

Madagascar

Chapter 7

The Avenue or Alley of the Baobabs is a prominent group of baobab trees

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Madagascar

7.1 Constitutional requirements for environmental protection in Madagascar

The Constitution of the Republic of Madagascar (2010) enjoins the public, through local government structures (the Fokonolana and the lower-level Fokontany) to take appropriate measures to prevent the destruction and harm of their environment, including loss of land, seizure of cattle or loss of ceremonial heritage, unless these measures jeopardise the common interest or public order (Article 39).¹ Article 41 states that:

*The State guarantees the freedom of enterprise so long as it operates within the limits of the public interest, public order and the environment. In order to protect the natural and mineral resources of the country, the conditions of exploitation must be debated in advance by the National Assembly.*²

The concept of sustainable development underpins all the environmental policy and legal documents. Decree No. 2004-167 relating to Ensuring the Environmental Suitability of Investments (Mise en Compatibilité des Investissements avec l'Environnement (MECIE)) is founded on the notion of sustainable development recognising the needs of the present, while safeguarding the needs of future generations. The three objectives of sustainable development to be achieved include the following:

- Maintenance of ecological integrity;
- Improvement of economic efficiency; and
- Improvement of social equity.³

7.2 Institutional and administrative structure for environmental impact assessment in Madagascar

7.2.1 Ministry of the Environment, Water, Forests and Tourism

The Ministry of the Environment, Water, Forests and Tourism (Ministère de l'Environnement, de l'Eau, Forêts et Tourisme (MEEFT)) is responsible, inter alia, for the environmental impact assessment (EIA) process. Its specific tasks relating to EIA include:

- Participation in the EIA process, as well as in the control and monitoring of projects;

- Implementation of the processes set out in the Decree MECIE;
- Authority from whom an aggrieved proponent can request a second opinion in the event that a request for an Environmental Permit is refused by the National Office for the Environment (Office National de l'Environnement (ONE)).⁴

The remit of the Minister of Environment, Water, Forests and Tourism, as well as the general organisation of the Ministry, is set out in Decree No. 98-962 of 18 November 1998.

The organisational chart for the MEEFT is presented in Figure 7.1.

7.2.2 National Office for the Environment

The Office, ONE is situated in the MEEFT. It was set up specifically to administer the Decree MECIE and was formalised in terms of Decree No. 2008.600 of 23 June 2008. Its stated mission is to ensure that economic activities and development are not detrimental to the environment. This is carried out through a number of interventions, including: the development and management of the EIA processes set out in Decree MECIE; the management and prevention of pollution; the monitoring of the marine and terrestrial environments to manage the unique biodiversity of Madagascar better; the dissemination of environmental information and tools; environmental awareness training; as well as the preparation of national and regional *State of Environment* reports.⁵

ONE's main tasks in relation to EIA include:

- Coordination of the EIA process;
- Coordination of the work of the ad hoc Technical Evaluation Committee (Comité Technique d'Evaluation (CTE)) and monitoring of the environmental management plan (EMP);
- Coordination of the evaluation of environmental audits;
- Issuing Environmental Permits;
- Issuing Environmental Closure Certificates on project closure.⁶

7.2.3 Technical Evaluation Committee

The CTE is an ad hoc committee constituted by ONE, which is charged with the evaluation of the EIA dossier. It comprises members of the sector environmental units (see section 7.2.4) and representatives of the sector ministries, the MEEFT and ONE.

¹ ECOSOC (United Nations Economic and Social Council), 2007. Implementation of the International Covenant on Economic, Social and Cultural Rights. Report prepared by the Committee on Economic, Social and Cultural Rights. New York: United Nations.

² ECOSOC, 2007.

³ Randriamiarana, H, 2006. Présentation du Décret MECIE. www.pnae.mg

⁴ Randriamiarana, 2006.

⁵ www.pnae.mg

⁶ Randriamiarana, 2006.

7.2.4 Intersectoral cooperation

Other line ministries responsible for development in their sectors are expected to participate in the EIA process and to control and monitor the implementation of the EMP. To achieve effective implementation of this, Decree No. 2003-439 of 27 March 2003 provides the framework for the establishment of an environmental unit in each sector ministry that directly affects the environment. The environmental units are responsible for evaluating and approving the Programme of Environmental Engagement (Programme d'Engagement Environnemental (PREE)) and for the integration of the environment into sector policies in order to ensure sustainable development.

7.3 Policy and legal framework for EIA in Madagascar

7.3.1 National policy

Environmental policy in Madagascar is informed by the National Environmental Action Plan (Plan d'Action Environnementale (NEAP)). This document came into force through Law 90-033 on 21 December 1990. It provides predictions and strategies for a period of 15 years, up to 2005, divided into three five-year programmes for the environment, known as PE1, PE2 and PE3.⁷ Since the political crisis in 2009, most of the donor funding that supported environmental policy formulation and institutional strengthening has been withdrawn, and there have been no further environmental plans since PE3.

