sectoral ministries.

**Set III. Support Activities**

This set had the following five components :

**Component 10. Research (US\$ 2.5 million)**

The focus of this component was to establish a research coordination committee to identify priority research areas and support applied environmental and biodiversity research. The implementing agency for the component was ONE.

**Component 11. Education and Training (US\$ 2.0 million)**

The focus of this component was to improve the environmental content in general education, as well as in vocational training. The implementing agency for this component was CFSIGE.

**Component 12. Geographic Instruments (US\$ 1.2 million)**

The focus of this component was to build geographic information system (GIS) capacity to produce key geographic information. The implementing agency of this component was FTM.

**Component 13. Environmental Information System (US\$ 1.7 million)**

The component focused on building capacity of various environmental management agencies to produce and exchange information necessary for informed environmental management.

**Component 14. Communication, Monitoring, Evaluation, Program Coordination and Management (US\$ 5.8 million)**

The focus of this component was to support operation of ONE and other coordinating bodies such as the National Environment Council and the Interministerial and Steering Committees.

**Revised Components**

Restructuring and simplification of the project in 2001 resulted in regrouping and reducing the original components into the following four revised components:

**Component 1. Sustainable Soil and Water Management in Priority Target Zones (US\$ 29.53 million)**

Component 1 after project restructuring remained as originally designed. It focused on increasing the capacity of the rural population to sustainably manage natural resources, particularly land (soil) and water. The main interventions under the component were 4,000 community and family mini-projects in 500 target communes (districts). It included the establishment of watershed management schemes.

**Component 2. Forest Eco-systems Management (US\$ 24.02 million)**

Component 2 after project restructuring remained as originally designed. It focused on improving the management of forest ecosystems by transferring about 150,000 hectares of forests under the management to the communities and bringing about 580,000 hectares of forests under multiple-use management schemes.

**Component 3. Protected Areas Management (US\$ 56.93 million)**

Component 3 after project restructuring remained as originally designed. It focused on expanding the protected area system to achieve more comprehensive protection of Madagascar's representative ecosystems. It also focused on improving protected areas management through institutional strengthening of the management agency (ANGAP) and through greater involvement of communities.

**Component 4. Environmental Policies and Institutions (US\$ 39.36 million)**

Component 4 underwent significant changes during project restructuring. The revised component took over key activities of several original components, including the Environmental Information System component, EIA component, and Environmental Education component. The thrust of the revised component 4 was to (i) to develop a legal and regulatory framework for environmental management; and (ii) to strengthen regional environmental planning and management including the Environment Management Support Services Agency (SAGE).

The relationship between the original and revised components is summarized in the following table.

<b>ORIGINAL COMPONENTS</b> (Implementing Agency)	<b>CHANGE AT RESTRUCTURING</b>	<b>REVISED COMPONENTS</b> (Implementing Agency)
<b>Component 1</b> Sustainable Soil and Water Management (ANAE) USD 43.5 Million	Transformed into the revised Component 1	<b>Revised Component 1</b> Sustainable Soil and Water Management in Priority Target Zones USD 29.53 million (ANAE)
<b>Component 2</b> Multiple-use Forest Ecosystem Management (ESFUM) USD 29.9 million (Forestry Department)	Transformed into the revised Component 2	<b>Revised Component 2</b> Multiple Use Forest Eco-system Management USD 24.02 million (Forestry Department)
<b>Component 3</b> National Parks and Ecotourism (CAPE) USD 43.1 million (ANGAP)	Transformed into the revised Component 3	<b>Revised Component 3</b> Protected Areas Management USD 56.93 million (ANGAP)
<b>Component 4</b> Marine and Coastal Environment (EMC) USD 6.6 million (ONE)	Partly absorbed under the revised Component 4, implemented by Services d'Appui à la Gestion de l'Environnement (SAGE)	
<b>Component 5</b> Support to Local Natural Resource Management and Land Tenure Security (GELOSE) USD 6.9 million (ONE, Land Tenure Department)	Partly absorbed under the revised Component 4, implemented by SAGE; Land Tenure Department activities dropped	
<b>Component 6</b> Support to Regional Programming and Spatial Analysis (AGERAS) USD 4.3 million (ONE)	Partly absorbed under the revised Component 4, implemented by SAGE	