7.3.2 Environment Charter

The Environment Charter (Charte de l'Environnement) was promulgated as Law 90-033 on 21 December 1990 and amended by Laws No. 97-012 of 6 June 1997 and No. 2004-015 of 19 August 2004. Article 10 makes provision for EIAs by stating that all public or private investment projects that may have an impact on the environment must undertake an impact study, taking into account the technical nature, scale and magnitude of the project, as well as the sensitivity of the receiving environment. Investment projects submitted for authorisation or approval by an administrative authority are also subject to an EIA under the same conditions as other projects.⁸

7.3.3 Decree MECIE

The Decree MECIE has evolved over time and has been repealed and/or amended several times, as follows:
Decree No. 92-926 of 21 October 1992, replaced by
Decree No. 95-377 of 23 May 1995, repealed by

Decree No. 99-954 of 15 December 1999, modified by
Decree No. 2004-167 of 3 February 2004.

The Decree of 1999 introduced new articles relating to EIA, the PREE, the permit and approval processes, the establishment of the CTE, the projects that require either an EIA or a PREE, and the scale of review fees required by ONE. The latest Decree (2004) specifies the roles and responsibilities of ONE and other organisations responsible for EIA.

Decree MECIE is divided into six chapters and three annexes, as follows:

Chapter 1: General arrangements and definition of terms

Chapter 2: Rules and procedures relating to:

- EIA process
- Evaluation and review procedures
- Public participation

Chapter 3: Monitoring and control

Chapter 4: Offences and penalties

Chapter 5: Transitional arrangements

Chapter 6: General arrangements relating to particular modalities of application in certain sectors

Annex I: Description of projects that require an EIA

Annex II: Description of projects that require a PREE

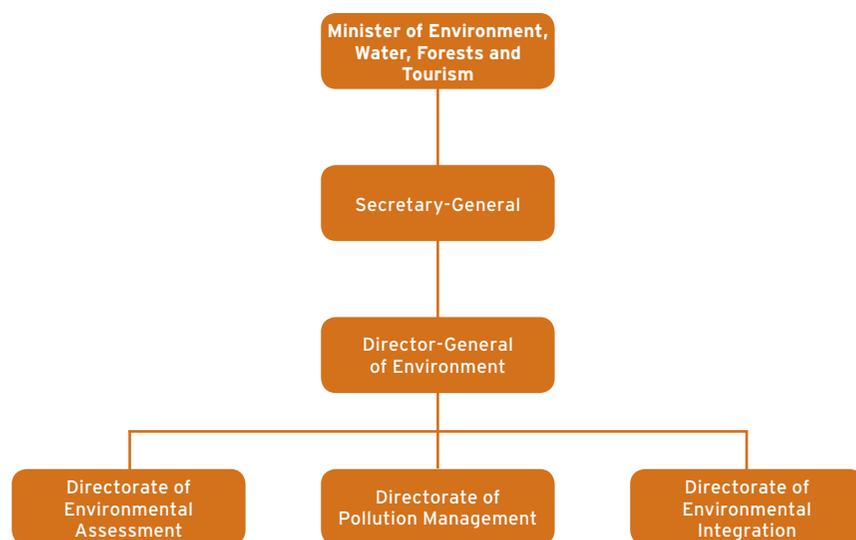
Annex III: Fees

Although Decree MECIE does not have specific clauses relating to strategic environmental assessment, ONE has encouraged each region to mainstream environmental management into all its Regional Development Plans and to produce regional environmental policies. In addition, an EIA is required for all policies, plans and programmes that could modify the natural environment and the use of natural resources and/or affect the quality of the human environment, whether urban or rural.

⁷ Randriamiarana, 2006.

⁸ Randriamiarana, 2006.

Figure 7.1: Organisational structure of the Ministry of Environment, Water, Forests and Tourism (as it relates to environmental assessment)



7.3.4 Related orders, technical directives and guidelines

A number of legal instruments and tools support the operation of MECIE. These are listed below:

- Order No. 4355/97 of 13 May 1997 on the designation of sensitive zones: In terms of Article 2 of this Order, sensitive zones are defined as one or more elements of the environment characterised by specific values or fragility, which may be vulnerable to human activities and susceptible to natural phenomena, such that the environment may be modified and/or degraded;
- Order No. 6830/2001 of 28 June 2001 setting out the procedures and methods of public participation in EIA (see section 7.4.5);
- Order No. 18 732 of 27 September 2004 setting out the definition and delimitation of sensitive forest areas;
- Order No. 19 560 of 18 October 2004 suspending the granting of mining permits and forestry permits in areas reserved for conservation;
- Interministerial Order No. 6941/2000 of 11 July 2000 setting the limits for exhaust emissions from vehicles; and
- Interministerial Order No. 12032/2000 of 6 November 2000 regarding the regulation of the mining sector and matters of environmental protection.⁹

⁹ Randriamiarana, 2006.

Several more Orders relating to the implementation of EIA and PREE are currently in draft.

A number of Environmental Technical Directives have been adopted, relating to:

- Conducting an EIA;
- Environmental evaluation;
- Compliance monitoring; and
- Environmental auditing.

Meanwhile, a guide for local authorities on public participation in EIA and a guide for environmental follow-up are also in draft.

Madagascar also has sector EIA guidelines for tourism, roads, aquaculture, on- and offshore petroleum developments, textiles, forestry, mines, wetlands and sensitive areas.

7.3.5 Permits and licences

In terms of Article 27 of MECIE 2004, ONE will grant an Environmental Permit based on the environmental review of the EIA, a public evaluation report, and technical advice from the CTE. The permit will be inserted into all applications, approvals and agreements for all construction projects.

Projects that only require a PREE receive an Environmental Agreement or a Certificate of Conformance from the environmental unit in the responsible sector ministry.

7.3.6 Offences and penalties

The offences that can be committed under MECIE are set out in Article 34 of the Decree and are summarised in Table 7.1. The penalties will be determined by ONE, together with the sector ministry and the affected community, from the list shown in the table.

Table 7.1: Offences and penalties

Offence	Penalty
Non-compliance with the EMP	• Injunction to restore the environment to its natural condition;
Carrying out any development or construction works for a project listed in Annex I without an Environmental Permit	• Injunction to proceed, within a predetermined time, to implement corrective measures and compensation;
Carrying out any development or construction works for a project listed in Annex II without the approval of a PREE	• Suspension or withdrawal of the Environmental Permit. Once this has occurred, the responsible sector ministry can: <ul style="list-style-type: none"> - Stop all work; - Suspend the activities in terms of Article 2 of MECIE; and/or - Order the temporary or permanent closure of the establishment.
Failing to carry out corrective actions and/or paying the prescribed compensation	
Failure or partial failure to carry out the detailed measures prescribed in MECIE	

7.3.7 Fees

All developers are required to pay a fee for the review of the EIA and the monitoring of the EMP. The fee includes the costs associated with the environmental units in the sector ministries, the fees of experts used to assist with the review or monitoring of the project, and the fees and costs incurred by the members of the CTE and by the public enquiry and/or public hearing.¹⁰ The fee schedule is shown in Table 7.2.

Table 7.2: Fees to be paid for EIA review and EMP monitoring

Value of Investment	Fee
Less than FMG10 billion	0.5% of capital cost of investment
FMG10 - 25 billion	FMG10 million or 0.4% of the capital cost
FMG25 - 125 billion	FMG35 million or 0.3% of the capital cost
FMG125 - 250 billion	FMG160 million or 0.2% of the capital cost
More than FMG250 billion	FMG410 million or 0.1% of the capital cost

7.3.8 Environmental standards

The proponent of a project must demonstrate how s/he will conform to the environmental standards in force at the time of the application. Decree No. 2003/464 of 15 April 2003 sets out the effluent quality standards that must be adhered to before discharge into surface waters. These are specified in Article 5 of the Decree and repeated in Table 7.3. The minimum standards for metals in sewage sludge are stipulated in Article 10 and shown in Table 7.4, while the standards for soil onto which sewage sludge is discharged are shown in Table 7.5. The methods of analysis that should be used are set out in the Annex to the Decree.

Table 7.3: Discharge standards for liquid effluents

Determinants	Units	Standard
Physical		
pH		6.0 - 9.0
Conductivity	OS/cm	200
Suspended solids	mg/l	60
Temperature	°C	30
Colour	Pt/Co	20
Turbidity	NTU	25

¹⁰ Annex 3 of Decree No. 99-954 of 1999.

Determinants	Units	Standard
Chemical		
Hardness as CaCO ₃	mg/l	180
Ammoniacal nitrogen	mg/l	15
Nitrate	mg/l	20
Nitrite	mg/l	0.2
Kjeldahl nitrogen	mg/l - N	20
Phosphate as PO ₄	mg/l	10
Sulphate as SO ₄	mg/l	250
Sulphur as S	mg/l	1
Oil and grease	mg/l	10
Phenol	mg/l	1
Polycyclic aromatic hydrocarbon	mg/l	1
Free chlorine	mg/l	1
Chloride	mg/l	250
Biological		
Chemical oxygen demand	mg/l	150
Biological oxygen demand	mg/l	50
Undesirable elements		
Aluminium	mg/l	5
Arsenic	mg/l	0.5
Cadmium	mg/l	0.02
Hexavalent chromium	mg/l	0.2
Total chrome	mg/l	2
Iron	mg/l	10
Nickel	mg/l	2
Lead	mg/l	0.2
Tin	mg/l	10
Zinc	mg/l	0.5
Manganese	mg/l	5
Mercury	mg/l	0.005
Selenium	mg/l	0.02
Cyanide	mg/l	0.2
Aldehyde	mg/l	1
Aromatic solvents	mg/l	0.2
Nitrogen-based solvents	mg/l	0.1

Table 7.3: Discharge standards for liquid effluents (*continued*)

Determinants	Units	Standard
Undesirable elements (<i>continued</i>)		
Chloride-based solvents	mg/l	1
Organo-chloride pesticides	mg/l	0.05
Organo-phosphate pesticides	mg/l	0.1
Pyrethrinoids	mg/l	0.1
Phenylpyrazoles	mg/l	0.05
Total pesticides	mg/l	1
Antibiotics	mg/l	0.1
Polychlorobiphenyls (PCBs)	mg/l	0.005
Radioactivity	Bq	20
Microbiological		
Total coliforms	Number	500
<i>Escherichia coli</i>	Number	100
Faecal <i>streptococci</i>	Number	100
<i>Clostridium</i>		100

NTU: nephelometric turbidity units

Table 7.4: Sewage sludge standards

Element	Maximum concentration (mg/kg dry matter)	Maximum per kg/ha 10 years
Cadmium	40	1.5
Chromium	2 000	45
Copper	2 000	120
Mercury	20	1
Nickel	400	30
Selenium	200	1
Zinc	8 000	300
Cr+Cu+Ni+Zn	8 000	120

Table 7.5: Soil limits for sewage sludge disposal

Element	No sewage sludge to be disposed of on soils where metal concentrations exceed the following (mg/kg of dry material)
Cadmium	3
Chromium	200
Copper	140
Mercury	1.5
Nickel	75
Lead	300
Selenium	10
Zinc	300

In the event that there are no national standards available, such as for noise or air quality, the proponent must comply with internationally recognised standards developed by international organisations affiliated to the United Nations. Where there are several standards available for use, the proponent must provide justification for his/her choice in the EIA.¹¹

7.3.9 Certification of EIA consultants

There is no certification system for environmental assessment practitioners in Madagascar. The guidelines merely encourage the proponent to use recognised scientific experts in conducting the EIA,¹² and the names, professions and functions of each EIA team member must be provided in an annex to the EIA report.