ORIGINAL COMPONENTS (Implementing Agency)	CHANGE AT RESTRUCTURING	REVISED COMPONENTS (Implementing Agency)
<b>Component 7</b>		
Regional Fund for Environmental Management (FORAGE) USD 3.3 million (ANAE)	Dropped	
<b>Component 8</b>		<b>Revised Component 4</b>
Upgrading of the Legal Framework and Formulation of Environmental Policies USD 2.8 million (ONE)	Transformed into the revised Component 4, implemented by ONE and MOE	Environmental Policies and Institutions USD 39.36 million (ONE)
<b>Component 9</b>		
Assisting Sector Ministries in Implementing Policies and Making Environmental Impact Assessment Operational USD 1.4 million (ONE )	Partly absorbed under the revised Component 4, implemented by ONE and MOE	
<b>Component 10</b>		
Research USD 2.5 million (ONE)	Partly absorbed under the revised Component 4, implemented by SAGE	
<b>Component 11</b>		
Education-Training USD 2 million (CFSIGE)	Thematic training and its implementing agency, CFSIGE, dropped.	
	Environmental Education absorbed under the revised Component 4, implemented by MOE	
<b>Component 12</b>		
Geographic Instruments USD 1.2 million (FTM)	Dropped	
<b>Component 13</b>		
Environmental Information System USD 1.7 million (ONE)	Partly absorbed under the revised Component 4, implemented by ONE	
<b>Component 14</b>		
Communication, Monitoring, Evaluation, Program Coordination and Management USD 5.8 million (ONE)	Partly absorbed under the revised Component 4, implemented by ONE	

## PROJECT COSTS AND FINANCING

Table 1. Project Cost by components (US\$million)

Component at Appraisal	Appraisal Estimate	Components at Restructuring	Estimate at restructuring	Actual	Percentage Actual of restructuring
<b>I. Field Operations</b>					
<b>I.A. Specialized soil and water management</b>	<b>112.6</b>	<b>1. Protected areas mng.</b>	<b>56.93</b>	<b>52.47</b>	<b>92.17%</b>
Sustainable soil and water management	39.7	<b>2. Forest ecosystems mng.</b>	<b>24.02</b>	<b>20.94</b>	<b>87.16%</b>
Multiple-use forest ecosystem management	27.1	<b>3. Sustainable soil and water</b>	<b>29.53</b>	<b>25.67</b>	<b>86.94%</b>
National parks and ecotourism	29.5	<b>4. Environmental policies and institutions</b>	<b>39.36</b>	<b>24.70</b>	<b>62.75%</b>
ICDPs and post-ICDP transition	10.2				
Marine and coastal environment	6.1				
	<b>13.1</b>				
<b>I.B. Regional programming and local management</b>	<b>6.3</b>				
Local resource management and land tenure	3.8				
Regional programming and spatial analysis	3.0				
Regional Fund (STORAGE)	<b>3.8</b>				
	<b>2.4</b>				
<b>II. Strategic Activities</b>					
Formulation and transfer of environmental policies, strategies and instruments	1.4				
Making EIA operational	<b>11.8</b>				
	<b>2.2</b>				
<b>III. Support activities</b>	<b>1.8</b>				
Research	1.1				
Education-training	1.5				
Geographic instruments					
Environmental Information System	<b>5.2</b>				
Coordination and management	<b>141.3</b>				
	<b>6.4</b>				
	<b>7.3</b>				
<b>Total baseline cost</b>					
Physical contingencies	<b>155.0</b>		<b>149.84</b>	<b>123.78</b>	<b>82.6%</b>
Price contingencies					
<b>Total Project Costs</b>					

Table 2. Project Financing by component

Component	Restructuring estimate			Actual		
	Bank 1/ (6.0) (8.7) (0)	GOM 8.7	Cofinance 10.5	Bank 11.9 (5.6) (6.3) (0)	GOM 5.1	Cofinance 25.63
Protected areas management	14.7 (6.0) (8.7) (0)	8.7	10.5	11.9 (5.6) (6.3) (0)	5.1	25.63
Forest ecosystems management	4.5 (0.3) (4.2) (0)	6.0	27.4	4.9 (2.3) (2.6) (0)	4.3	22.2
Sustainable Soil and Water Management	19.4 (12.6) (0) (6.8)	7.3	18.0	15.5 (9.1) (0) (6.4)	2.6	7.55
Environmental policies and institution	10.9 (9.6) (0) (1.3)	7.7	29.5	10.5 (9.6) (0) (0.9)	4.6	9.65
<b>Total Project Costs</b>	<b>48.2</b> <b>(28.2)</b> <b>(12.2)</b> <b>(7.8)</b>	<b>29.7</b>	<b>77.1</b>	<b>44.1</b> <b>(25.8)</b> <b>(11.3)</b> <b>(7.1)</b>	<b>16.6</b>	<b>65.05</b>

1/ Total figure is the cumulative amount financed through the Bank. Figures in parenthesis are the respective amounts financed by: ITF/IDA (1st line), WB-managed GEF (2nd line), and IFAD funds managed by the Bank (3rd line);

2/ Actual cofinancing is estimated US\$ 65.05 million.

Table 3. Project co-financing by component (US\$ million)

Component	Cofinancing 1/														
	Total	EU	GEF/UNDP	UNDP	Dutch	Norweg	French	German	Japan	Swiss	USAI	CAR	CI	WCS	WWF
Protected areas management	25,63	4,6	2,0		2,9		0,5	1,8	0,03		12	0,4		0,6	0,8
Forest ecosystems management	22,2	0,0	1,9				0,2	10,8		1,8	5,3		0,9		1,3
Sustain. Soils & W Management	7,55	0,0				0,32	1,23				6,0				
Env. policies & institut. & Environmental service	9,65	0,0	4,1	1,6			0,55				0,0				3,4
<b>Total Cofinancing</b>	<b>65,05</b>	<b>4,6</b>	<b>8,0</b>	<b>1,6</b>	<b>2,9</b>	<b>0,32</b>	<b>2,48</b>	<b>12,62</b>	<b>0,03</b>	<b>1,8</b>	<b>23,3</b>	<b>0,4</b>	<b>0,9</b>	<b>0,6</b>	<b>5,5</b>

1/ Does not include AFD and CIRAD under French co-financing

**Table 4. Madagascar PRSC Matrix for the environment and natural resources**

<b>PRSC-1 2003-June 2004</b>	<b>PRSC-2 Jul 2004-Mar 2005</b>	<b>PRSC-3 Apr 2005-Dec 2005</b>	<b>Expected results</b>
Institutional reform to separate forestry regulation from forestry operations.	Establishment of National Management Agency for Water and Forests (ANGEF).	ANGEF becomes operational	Improved forest sector governance.
Reforms to forest exploitation: (i) maintaining ban on unfinished precious wood product exports; (ii) publication of forest exploitation permits; (iii) elimination of non-competitive permit allocation.	Piloting of long-term permits system, and implementation of forest zoning.	Forest exploitation moves to a competitive bidding system	Transparent and efficient forest exploitation.
New Foundation Law on the environment is presented to Parliament.	Creation of the Foundation for Protected Areas and Biodiversity (FAPB).	FAPB is fully operational.	Protected area system placed on a more sustainable footing.
Decree establishes a one-stop-shop for application of EIA legislation (MECIE).	Sector ministries are given budget to carry out EIA of public investments.	EIA of public investment is routinely carried out.	Increased compliance of both public and private investments with EIA legislation.
Establishment of a reliable forest and brush fire detection system.	Publication of compliance of communes with forest fire control legislation.	Public investment programs reward complying communes.	Communes are given incentives to control forest and brush fires.



## Annex C. Persons Met

### *Government of Madagascar and Parastatal Organizations*

RABOTOARISON Charles Sylvain	Ministre de l'Environnement
RABENEVANANA Man-Wai	Director IHSM
RAJAOBELISON Joel	Director INFTN
	General Director Environment, Ministry of the Environment and Forestry
RAKOTOARISOA, Jacqueline	General Director ONE
RAKOTOARY Jean Chrysostome	Director General, ANAE
RAKOTONDRALAMBO, Andrianntahina	National coordinator OLEP
RAKOTONDRASATA Roland	General Director, ANGAP
RAMANGASON Guy Suzon	Director PFGD
RAMAROKOTO Jeannine	Executive Director SAGE
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HAWKINS Franck	Director Conservation International
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BETTENCOURT, Sophia	Lead ESSD in Madagascar
BIDANI, Benu	Lead Economist
BOND, James P.	Country Director
CARRET Jean Christophe	Sr. Natural Resources Economist
FENO, Paul-Jean	Safeguards Officer
HEIDENHOF, Günter	Governance
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PFEIFFER, Hermann	Consultant, Watershed management Project
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RANDRIANJOHARY, Alain Pierre	Program Officer, Secretariat Multibailleur
RAZAFIARISON, Ziva	Rural Development Specialist

\* Including Bank-financed consultants.