7.4 EIA procedural framework in Madagascar

An EIA is defined in Article 2 of MECIE as 'a study that consists of scientific analysis and prediction of potential impacts of an activity on the environment, and the examination of the acceptability of their significance, as well as the mitigation measures proposed to ensure environmental integrity, within the limits of best available technology at an acceptable cost'.

The aims of the EIA are identified as follows:

- Ensure the optimal integration of environmental considerations and the best utilisation of resources and land.
- Consider environmental issues at all phases of the project life cycle, from conception through implementation and operations to closure.

¹¹ Para 1.2.4 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar (Directive Générale pour la Réalisation d'une Étude d'Impact Environnemental à Madagascar).

¹² Para 1.4 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

- Predict and determine the positive and negative ecological and social consequences of a project.
- Identify measures to mitigate or compensate for the negative impacts.
- Identify alternatives or variations to the project, which may be less damaging to the environment and which satisfy the project objectives as well as the interests of all parties concerned.
- Take into account the opinions, reactions and interests of all parties concerned, in particular individuals and communities within the project area.¹³

7.4.1 Screening

At the outset, a project developer must determine whether the project requires an EIA, a PREE or a Compliance Certificate (see Figure 7.2).

Environmental impact assessment

The public or private investment projects that require an EIA are set out in Article 4 and Annex I of MECIE (shown in Appendix 7-1 of this chapter). An EIA is mandatory for:

- All developments, construction and works that could affect sensitive environments as defined in Order No. 4355/97:
A sensitive area may include coral reefs, mangroves, islets, tropical forests, zones subject to erosion, arid and semi-arid areas susceptible to desertification, conservation areas, swamps, wetlands, reference sites for protected species, areas of archaeological or historical interest, and zones around important water sources;
- The types of developments listed in Annex I (Appendix 7-1); and
- Any other activity, which by its nature, size and scale could cause a negative impact on the environment and which is not listed in Annex I.

Programme of Environmental Engagement

A developer of a private or public investment project that is listed in Annex II of MECIE must submit a brief project description to ONE, which will then screen the project and determine whether a PREE is acceptable.¹⁴

Compliance Certificate

This applies to enterprises that were in existence on the date of Decree No. 2004-167 and that are listed in Article 4 of the Decree (i.e. those projects that require an EIA).

¹³ Para 1.1 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

¹⁴ Article 5 and Annex 2 of MECIE 2004.

7.4.2 Environmental impact assessment

The General Directive for the Implementation of an Environmental Impact Study in Madagascar (Directive Générale pour la Réalisation d'une Étude d'Impact Environnemental à Madagascar) sets out in detail the form and content of an EIA. The EIA must be undertaken according to the following steps:

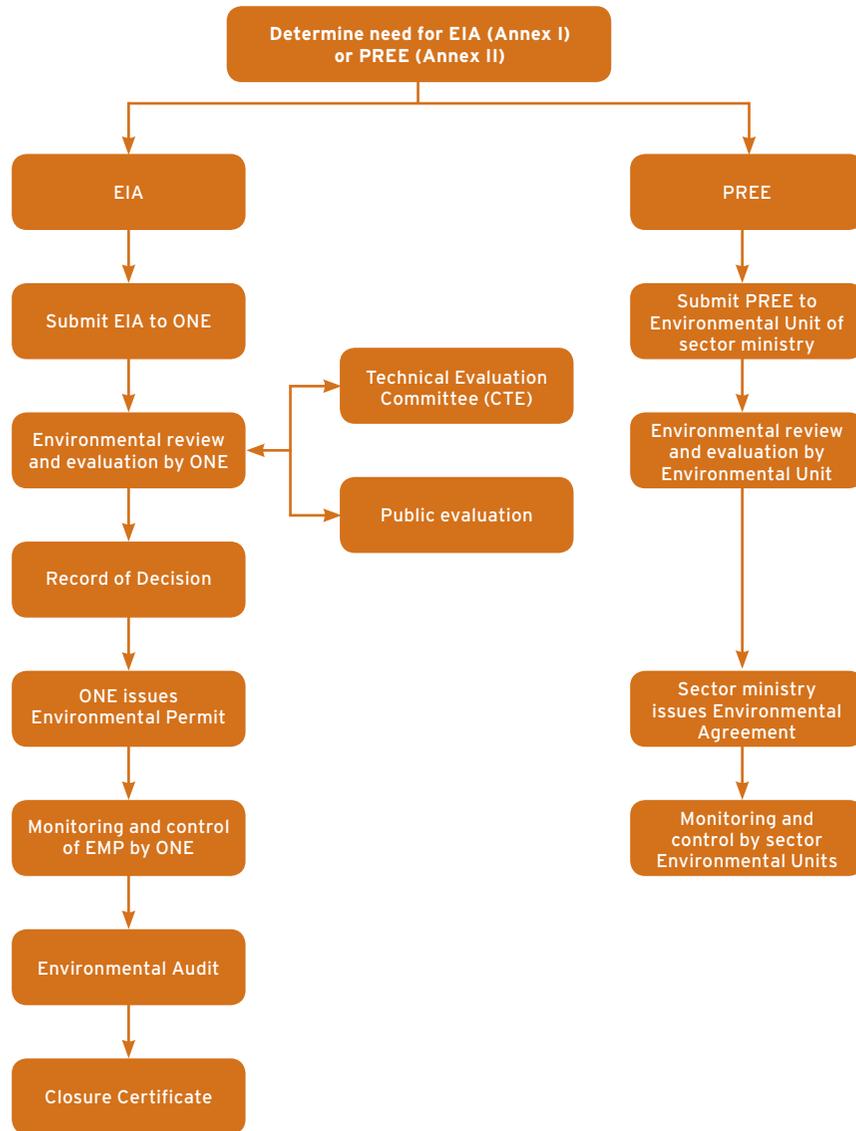
Context of the project: This chapter should include details and experience of the proponent; the proponent's environmental and sustainable development policies, if available; the name of the company undertaking the EIA; an overview of the project and its location; and a detailed motivation and justification for the project, including the major opportunities and constraints.¹⁵

Technical description of the project: The aim of this section is to present a detailed description of each project phase and the activities associated with each phase. The description should include: the proposed use of natural resources, methods of exploitation and treatment, production rates, and pollution and emissions expected, taking into account the environmental standards being applied. The chapter should identify all impacts associated with each project activity. The proponent is referred to the sectoral guidelines listed in section 7.3.4 of this Handbook and the responsible line ministry.¹⁶

¹⁵ Para 2.1 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

¹⁶ For a complete list, see paragraph 2.2 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

Figure 7.2: EIA process in Madagascar



Description of the receiving environment: The aim of this section is to describe the baseline receiving environment in the zone of influence of the project. The environment is seen to include physical, biological, social, economic and cultural elements. This chapter of the EIA should include a detailed delimitation of the actual project site; the position of all ancillary and associated structures, such as access roads and pipelines; as well as the surrounding areas that may be affected by the project, such as air pollution deposition zones and socio-economic structures. It must also provide a detailed description of the most important environmental components. Data can be obtained either through literature surveys or, where basic data is lacking, through site surveys carried out by a multidisciplinary team of experts using proven scientific methods.

The baseline environmental description should include information on: geology, topography, soils, hydrology, terrestrial and aquatic ecosystems, vegetation, fauna, social structures and demographics, economic systems and activities, and the cultural environment. The study must also be placed into the context of spatial planning initiatives, policies and other schemes and developments.¹⁷

Alternatives analysis: The objective of this step is to demonstrate that the project as proposed is the best option of all possible alternatives from a technical, economic and environmental perspective. To this end, the EIA should include a detailed assessment of all site, route and design alternatives and provide a justification for the preferred options based on an objective assessment of each.¹⁸

Analysis of impacts: This chapter must include three sections:

- Identification of potential impacts on the receiving environment for each activity in each project stage;
- Evaluation of the impacts, including an analysis of the intensity or magnitude, scale, duration, frequency and probability of each impact, confidence levels in each prediction, the value of compensation for affected populations, health and safety risks, and exposure pathways; and
- Identification of mitigation measures to prevent, suppress or reduce negative impacts or to maximise the benefits of the project on the environment. The mitigation measures must be identified for each impact in each project phase and must include the required actions to achieve the desired results. If it is not possible to reduce the negative impacts sufficiently, then it will be necessary to identify suitable compensation measures, such as resettlement packages. The proponent is required to identify the costs associated with the proposed mitigation measures.

¹⁷ Detailed lists of factors to consider in the environmental description are included in Annex 2 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

¹⁸ Para 2.4 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

The study must present the methodology used to determine the impacts, including clearly defined criteria for ascertaining significance and importance.¹⁹

Risk assessment: The EIA must include a risk assessment, especially for heavy industrial and infrastructure projects where there is a risk of accidents that could pose a danger to environmental quality and human health. In these instances, the EIA report must identify the risks and present a detailed emergency plan to deal with each risk.²⁰

Project synthesis: This chapter must present a synthesis of the project after all mitigation and compensation measures have been applied, detailing the residual impacts.²¹

Environmental management plan: The EMP provides an environmental monitoring and follow-up programme, which must be implemented during each phase of the project life cycle. This section of the EIA forms the basis of the Record of Decision. The EMP must contain at least the following components:

- A list of all legislative requirements that have been taken into account in the project;
- A description of the envisaged performance and design criteria for all equipment and installations;
- A description of the measures and methods proposed to protect the environment;
- An evaluation of dangers and the proposed methods of prevention and protection to safeguard the environment;
- The interventions undertaken by the proponent to apply the mitigation measures to the negative impacts of the project;
- A programme for the implementation of all mitigation measures; and
- The mechanisms and frequency of sending monitoring reports to the competent authorities (the MEEFT, ONE and other sector ministries).

It is expected that the monitoring programme will be revised periodically based on the effectiveness of the mitigation measures after implementation of the project.