## Annex D. Comments from the Borrower

To: Abarbu@worldbank.org  
From: Razanamanana<rznana2000@yahoo.fr>  
Date: 05/18/2007 05:02 AM  
Subject: Madagascar: Madagascar:Projet Environnement, Phase II(Crédit N°009) Rapport d'évaluation

Monsieur Alain Barbu,  
Chef Division de l'Evaluation

En vous remerciant de m'avoir adressé une copie de ce document, j'ai l'honneur de vous faire parvenir les quelques lignes suivantes, si ce n'est pas hors du sujet.

Je voudrais suggérer d'orienter le Projet Environnement vers le Développement durable, lequel semble être négligé.

A mon humble avis, la question posée au paragraphe 4.2(Page 19) de ce rapport mérite d'être approfondie: "a t-on établi la capacité à assurer l'éducation des générations futures?"

En effet, ces 15 dernières années, de grands projets environnementaux ont été développés à Madagascar... et les résultats étant ceux qu'ils sont; mais quid de l'avenir ou des générations futures! Autrement dit, leurs impacts tiennent-ils pleinement compte des besoins des générations futures? A la page 21, il a été suggéré de "rechercher de nouveaux mécanismes de financements, et de développer durablement l'activité touristique dans les A.P". Ces projets de tourisme durable pourrait être des projets Pilotes et servir de modèles pour tout Madagascar avec les encadrements nécessaires. Avec l'adhésion et au profit de tous les acteurs concernés( communautés locale, visiteurs, professionnels, etc...), les projets touristiques permettraient d'exploiter la préservation de l'environnement au profit de Tous, car nous préservons non pas seulement pour le plaisir de préserver!

- Ainsi, un guide d'investissement devrait être élaboré et mis à la disposition de ceux qui veulent s'installer dans ou autour des A.P.

- Des campagnes de sensibilisation seraient également lancées pour mobiliser les acteurs concernés.

- Parallèlement, l'éducation ne devrait pas être négligée.

L'objectif principal en est que les projets environnementaux ne soient pas seulement des charges pour les générations futures( car certaines charges reviennent à eux), mais que celles-ci profiteront également de leurs impacts économiques, sociaux et, évidemment, environnementaux.

Développement durable oblige!

Vous remerciant de votre compréhension, je vous prie de croire, Monsieur, à l'assurance de ma considération distinguée.

Mme Rakotomanana-Razanamanana,

Chargée d'études au Ministère des transports et du tourisme

## Unofficial English Translation

Mr. Alain Barbu,  
Manager, Department of Evaluation

I am pleased to provide you with my comments on the above-mentioned report which was shared with me.

I would suggest directing/linking Environment Project towards sustainable development which seems to have been neglected.

According to me, the question raised in paragraph 4.2 in page 19 of the report is worthy of being further detailed: "has something been done to ensure a proper transfer of (knowledge) education to future generations."

Indeed, in the last 15 years, some important environmental projects were developed in Madagascar...and we have seen the results in the ground. However, there is a real concern about the future of the generations to come. In other words, will the traditional environment projects have any impact at all on future generations' needs? In page 21 it was suggested to "look for new financing mechanisms, and to develop, in a sustainable way, tourism activities in the AP". Those sustainable eco-tourism projects could be set up as pilot projects and be used, later on, as standard projects throughout Madagascar with the appropriate supervision mechanisms. With the support of all involved parties (local communities, visitors, professional staff, etc...) who will take benefit from them, the eco-tourism projects' main objective would be to properly preserve the environment for All while providing sound activities to tourists. Therefore, I would like to propose the following steps:

- to develop an investment plan (or framework) to be made available to potential investors in and around the AP;
- to start promotion campaigns to rally all involved parties; and finally
- to promote eco-tourism while educating people about environment (certainly income-generation activities but preservation of environment first) through IEC (Information, Education and Communication).

The main objective is to ensure that future generations take advantage of environmental and socio-economic impact of environmental projects and not the opposite because if not well designed environment projects can be a burden due to related environment services cost).

These are some perspective on sustainable development.

I thank you for your comprehension.

Yours Sincerely,

Ms. Rakotomanana-Razanamanana,  
Responsible of the Department Studies  
Ministry of Transportation and Tourism