The follow-up programme aims to validate the impact predictions made in the EIA and to assess environmental performance of the project and the effectiveness of the mitigation measures.²²

¹⁹ Para 2.5 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

²⁰ Para 2.6 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

²¹ Para 2.7 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

²² Para 2.8 of the General Directive for the Implementation of an Environmental Impact Study in Madagascar.

The EIA report should contain the following:

- Executive summary
- Table of contents
- Lists of tables, figures and diagrams
- Introduction
- Context and justification for the project
- Description of the receiving environment
- Description of the project
- Analysis of the project alternatives
- Risk assessment
- Project synthesis
- EMP
- Conclusions
- References
- Annexes containing: a list of the EIA study team, including name, profession and position on the team; maps; notices of public meetings and details of the public consultation programme; methods and results of all surveys and sampling programmes; and any other information that will assist informed decision-making on the project.

In addition, the EIA documents must include the title deeds or other proof of ownership or tenure of the site for the proposed project, as well as a non-technical summary in Malagasy and French. The main document must also be written in Malagasy or French.

The environmental dossier (all the documents described above) must be submitted to ONE, together with:

- A written request by the proponent addressed to ONE to carry out an environmental review;
- A short note about the project;
- Seven copies of the EIA report;
- Seven copies of the non-technical summary in French and Malagasy;
- Receipt of payment of the review fees;
- Certified statement of the capital costs of the project;
- One copy of the documentation on CD-ROM, in a form compatible with Microsoft Word 6.0.

7.4.3 Programme of Environmental Engagement

All investment projects listed in Annex II of the Decree MECIE, 2004 (see also Appendix 7-2) must submit a PREE (see Figure 7.2). According to Article 5 of MECIE, 2004, the PREE must conform to the contents, format and substance to be defined in forthcoming regulations. The environmental unit in the sector

ministry concerned will evaluate the PREE and send its report and opinion to the Minister in charge of Environment and ONE. Approval of the PREE is a mandatory requirement before construction.

7.4.4 Review of EIA report

Once ONE has received the environmental dossier, the evaluation and review process commences (see Figure 7.2). The tasks include:

- Analysing of the acceptability and completeness of the documents;
- Assembling the ad hoc CTE;
- Doing a desktop review of the documents;
- Visiting the site for familiarisation and observation of the environment and cross-checking aspects contained in the EIA;
- Initiating the public participation process (see section 7.4.5);
- Requesting the proponent to provide additional information;
- Obtaining technical advice and opinions from the sector ministries responsible for the project;
- Issuing the Record of Decision; and
- Granting the Environmental Permit.

7.4.5 Public participation process

The basis for public participation in environmental decision-making is found in Article 4 of the Environmental Charter, which states that 'the protection and respect for the environment is of general interest. It is the obligation of each person to safeguard the environment in which he lives. To this effect, all interested and affected parties ... have a right to be informed of decisions that could have an influence on the environment.'

The involvement of the public in the EIA review process is carried out either by a review of the documents by interested and affected parties, through a public enquiry or survey, or through a public hearing. The results of the public evaluation are an integral part of the EIA. Based on the methods specified in Order No. 6830/2001, ONE takes the decision on the method of public involvement. The proponent is notified at least seven days before the start of the public evaluation.²³ The public participation process is organised by CTE or ONE.

The *document review* process includes the local authority in the area of the proposed project canvassing public opinion. The methodology is set out in Order No. 6830/2001. The consultation process must extend for a period of no less than *ten days* and no more than *30 days*.²⁴

²³ Article 15 of Decree MECIE, 2004.

²⁴ Articles 16 and 17 of Decree MECIE, 2004.

The *public enquiry or survey* comprises the canvassing of public opinion by an environmental interviewer, carried out in collaboration with the relevant local authorities. The methods of engagement are set out in Order No. 6830/2001. The public enquiry must extend for a period of no less than *15 days* and no more than *45 days*.²⁵ It can occur simultaneously with the document review process described above.

The *public hearing* process is described in Articles 20 and 21 of the Decree MECIE, 2004, and Order No. 6830/2001. The public hearing comprises the simultaneous consultation with interested parties and can occur in addition to the two forms of consultation described above. The public hearing process must extend for a period of no less than *25 days* and no more than *60 days*.

7.4.6 Appeals

Anyone aggrieved by a decision made by ONE may request the Minister of Environment to re-examine the dossier of documents. The Minister may appoint one or more experts to assist him/her in the review, which must be undertaken and a report submitted to ONE within *30 days*. On receipt of the Minister's report, ONE has *ten days* to reconsider its Record of Decision and to announce whether it will issue the Environmental Permit. If not, the Minister could issue the permit.²⁶

7.4.7 Environmental monitoring and control

Chapter III of Decree MECIE, 2004, sets out the requirements for environmental monitoring and control. The aim of environmental monitoring is to verify the effectiveness of the mitigation measures in preventing or minimising negative impacts on the environment. This ensures that the proponent of the project will respect all the obligations of the EMP throughout the life of the project. Any evidence of non-compliance can lead to the imposition of penalties by the authorities.

The proponent may be required to take additional measures or apply new standards, should the current measures be deemed ineffective. The competent authority that granted the Environmental Permit will make this decision.

Before project closure, the proponent is required to carry out an environmental audit according to the methodologies set out in the applicable technical directives. The audit must be submitted to ONE for evaluation and the granting of an Environmental Closure Certificate, which would then relieve the proponent of any further responsibility for the environment.

²⁵ Articles 18 and 19 of Decree MECIE, 2004.

²⁶ Article 28 of Decree MECIE, 2004.

7.5 Other relevant environmental legislation in Madagascar

Environmental issues cut across a variety of sectors, and numerous pieces of legislation in Madagascar have a bearing on the environment and should be considered in EIA decision-making. The sectors, titles of the legislative instruments, the responsible agency and the purpose of the legislation are summarised in Table 7.3.

Table 7.6: Other potentially applicable sectoral requirements

Information required	Responsible agency	Title and date of document	Comments
Water resources (use of)	Ministry of Water	Law No. 98-029 of 20/01/99: Water Code	
Effluent disposal	Ministry of Water	Articles 16-18 and 20-22 of Law No. 98-029	The Articles pertain to wastewater and effluent disposal.
		Law No. 99-021 of 19 August 1999	The Law relates to the management policy and control of industrial pollution.
Planning and zoning	Local authorities	1) Alignment authorisation (Autorisation d'alignement)	A request for a building alignment approval is to be made to the local authority. A fee will be levied, which has to be paid at the time of the request. Approval takes about a month.
		2) Building permission	Applications must be made to the local authority; it takes about three months.
Natural resources	Local courts (DINAs)	Law No. 96-025 of 30 September 1996, as amended by Law No. 2000-027 of 13 January 2000	The Law relates to the local management of renewable natural resources by all rural communities.
Fisheries and aquaculture	Ministry of Agriculture, Stock Farming and Fisheries	Ordinance No. 93-022 of 4 May 1993	The Ordinance contains regulations on fishing and aquaculture practices.
Forestry	MEEFT	Law No. 97-017	The Law relates to the revision of forestry legislation.
		Law No. 97-1200	The Law relates to the adoption of Forestry Policy.
		Order No. 18177/04 of 27 September 2004	The Order sets out definitions and delimitation of sensitive forest areas.

Information required	Responsible agency	Title and date of document	Comments
Conservation	MEEFT	Law No. 2001/05 Management of Protected Areas	The Law sets out the classes of protection, the basis for protection, and the procedures that need to be followed to proclaim a protected area.
		Order No. 4355/97 of 13 May 1997	The Order sets out definitions and delimitation of sensitive environments.
		Decree No. 2006-541	The Decree relates to the ratification of the Bonn Convention on the conservation of migratory species.
Tourism	MEEFT	Law No. 95-017 of 25 August 1995	The Law contains the Tourism Code.
		Decree No. 96-1293 of 30 December 1996	The Law relates to the creation and management of areas of tourist interest.
Agricultural and land	Ministry of Agriculture, Stock Farming and Fisheries	Law No. 2003-029 of 27 August 2003 and Decree No. 2003-897 of 27 August 2003	The Law permits foreigners to purchase land in Madagascar (the alternative is to enter into a long-term lease).
Roads	Ministry of Roads	Law No. 98-026 of 20 January 1999	The Law overhauls the Roads Charter.
Mining	Ministry of Energy and Mines	Law No. 99-022 of 19 August 1999	Mining Code
		Decree No. 99-954 N2004-167	The Decree requires mining investment projects to be subject to an EIA, requires public participation as part of the process, and defines the requirements for an Environmental Licence.
		Decree No. 2000-170 of 18 November 2000	The Decree sets the conditions of application of the Mining Code.
		Interministerial Order No. 12032/2000 of 6 November 2000	The Order sets out the regulation of the mining sector and matters relating to environmental protection.

Table 7.6: Other potentially applicable sectoral requirements (*continued*)

Information required	Responsible agency	Title and date of document	Comments
Mining continued		Decree No. 2003-784	The Decree requires mining permit holders to contribute to the costs of environmental impact studies for all large-scale mining projects (maximum of MGA682 million).
Energy	Ministry of Energy and Mines	Decree No. 2003-942	The Decree regulates the use of water for the production of hydroelectricity.

Appendix 7-1

List of projects that must undertake an EIA

- All developments, construction and works that could affect sensitive environments.
- All plans, programmes and policies that could modify the natural environment and use of natural resources and/or affect the quality of the human environment, whether urban or rural.
- The use or transfer of technologies that have the potential to cause damage to the environment.
- Storage of any liquid of more than 50 000 m³.
- All methods of commercial transport by road, rail or plane of dangerous goods (corrosive, toxic, contagious or radioactive).
- Any displacement of more than 500 people.
- All developments, construction and works, which by their nature and size and the sensitivity of the receiving environment could result in environmental damage. These include:

Infrastructure and development

- All projects relating to the construction and maintenance of roads;
- All projects relating to the construction and maintenance of railways;
- All railway rehabilitation projects of more than 20 km in length;
- All projects relating to the construction, maintenance and rehabilitation of international, regional or national airports and/or with a runway length of more than 1500 m;
- All projects relating to the management, rehabilitation and maintenance (specifically dredging) of principal and secondary ports;
- All projects relating to the new construction of marine and freshwater ports;
- All projects involving the excavation or construction of embankments using more than 20 000 m³;
- All construction projects in development zones;
- All nuclear energy projects;
- All hydroelectric installations with a capacity of more than 150 MW;
- All thermal energy projects with a capacity of more than 50 MW;
- All power line construction projects of 138 kV or greater;
- All hydroelectric dams with a dam surface of more than 500 ha; and
- All projects for the establishment of navigable waterways, including dredging, of longer than 5 km.

Agriculture and stock farming

- All projects relating to the establishment or rehabilitation of irrigation agriculture or dry land agriculture of more than 1000 ha;
- Intensive stock-farming projects;
- Abstraction of surface or groundwater at a rate of more than 30 m³/h; and
- Application of chemical products, which by their scale of application could affect the environment and human health.

Renewable natural resources

- Introduction of new species of animals, plants or genetically modified organisms;
- Forestry operations greater than 500 ha;
- Collection and/or hunting and sale of species;
- Creation of terrestrial or marine parks and reserves at a national or regional scale;
- Introduction of native species of Madagascar into an area where they are not previously known; and
- All commercial sport hunting and fishing operations.

Tourism and hotel industry

- Establishment of hotels with a capacity of more than 120 bedrooms;
- Establishment of recreation and tourism developments with a combined surface area of more than 20 ha; and
- All restaurants with a seating capacity of more than 250 persons.

Industrial sector

- All industrial developments that require authorisation in terms of the regulations and requirements of Law No. 99-021 pertaining to the management policy for the control of industrial pollution;
- All industrial units that transform natural products e.g. tanneries and breweries; and
- Factories for the manufacture of animal feeds, with a capacity of more than 150 t/year.

Management of diverse products and waste

- All pesticide containers with a capacity of more than 10 tonnes;
- All domestic and industrial waste disposal sites, including those for hazardous materials;
- All units for the treatment and disposal of hospital wastes exceeding 50 kg/day;
- All containers for storage of radioactive products or wastes;
- Storage of dangerous or hazardous products; and
- Water treatment plants for domestic supplies.

Mining sector

- All exploitation or extraction of minerals by mechanical means;
- Mining of radioactive substances; and
- Physical and chemical processing plants at mine sites.

Hydrocarbons and fossil fuels

- All projects relating to the exploration for petroleum or natural gas using seismic and/or drilling methods;
- All projects relating to the extraction and/or transportation by pipeline of petroleum or natural gas;
- All projects relating to the extraction and industrial use of coal and coke;
- Petroleum and natural gas refineries with a capacity of more than 20 000 barrel-equivalents per day;
- All offshore structures;
- Extraction of bitumen at a rate of more than 500 m³/day; and
- All storage of petroleum products and derivatives, or natural gas, with a combined capacity of more than 25 000 m³ or 25 million litres.

Appendix 7-2

List of projects that must undertake a PREE

- Infrastructure and development
- All projects relating to the maintenance of tarred roads longer than 20 km;
- All projects relating to the maintenance of untarred roads longer than 30 km;
- All hydroelectric installations with a capacity of between 50 and 150 MW;
- All thermal energy projects with a capacity of between 25 and 50 MW;
- Sports fields with accommodation for more than 5000 spectators or events more than 3 hours in length; and
- All hydroelectric dams with a dam surface of between 200 and 500 ha;

Agriculture and stock farming

- All projects relating to the establishment or rehabilitation of irrigation agriculture or dry land agriculture of between 200 and 1000 ha; and
- Semi-industrial and small-scale stock-farming projects;

Renewable natural resources

- Forestry operations greater than 150 ha;
- Capture and sale of species for export;
- Creation of terrestrial or marine parks and reserves at a community and private scale;
- Reintroduction of native species of Madagascar into an area where they were previously known;
- Permanent utilisation or diversion of watercourses accounting for more than 50% of their mean annual flow;
- All permits for the collection and sale of species for export; and
- Augmentation of fishing stocks in the marine zone (a study of existing fish stocks would be required).

Tourism and hotel industry

- Establishment of hotels with a capacity of between 50 and 120 bedrooms;
- Establishment of recreation and tourism developments with a combined surface area of between 2 and 20 ha; and
- All restaurants with a seating capacity of between 60 and 250 persons.

Industrial sector

- All industrial developments that require authorisation in terms of the regulations and requirements of Law No. 99-021 pertaining to the management policy for the control of industrial pollution; and
- All small-scale units that transform or process natural products.

Management of diverse products and waste

- Storage of pharmaceutical products of more than 3 tonnes.

Mining sector

- All mineral prospecting projects;
- All exploitation or extraction of minerals by artisans;
- Mining of rare minerals;
- All artisanal gold panning operations mobilising more than 20 people in a radius of more than 500 m;
- Stockpiles with a combined capacity of more than 4000 m³;
- Underground storage of more than 100 m³; and
- Quarries for stone using mechanical methods.

Acronyms

ECTE	Comité Technique d'Evaluation (Technical Evaluation Committee)
EIA	environmental impact assessment
EMP	environmental management plan
MECIE	Mise en Compatibilité des Investissements avec l'Environnement (Ensuring the Environmental Suitability of Investments)
MEEFT	Ministère de l'Environnement, de l'Eau, Forêts et Tourisme (Ministry of Environment, Water, Forests and Tourism)
NEAP	National Environmental Action Plan
ONE	Office National de l'Environnement (National Office for the Environment)
PCB	polychlorobiphenyls
PREE	Programme d'Engagement Environnemental (Programme of Environmental Engagement)

Useful contacts

Department	Ministry	Telephone	Fax	Website
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